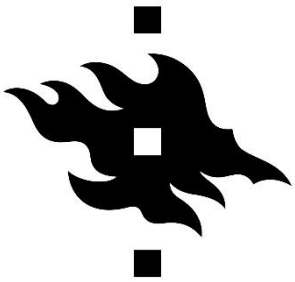

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SUSTAINABILITY FRAMINGS IN FINNISH FOREST POLICIES

Master's thesis

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Tiivistelmä – Referat – Abstract

Bioeconomy is expected to play a key role in achieving resource-efficient, sustainable societies globally. With its vast forest resources, Finland aims at being a global forerunner of forest-based bioeconomy, which is ought to result in increased welfare of Finnish citizens, while being ecologically sustainable. Given these expectations, it is important to understand the relationship between Finnish forestry and sustainability. The aim of this master's thesis is to provide an analysis on how the concept of sustainability is framed and translated in Finnish forest policies. Two research questions were drawn: 1. How is sustainability framed and understood in the Finnish forest policies? and 2. How the "Spirit of Rio" is transferred into the existing legislation? In this context, the Spirit of Rio, originating from the Rio Conference held in 1992, means the ambition to take care of environmental issues with a bottom-up approach with the participation of groups that are most affected by the decisions.

Discourse analysis was chosen as approach as it can reveal meanings within texts. The analysis followed Bäckstrand and Lövbrand (2006) and investigated specific elements of environmental discourses (ecological modernization, green governmentality and critical civic environmentalism) in the analysis of selected national forest policy documents. ATLAS.ti software was used in analyzing and processing the research data. A code book was developed in order to help in structuring the analysis and the material was coded in four different levels, starting from the broadest topics and proceeding to less visible details. The research results indicate, that although the language used in the policies refers widely to sustainability, the consideration of ecological aspects of sustainability is weak and rhetoric whereas economic values have a dominant role, and are defined and translated towards action and practices. The Spirit of Rio was addressed in the analyzed policies in the form of co-operation of stakeholders and a participative writing process. However, the importance noticeably decreased over time. The research findings demonstrate, that in the analyzed policies the "brand" of sustainability is to some extent used as a marketing tool and hence risks to legitimize an industry friendly agenda with bioeconomy acting as an opportunity to commercialize natural resources.

This thesis aims to provide relevant reflections to policymakers and the forest sector on whether and to which extent sustainability has been included in the Finnish forest policies. Understanding sustainability framings and dominant discourses in the past and present forest policy documents will help to inform ongoing and future forest policy revisions. Revealing the dominant discourse increases transparency and can start a process towards problem solving.

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forest-based bioeconomy, sustainability framings, forest policy, national forest programme, discourse analysis

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Tiivistelmä – Referat – Abstract

Biotalouden odotetaan näyttelevän pääroolia resurssitehokkaiden, kestävien yhteisöjen rakentamisessa maailmanlaajuisesti. Suurten metsävarojensa ansiosta Suomi tavoittelee paikkaa metsäbiotalouden edelläkävijänä, minkä on oletettu lisäävän kansalaisten hyvinvointia ekologisesti kestävällä tavalla. Nämä odotukset huomioon ottaen, on tärkeää ymmärtää suomalaisen metsäteollisuuden ja kestävän kehityksen välinen suhde. Tämän maisterin tutkielman tavoite on esittää analyysi siitä, kuinka kestävän kehityksen käsite on muotoiltu suomalaisissa metsäpoliittisissa dokumenteissa. Tutkielmassa on kaksi tutkimuskysymystä: 1. Miten kestävä kehitys on muotoiltu ja ymmärretty suomalaisessa metsäpolitiikassa? ja 2. Miten ”Rion henki” (”The Spirit of Rio”) on sisällytetty nykyiseen lainsäädäntöön? Tässä yhteydessä ”Rion henki”, termi, joka on saanut alkunsa Rion konferenssista vuonna 1992, tarkoittaa pyrkimystä huolehtia ympäristöongelmista alhaalta ylöspäin -menetelmällä ja niiden ryhmien avustuksella, joihin tehdyt päätökset eniten vaikuttavat.

Diskurssianalyysi valittiin tutkimusmenetelmäksi, koska sen avulla voidaan paljastaa merkityksiä teksteistä. Analyysi mukaili Bäckstrandin ja Lövbrandin (2006) kehittämää menetelmää ja tutki tiettyjen ympäristödiskurssien avaintekijöitä (ecological modernization, green governmentality ja civic environmentalism) valituissa kansallisissa metsäpoliittisissa linjauksissa. ATLAS.ti -ohjelmistoa käytettiin tutkimusdatan analysoinnissa ja käsittelyssä. ja koodikirja kehitettiin helpottamaan aineiston jäsentämistä. Tutkimusaineisto koodattiin neljässä tasossa, alkaen laajimmista aiheista edeten huomaamattomampiin yksityiskohtiin. Tutkimustulokset osoittavat, että vaikka dokumenteissa käytetty kieli viittaa laajasti kestävään kehitykseen, ympäristötekijät on huomioitu vain heikosti ja retorisesti, kun taas taloudelliset tekijät näyttelevät hallitsevaa ja konkreettisempaa roolia. Rion henki oli huomioitu analysoiduissa dokumenteissa sidosryhmäyhteistyön ja osallistavan kirjoitusprosessin muodossa. Tutkimustulokset kuitenkin osoittavat, että Rion hengen läsnäolo heikkeni ajan kuluessa. Tutkimustulokset havainnollistavat, että analysoiduissa dokumenteissa kestävän kehityksen ”brändiä” käytetään jossain määrin markkinoinnin välineenä. Tämän takia on olemassa riski, että teollisuusystävällinen agenda oikeutetaan biotalouden varjolla ja että biotalous nähdään luonnonvarojen kaupallistamisen mahdollisuutena.

Tämän tutkielman tavoite on tarjota päättäjille ja metsäsektorille ajankohtaista aineistoa siitä, miten ja kuinka laajasti kestävä kehitys on sisällytetty suomalaisessa metsäpolitiikassa. Lisäksi, kestävän kehityksen raamien ja hallitsevien diskurssien ymmärtäminen menneissä ja nykyisissä metsäpoliittisissa dokumenteissa tarjoaa tietoa tulevia strategian tarkistuksia varten. Hallitsevan diskurssin paljastaminen lisää läpinäkyvyyttä ja voi aloittaa prosessin kohti ongelmien ratkaisua.

Avainsanat – Nyckelord – Keywords
metsäbiotalous, kestävä kehitys, mestäpolitiikka, kansallinen metsäohjelma, diskurssianalyysi

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Contents

1 INTRODUCTION

With a long history of forestry, vast natural resources and high level of expertise, Finland aims at being the global forerunner of bioeconomy (Finnish Bioeconomy Strategy 2014; Kröger & Raitio 2017). The advocates of forest-based bioeconomy have suggested that bioeconomy will enhance the wellbeing of Finns by boosting national economy and employment (Kleinschmit et al. 2014). Moreover, the bioeconomy is supposed to play a key role in achieving resource-efficient and sustainable society (Finnish Bioeconomy Strategy 2014). It is expected that forestry plays an important role in the transition to bioeconomy (EU Commission 2012a), hence a term "forest-based bioeconomy" is used. According to Natural Resources Institute Finland (2018), forest sector created 38 percent of the total output of Finland's bioeconomy in 2017. Forest-based bioeconomy consists of a range of entities: wood-based products, recreation and tourism, game, ecosystem services and carbon sequestration (Finnish Ministry of Agriculture and Forestry 2019). In light of these expectations for a forest-based bioeconomy to support Finnish sustainability targets, it is important to understand the relationship between Finnish forestry and sustainability, its history and evolution over time.

This thesis systematically reviews Finnish forest policy documents and scrutinizes how the concept of sustainability is addressed in the context of forest related issues. The aim of this master's thesis is to provide an analysis on how the concept of sustainability is framed and translated in Finnish forest policies by analyzing several forest policy documents. The first step of this research was to identify a set of the key Finnish forest policy documents dated after the Rio Conference in 1992 that started a major movement towards more sustainable policy making globally (United Nations 1997). After identifying the documents, a discourse analysis was conducted to identify the dominant sustainability frames in Finnish forest policies. The study now proceeds by elaborating the background of the problem in focus, followed by theoretical considerations and methods section. Finally, the results are presented and discussed and conclusions are drawn for scholars and practitioners for further elaboration.

1.1 Background of the study

1.1.1 Sustainability and the concept of bioeconomy

Bioeconomy is increasingly highlighted as a key concept in different national policies. The aim of bioeconomy is to develop a society that relies on renewable resources instead of fossil fuels, while reaching economic growth (Kleinschmit et al. 2014). European Commission (EC) defines bioeconomy as "the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy" (European Commission 2012, 3). According to Organisation for Economic Cooperation and Development (OECD): "a bioeconomy can be thought of as a world where biotechnology contributes to a significant share of economic output." (OECD 2009, 8). According to European Commission (European Commission, 2012 in McCormick & Kautto 2013), the transition to bioeconomy has various potential benefits. These proposed benefits are such as, reduction of greenhouse gas (GHG) emissions, better management of natural resources, improved food security and decrease in dependence on fossil fuels (McCormick & Kautto 2013). The bioeconomy can potentially generate employment in urban areas, but also in rural settings through creation of new markets for agriculture, such as bioenergy production (McCormick & Kautto 2013). In bioeconomy, societal and economic challenges are addressed while enhancing the state of environment. According to Pfau et al. (2014), in policy documents, bioeconomy is often associated with increased sustainability (Pfau et al. 2014). According to Edwards and Kleinschmit (2014), sustainable development is stated by most governments pursuing a bioeconomy strategy as the overarching goal.

However, some previous studies show that bioeconomy is not self-evidently sustainable (Kleinschmit et.al. 2017). While the potential of bioeconomy is argued to be significant, the challenge is to meet increased use of biomass with sustainability goals (McCormick & Kautto 2013). Furthermore, McCormick and Kautto (2013) state, that transition to bioeconomy poses substantial risks and trade-offs due to increase in biomass utilisation.

Various EU Member States, including Finland, Sweden, France and Germany, have published bioeconomy strategies and act on development towards bioeconomy at local scales (McCormick & Kautto 2013). According to McCormick & Kautto (2013), transformation to bioeconomy requires concrete efforts by governments and industries. Government policies have the power of shaping bioeconomy by fostering or hindering development. The progress towards bioeconomy is expected to require changes in industrial processes, technology and market development. Changes in current policies are needed to secure the long-term opportunities that bioeconomy poses, instead of focusing on short-term economic gains (McCormick & Kautto 2013). Sustainability concerns should play a leading role in such economic and societal changes to achieve a meaningful transformation and to avoid possible environmental harm. With all the expectations that the concept of bioeconomy has raised, it will be important to understand how sustainability has been expressed in past policy documents. This would allow to understand possible opportunities and risks with regard to the framings under forest-based bioeconomy.

1.1.2 The Rio Conference: A hot spot for sustainability

United Nations Conference on Environment and Development (UNCED), also known as the Rio Conference 1992, was held in Rio de Janeiro, Brazil, in 1992. The aim of the conference was to help governments find solutions on how to stop biodiversity loss and the misuse of natural resources and to halt pollution (United Nations 1997). The conference was a part of the range of high profile conferences in the 1990's, that strived to raise global attention towards committing and acting on most urgent problems that the world is facing, such as climate change, the rights of marginalized groups, food security, and the prevention of crime. The principal theme of the Rio Conference was environment and sustainable development. The conference was held as a platform for the Member States to cooperate on the conflict related to sustainability. (United Nations 1997). The conference resulted into three non-legally binding agreements, adopted by 108 governments, which aimed at changing the business-as-usual approach to development: Agenda 21, The Rio Declaration on Environment and Development, and The Statement of Forest Principles. (United Nations 1997).

Furthermore, two legally binding conventions, The United Nations Framework Convention on Climate Change (UNFCCC) and The Convention on Biological Diversity (CBD) were introduced and opened for signature. These conventions aim at preventing global climate change and the degradation of biological diversity. Agenda 21 was an agreement adopted by participating nations of the Rio Conference. The goal of the agenda was to reverse the environmental degradation of the planet by suggesting ways in which governments and NGO's can promote sustainable development. According to the United Nations (1992, 3): "Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century". While the primary responsibility of implementation of the agenda relied on governments, public participation and active participation of NGO's and other groups was encouraged. (United Nations 1992).

With the help of all outputs of the Rio Conference, the issues of biodiversity were firmly anchored to the international policy agenda (Hrabanski 2017). In addition to governments, also private companies participated in the Rio Conference. This was the first time for private businesses to enter the environmental policy arena. The movement of private companies showing interest on climate change and biodiversity began to grow in early 1990's when voluntary standards and compensation mechanisms were introduced as market instruments for biodiversity preservation (Hrabanski 2017). Besides the private sector, also marginalized groups, such as indigenous people entered the climate negotiations. Since the Rio Conference, the importance of participation and stake-holding of marginalized groups gained attention in the global environmental policy arena. The basis of democratic efficiency was formed on an idea that groups that are affected by environmental problems, or legitimately have interest in, have the right to participate in finding solutions (Bäckstrand & Lövbrand 2006).

The Rio Conference has had far-reaching implications for setting a scene for global sustainability debates, as a follow-up, these debates have been picked up and translated in various national policies. The Rio Conference was the starting point that highlighted different aspects of sustainability (economic, social and environmental) and inspired a number of legislation and policies.

The impacts of the Rio Conference in Finnish forest policies are studied in this research in terms of the value emphasis and integration of the Spirit of Rio.

1.2 Aim of the study

The aim of this master's thesis is to provide an analysis on how sustainability is framed in Finnish forest policies by analysing different forest policy documents. This research seeks to provide relevant reflections to policymakers and stakeholders on whether and to which extent sustainability has been included in the Finnish forest policies. Understanding sustainability framings and dominant legislative discourses in the past and present forest policy documents will help to inform ongoing and future forest policy revisions. In addition, I examine whether or not there has been development in incorporating sustainability into the forest policy documents in Finland after the Rio Conference.

Finland promotes sustainable development in its national policies (Kröger & Raitio 2017), however, the success of sustainability integration in policies should be examined. Berg et al. (2019) evaluated Finland's sustainable development policy based on multidisciplinary methods. The results indicate, that Finnish sustainable development policy has broad and general objectives yet so far without proper action plans. Their analysis also flagged a number of vague perceptions on what sustainable development actually is, and central trade-offs are not comprehensively addressed. However, the authors argue, by international comparison Finland seems to be performing well on sustainable development indicators. Nevertheless, the main challenges in Finland involve current unsustainable consumption patterns and carbon footprint, the state of environment and overall climate change (Berg et al. 2019). The challenge is to create policies that have clear and detailed targets with effective measures to evaluate the direction of development. In the light of this, further scrutiny of whether (if at all) sustainability is included into Finnish forest policy documents could help to illuminate future paths to sustainability. To understand the existing sustainability considerations, it is essential to examine the way it is defined and interpreted in the policy documents.

1.3 Research Questions

This research aims to understand how sustainability is framed and understood in Finnish national forest policies. In addition, the research looks at the Spirit of Rio and how it is transferred into the existing legislation and whether the original aspects of sustainability still existing in the legislation. Drawing from this, the research questions are:

1. How is sustainability framed and understood in Finnish forest policies?

Are there attempts to integrate sustainability in the policy programmes? Which values are emphasized? What is the leading value? Is the integration a rhetoric or concrete actions? What is the most dominant meta discourse, if any (see chapter 3)?

2. How the Spirit of Rio is transferred into the existing legislation?

Are there attempts to include different groups in the decision making and is there cooperation between representatives from various fields and levels of expertise? Who is leading the direction, the government, scientists, citizens, forest owners, NGO's? Which groups are given a voice in the participation of the programmes? Are there signs of transformational change or is forestry conducted like business as usual?

After the Rio Conference, the subjects of biodiversity and sustainable development have occurred into the national forest programmes and the policy makers have worked towards including sustainability into the policies. However, it is important to examine whether including sustainability and the Spirit of Rio into the policies has succeeded.

In this thesis, *the Spirit of Rio means the ambition to take care of global environmental issues with a bottom-up approach with the participation of groups that are most affected by the decisions that are made.*

1.4 Previous studies

Previous research provides insights on sustainability framings in national forest policies in other European countries. For example, Kleinschmit et al. (2017) conducted a comparative discourse analysis on how environmental concerns have been integrated into the political discourses on forest-based bioeconomy in the EU member states, and how the environment was framed in those discourses. They have identified three prevailing environmental frames: "1. The dominant frame of 'Environment benefitting from economic growth', 2. the 'Environment as a challenge' and 3. the less visible 'Environment as a standard' frame" (Kleinschmit et al. 2017, 41). Overall, the research findings show that environmental concerns are integrated weakly in political bioeconomy discourses.

Kröger & Raitio (2017) analysed what are the dominant sustainability pathways in three different Finnish forest policy documents. They identify four different meta discourses in Finnish forest policy arena, namely neoliberal discourse, productivism discourse, bioeconomy-productivism discourse and "more of everything" discourse. They argue that "more of everything" discourse is the dominant discourse in Finnish forest policy arena and that the solution to future challenges is getting "more of everything" from forests. The study also found that there was a hierarchy of goals, some goals being more important than others (e.g. production over ecological concerns). By replacing fossil fuels with bio-based products, the "more of everything" approach would contribute positively to ecological sustainability. However, the goal of increasing the utilisation of forest resources conflicts with the public views that are increasingly aware of biodiversity conservation and the recreational benefits from forests.

Harrinkari et al. (2016) investigated underlying beliefs through an advocacy coalition lens, finding that there are three distinct stakeholder coalitions in Finnish forest sector, that interestingly also reflect the above mentioned divides in discourses. The identified stakeholder coalitions were: forestry, administrative, and environmental coalition.

According to the authors, these coalitions are divided into two opposing positions: forestry position (forestry and administrative coalition) and nature position (environmental coalition). The authors state, that the two polarized positions represent conflicting interests: economic interests and conservation interests. Increased environmental consciousness and the fact that forests have historically played a major role in the Finnish economy have led to a polarization of Finnish forest sector. Interestingly, the Ministry of Agriculture and Forestry represents the forestry position, while the Ministry of Environment is in the nature position dividing the government representation in forest policy into two opposing positions. It can be assumed, that the results of the study are reflected in the problem and solution framing of forest policy in Finland; the forest policies are mainly drafted by the Ministry of Agriculture and Forestry, and hence emphasize the values of forestry coalition.

While Harrinkari et al. (2016) investigated Finnish forest governance, Bäckstrand & Lövbrand (2006) investigated the discourses around the role of tree planting within global climate governance. According to their findings, UNFCCC (The United Nations Framework Convention on Climate Change), an international environmental treaty that was adopted in the Rio Conference, helped in the development of international carbon market. The results of their research indicate that the international carbon market reflects the dominance of ecological modernization discourse. Meta discourses of environmental governance are discussed in detail in chapter 3. The previous studies discussed above show, that economic values are often highly represented in forest policies through discourses and that economic interests can dominate over ecological concerns.

1.5 The role of discourse in forest policy making

This study is interested in attitudes and discourses; hence a constructivist policy analysis is an appropriate theoretical starting point. Discourse analysis is used to enable uncovering attitudes towards the research subject. Hajer and Versteeg (2005) state, that discourse analysis is suitable for analyzing policy texts as it can answer “how” questions.

Discourse analysis examines “truth” critically and puts more emphasis on the language through which meanings and knowledge are exchanged (Hajer & Versteeg 2005). Moreover, discourse analysis is a helpful tool to identify institutional or political change (Vijge et al. 2016). According to Leipold (2013, 12), “The aim of discourse analysis is to understand the formation of rules and resources that underlie the collective construction of truth and reality in a specific issue area (e.g. forest governance)”. Hajer (1995) defines discourse analysis as a “specific ensembles of ideas, concepts and categorization that are produced, reproduced and transformed in a particular set of practices”. Bäckstrand & Lövbrand (2006) state, that policies are a product of discourses, and due to this, not neutral. Hence, policy discourses tend to favor certain actors while marginalizing others. According to Hajer (1995), whether an environmental problem is recognized and institutionalized, depends on how the problem is framed and defined. According to Phillips et al. (2004, 638): “Discourses make certain ways of thinking and acting possible, and others impossible or costly”. Along with scholars such as Vijge et al. (2016), Hajer (1995) and Bäckstrand & Lövbrand (2006), also Humphreys (2009) sees that discourses have the power to encourage or discourage different types of actions. Hence, discourse is an expression of power.

Acceptance as normal and as common sense makes a discourse successful. Therefore, different actors aim at justifying their actions through discourses (Humphreys 2009). As stated by Humphreys (2009, 320): “Actors will seek to gain common acceptance of their ideas and values in discourse in order to enhance their own political position or social influence”. Hence, the power of an actor depends on some part in their ability to shape a discourse that is legitimate to the other actors. Arts et al. (2010) argue that discourses are an essential part of global forest politics. Furthermore, they claim that dominant discourses can resonate in actors’ policy preferences and increase legitimacy if the actors succeed to reframe the discourse (Arts et.al. 2010). Similarly, according to Medina et al. (2009), actors can develop strategies on how to employ a certain discourse to reach a certain outcome. According to Leipold (2013) the term discourse has gained growing attention in international forest policy science during the last decade. She calls the discourse analytical approaches and methods a “new trend in international forest policy science” (Leipold 2013, 12).

Since the early 1980's, discourses that concern biodiversity, sustainable development and governance have emerged in the global forest policy arena (Arts & Buizer 2009). Especially after the publication of the Brundtland report in 1987 (see ch. 2.2), the discourse of sustainable development has attracted popularity globally (Arts & Buizer 2009).

In forest policy making, an influential discourse has the power of shaping common understandings on the subject (Humphreys 2009). Indeed, policy decisions determine the values of interest. Humphreys (2009) uses the Neoliberal discourse as an example; it leads forest policies towards the use of market mechanisms (e.g. giving forests an economic value to reduce the risk of deforestation and forest degradation) and emphasizes the role of private sector while it discourages regulation with environmental standards and legally binding, quantitative targets (Humphreys 2009, 321). According to Arts & Buizer (2009), framing of a problem validates certain strategies and actions that are taken to tackle the problem. However, when the problem is framed differently, different options of action emerge. Hence, a problem can be reframed to legitimize an action. Yet the frames are usually underlying and not directly visible, but they need to be uncovered (Arts & Buizer 2009).

Several researchers have used discourse analysis in analyzing environmental policies and projects. Vijge et al. (2016) analyzed how Reducing Emissions from Deforestation and forest Degradation (REDD+) is framed and with what consequences in national policy arena in Cameroon, Indonesia, Nepal, Papua New Guinea, Peru, Tanzania, and Vietnam. In addition, Vijge et al. (2017) examined the adaptation of discourses in REDD+ in different national settings. The research findings show that ecological modernization is a dominant discourse pathway in national REDD+ policy arena. Discourse analysis is useful in unearthing what guides policy making in different context, from REDD+ (Vijge et al. 2017) to domestic and EU level forest bioeconomy and governance (Kröger and Raitio 2017; Kleinschmit et al. 2017).

Discourses can affect people's understandings and thoughts and can be used by actors in justification of their actions: the framing of a problem defines what actions are acceptable and just.

In forest policy, discourses can shape common understandings and values. Discourses are often hidden; hence it is important to recognize discourses within forest policies in order to find out, what is the leading value of the policy and whether or not environmental concerns are addressed thoroughly. Moreover, in a case where sustainability is portrayed as an overarching policy goal, a discourse analysis is helpful in identifying the actual level of sustainability integration in the policy.

1.6 Sustainability definitions and the role of forests

World Commission on Environment and Development (WCED), also known as the "Brundtland Commission" published a report "Our Common Future" (or The Brundtland Report) in 1987, establishing the concept of sustainability, by defining it as: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations 1987, 45). This report gave sustainability widespread recognition that still lasts today (Kuhlman & Farrington 2010). The International Union for Conservation of Nature (IUCN), United Nations Environment Programme (UNEP) and World-Wide Fund for Nature (WWF) define sustainable development as "improving the quality of human life while living within the carrying capacity of supporting ecosystems." (IUCN, UNEP, WWF 1991, 10). Rees (1989, 2) defines, that the goal of sustainable development is "to provide a secure and satisfying material future for everyone, in a society that is equitable, caring, and attentive to basic human needs.". Furthermore, Rees (1989, 3) states that to become a sustainable society, it is required to "learn to live within our ecological means while re-structuring the economy on a foundation of new environmentally benign technologies". Stated by Kuhlman & Farrington (2010), sustainable development is achieved when a policy, programme, or project leads to a higher well-being while maintaining neutral or positive effect on future resources.

The sustainability discourse became widespread among governments and businesses as well as among environmental movements because the "mainstream" sustainability discourse integrates economy and ecology, the key message being "producing more with less" (Arts & Buizer 2009).

The study by Arts & Buizer (2009) suggests that new ideas concerning sustainability have been institutionalized over the past three decades in global forest politics. According to them, it is an implication of policy change and innovations. Furthermore, they suggest that sustainable development appears in global forest policies in form of partnerships, voluntary and private certifications, agreements and instruments, and participation of non-state actors. Case in point being the Forest Stewardship Council (FSC), which is a certification programme, but also a partnership of businesses and NGO's. Globally, forests play an integral part in the aim to create sustainable societies as they contribute in climate and biodiversity protection. Moreover, forest ecosystems contribute to the global carbon cycle by absorbing CO_2 emissions and by acting as carbon reservoirs.

A trend of including also other than commercial values of forests in forest management decisions will according to Gregersen et al. (2017) gain increasing popularity in the future given the usefulness of trees to humankind and their renewability and sustainability as raw material. The 2030 Agenda for Sustainable Development by the United Nations presents 17 sustainable development goals, from which goal 15 considers forests directly: "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (The United Nations 2015). The development of forest processes, such as sustainable forest management, forest restoration and biofuel production support the implementation of the 2030 Agenda (Gregersen et al. 2017) and can potentially lead to more sustainable lifestyles globally.

The United Nations define sustainability in the Agenda for Development as follows: "Development is a multidimensional undertaking to achieve a higher quality of life for all people. Economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development." (United Nations, 1997 in Kuhlman & Farrington 2010, 3438). This definition, according to Kuhlman & Farrington (2010), embodies the division of sustainability into three dimensions, namely economic, social and environmental.

Clearly there is no single definition for sustainability. However, all definitions of sustainability call for improving the conditions of human life at present while taking care of the environment so that the future generations have an equal or better opportunity to prosper. Nevertheless, when there are conflicting interests (e.g. physical expansion of human activities versus total space of ecosystems), there is a risk of unbalance between different dimensions of sustainability. The current sustainability thinking has been criticized (e.g. Kuhlman & Farrington, 2010; Berg et al. 2019) as the dominant three pillars of sustainability -model fails to recognize the possible trade-offs and lacks synergies between ecological sustainability and well-being of humans. Instead, ecological, social and economic aspects are divided from each other, which can lead to unbalance between the different aspects of sustainability. Stemmed from this, the different models of sustainability are further discussed in the next chapters.

1.6.1 Three pillars of sustainability

The original definition of sustainable development by the Brundtland Commission (1987) does not make a distinction between different dimensions (Lehtonen 2004), however, sustainable development has later been re-interpreted into a combination of three dimensions: ecological, economic and social. The three dimensions or pillars description has increased its recognition since the Rio Conference in 1992. (Lehtonen 2004).

According to Pawlowski (2008), sustainable development attempts to integrate ranges of human activity into one programme. In doing so, different actors interpret and frame sustainable development in different ways. Stated by Redclift (1991, 36-37): “Sustainable development means different things to different people: ecologists, environmental planners, economists and activists. -- Sustainable development, then, is about meeting human needs, or maintaining economic growth, or conserving natural capital, or about all three.”

Similarly, argued by Robinson (2003, 371-373): “One’s interpretation of the meaning and significance of the concept of sustainable development is conditioned by one’s position on this spectrum -- One of the most striking characteristics of the term sustainable development is that it means so many different things to so many different people and organizations”.

From the economic perspective, sustainable development is about sustaining production with available resources to meet the future demand of growing populations (Redclift 1992), and to provide a satisfactory standard of living for all (Robinson 2003). The ecological dimension is mainly concerned with conservation of the nature and biodiversity (Pawlowski 2008) and avoiding exceeding the carrying capacity of the planet (Robinson 2003). The social dimension widely refers to creating a system of governance that advocates the values that are imperative to people (Robinson 2003). Although the social dimension is generally accepted, there is no clear definition on what social sustainability is (Lehtonen 2004; Dempsey et al. 2009). This can be due to difficulties in analysing the social dimension with same tools than ecological or economic sustainability. In general, social sustainability emphasises the improvement of social conditions through generations (Lehtonen 2004).

Kuhlman & Farrington (2010) argue that the re-interpretation of sustainability into three dimensions can lead to interpretation where sustainability means fulfilment of present needs, instead of considering the well-being of future generations, and especially the nature. They describe this as a contradiction between long-term sustainability and short-term welfare. In addition, they speculate that the importance of environmental sustainability is at risk of diminishing when put side by side with economic and social welfare. (Kuhlman & Farrington 2010). They state that the reinterpretation of sustainability can lead to weakening of the importance of environmental dimension, and separates social from economic dimension, which according to them are essentially the same.

> "Since socio-economic aspects are mostly about the well-being of the present generation and environmental ones are about caring for the future, this means the former become twice as important as the latter—which violates the Brundtland requirement that development should not take place at the expense of future generations." (Kuhlman & Farrington 2010, 3439).

Sustainability means different things to different actors; hence, sustainability can be framed in multiple ways driven by one's own interests. Berg et al. (2019) found that the three pillars approach to sustainability is dominant in Finnish sustainability thinking. However, equality of the three pillars have been questioned by researchers (Kuhlman and Farrington 2010; Berg et al. 2019) as in practice economic sustainability tends to be the most important goal leaving social and ecological sustainability with less attention. Due this, more recent sustainability thinking has gained ground, for example in the form of the Doughnut Model, which is discussed in the next chapter.

1.6.1 The Doughnut model of sustainability

This chapter gives a short overview of the Doughnut model by Raworth (2012) and what it aims to achieve. The Doughnut model is a visual framework for sustainable development, shaped like a doughnut (see Figure 1).

The Doughnut model challenges the more traditional thinking of three pillars of sustainability by presenting planetary boundaries together with social boundaries. Between those two, there is a "safe and just place for humanity" where humanity can prosper (Raworth 2012, 5). The aim of the Doughnut model was to create a single conceptual framework that brings together twin objectives of poverty eradication and environmental sustainability (Raworth 2012). The Doughnut model follows the set of nine planetary boundaries proposed by Rockström et al (2009, ref. Raworth, 2012). The planetary boundaries are critical environmental thresholds; crossing those boundaries could lead vital Earth systems, such as climate change and ocean acidification, to become unpredictable.

The goal of the Doughnut is an economy that can offer a sufficient standard of living for all, while operating within planetary boundaries. The inner boundary of the doughnut represents the social foundation. Below the boundary, or in the hole of the doughnut, is the proportion of people that suffer from various dimensions of human deprivation, such as hunger, illiteracy and gender inequality. The outer boundary of the doughnut is the environmental ceiling which should not be exceeded. (Raworth 2012). Exceeding the environmental ceiling overshoots pressure on Earth's life-supporting systems, such as the biodiversity and the ozone layer and could lead to irreversible damage to Earth's ability to sustain the favourable conditions for human life. In the Doughnut model, human rights and environmental sustainability mark the boundaries in where sustainable economic development takes place. The Doughnut seeks to quantify and visualise the extent of shortfalls and overshoot in a global or national scale, in order to compass the assessment of the state of human wellbeing. (Raworth 2012).

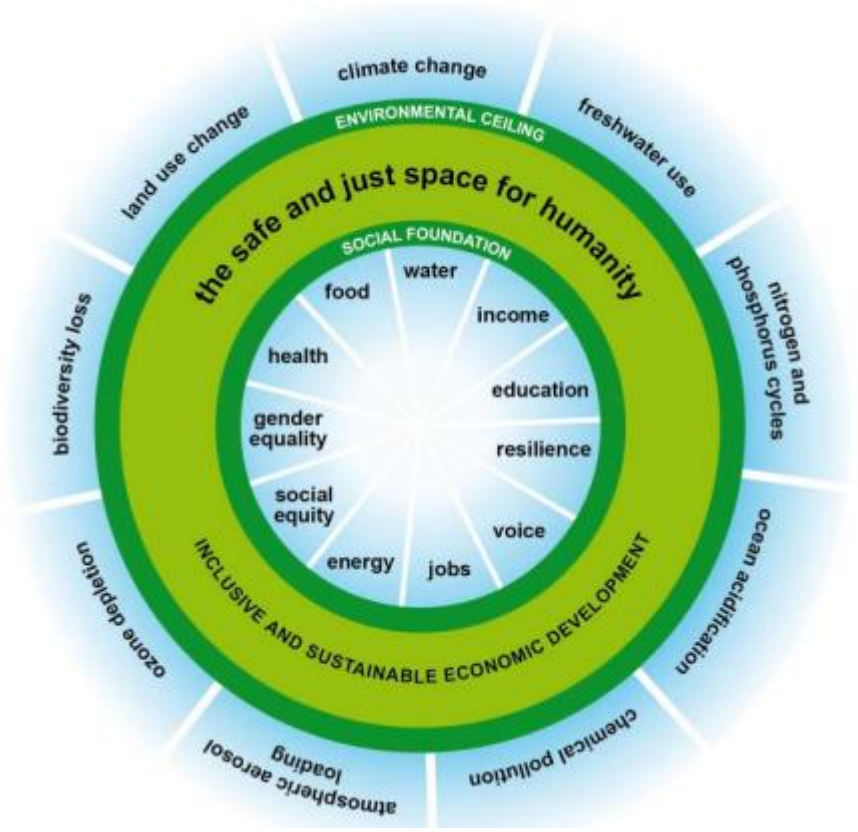

Figure 1 The Doughnut model of sustainability (Raworth 2012)

Summing-up, the Doughnut model presents in one graph the interaction of social and planetary boundaries challenging the more traditional division of sustainability into three dimensions. In the Doughnut model, human rights and ecological sustainability set the boundaries in where sustainable economic development takes place. Furthermore, the economy is supposed to help humans to enter the safe and just place for humanity, instead of aiming towards endless expansion of human activities.

1.6.2 Weak and strong sustainability

Since the definition of sustainability was introduced, the concept has been divided into "weak" and "strong" sustainability. Pearce et al. (1989) in Kuhlman & Farrington (2010, 3443) defined weak sustainability as: "That the next generation should inherit a stock of wealth, comprising man-made assets and environmental assets, no less than the stock inherited by the previous generation". In other words, loss of natural resources can be compensated by increased capital. Weak sustainability supports the narrative, that natural resources can be substituted by man-made ones (e.g. developing new energy sources to replace fossil fuels). The idea of substituting natural resources with capital is however opposed by various researchers (Kuhlman & Farrington 2010).

Pearce et al. (1989) in Kuhlman & Farrington (2010, 3443) then defines strong sustainability as: "That the next generation should inherit a stock of environmental assets no less than the stock inherited by the previous generation". Strong sustainability recognizes the irreplaceability of natural resources, and that those resources must therefore be preserved at all costs. It is a series of thresholds that should not be crossed as the outcome cannot be undone (e.g. extinct species cannot be recovered with the current state of knowledge). Although the thresholds are set by policy makers, they must be based on scientific knowledge on the resilience of ecosystems. (Kuhlman & Farrington 2010).

The essential difference between weak and strong sustainability is about what is emphasized, the economy or the environment.

Traditionally, the debate around sustainable development concentrates on competition between economic development and environmental conservation (Hediger 1999). Strong sustainability is "a principle of environmental conservation" (Hediger 1999, 1125), and requires that the stock of natural capital remains intact over time. Weak sustainability requires that the total aggregate value of capital and natural stock remains constant over time. This is in contrast with principles of strong sustainability; there are no trade-offs between economic activity and environmental quality, because the environment is considered as "sacred capital" (Hediger 1999, 1129). Hediger (1999) states, that economic growth requires physical expansion of human activities, reducing the total space of ecosystems. Hence, income growth goes along with ecological degradation. In order for the economy to increase its production capacity without harming the environment, it is necessary to invest in new technologies, human capital and institutions. In addition, reuse of waste materials through recycling must be increased (Hediger 1999).

According to Holden et al. (2014), governments need to step away from the idea that economic growth leads to sustainable development. Not all natural capital can be valued in monetary terms, because some critical natural capital cannot be replaced due to the irreversible nature of its functions if damaged (Holden et al. 2014). In order to protect the natural capital and ecosystems, Costanza & Patten (1991, 196) call for precautionary measures that resonate with some of the principles of strong sustainability:

> "Given the huge uncertainties involved in the scale of the socioeconomic system, it is of particular importance in this regard to select policies that are precautionary in that they do not take unnecessary risks with sustainability and they do not count on hoped-for technological fixes for their success".

Economic and ecological values clash in the attempts to reach sustainability. Weak sustainability suggests that man-made assets can compensate ecological loses whereas strong sustainability recognizes that natural capital cannot be fully compensated and replaced with economic capital (e.g. an instinct species cannot be brought back with current knowledge).

Scientists of the field (e.g. Costanza & Patten 1991) have called for precautionary policies in order to safeguard the ecosystems from irreplaceable damage. In this research, the level of sustainability into forest policies is studied in terms of weak or strong integration of environmental concerns. Kleinschmit et al. (2017) found that the integration of environmental concerns in policies is often weak and rhetoric.

1.6.3 Sustainable Forest Management

Sustainable forest management (SFM) aims at incorporating the use of forest resources and the conservation of biodiversity (Arts & Buizer 2009). According to Barbati et al. (2014, 145): "Sustainable forest management (SFM) is widely accepted as the main goal for forest policy and practice". Rametsteiner & Simula (2002, 88) describe SFM as "A concept specifically designed to embrace and reconcile the different interests on forests, including the maintenance of biodiversity". Stated by Wang (2004, 206): "SFM generally refers to the ways and processes of managing forest resources to meet society's varied needs, today and tomorrow, without compromising the ecological capacity and the renewal potential of the forest resource base.". Rametsteiner & Simula (2002, 89) state, that SFM has multidimensional complexity, as it takes into consideration "social, environmental, cultural and spiritual" forest values. Similarly, Wang (2004) describes a trend of incorporating ecological, economic, and social aspects into forest management. Therefore, SFM is not solely about conserving forest habitat, but also safeguarding the inherent values of forests; forests as a tool to mitigate climate change and as recreational spaces (Wang 2004).

SFM methods are used in commercial forests; forests that aim to produce timber and other forest-based products for commercial use. However, it is problematic to determine whether biodiversity conservation and ecologically sustainable forest management has been successful, as the measures are weak (Lindenmayer et al. 2000). Forest certification is a potential tool to encourage sustainable forest management and it has succeeded in raising awareness on concept of SFM (Rametsteiner & Simula 2002).

Another tool used for promotion of SFM is criteria and indicators (C&I) which are sets of criteria and indicators mainly created to monitor the state of forests and forest management on a national level (Rametsteiner & Simula 2002).

SFM is widely accepted as a forest policy goal as it aims at merging the use of forest resources and biodiversity conservation through consideration of ecological, economic, and social values. Maintaining biodiversity, protecting water resources, mitigation of climate change and maintaining multiple-use of forests are increasingly important goals in SFM. However, there are not yet strong measures for determining whether or not SFM has been successful and indicators need to be developed.

The focus of this research is on discourses of forest policy making and on the power of discourses to affect framings, perceptions and interpretations of subjects, case in point being forest-based bioeconomy and its sustainability. In order to answer the research questions presented in chapter 1.3, discourse analysis approach was presented as a useful method for analyzing policy documents. Sustainability and its multiple dimensions followed by sustainability models, such as three pillars of sustainability and the Doughnut Model were presented with critiques in order to get a better understanding on the multidimensional and challenging nature of sustainability. Further, the ideas of sustainable forest management were discussed, which brings the research back to the research case: the Finnish forest policies and their sustainability. To study the sustainability of the chosen policies, an analytical framework is adopted from Bäckstrand & Lövbrand (2006, 2007), who identified the three overarching meta discourses of global environmental governance: ecological modernization, green governmentalism and civic environmentalism. The analytical framework is presented in the next chapter.

2 ANALYTICAL FRAMEWORK – DISCOURSES IN FOREST GOVERNANCE

Challies & Newig (2019) define environmental governance as:

> "The totality of interactions among societal actors aimed at coordinating, steering and regulating human access to, use of, and impacts on the environment, through collectively binding decisions".

Environmental governance can be local or global, and it aims at addressing a range of environmental causes, such as nature protection, land use planning and sustainable management of natural resources. Environmental governance materializes through national policies and agreements, such as national forest programmes, international agreements and activities of environmental NGO's (Lemos & Agrawal 2006). Political actors use environmental governance to influence environment-related actions and results through a range of mechanisms and organizations. Environmental governance aims at impacting and changing environment-related decision-making, knowledge and behaviour (Lemos & Agrawal 2006). According to Kleinschmit et al. (2009), environmental and forest governance is expressed through participative, non-hierarchical and adaptive policy processes.

In this research, forest governance is understood as a mode of environmental governance. The research analyses the forest governance in Finland through analysis of national forest policies. Finland has set ambitious goals of being the forerunner of forest-based bioeconomy. Hence, it is important to analyse what role sustainability plays in the understandings of bioeconomy in Finnish forest policies. From this setting, two research questions were formed: 1. How is sustainability framed and understood in Finnish forest policies? And 2. How the Spirit of Rio is transferred into the existing legislation? To answer these research questions, a discourse analysis is conducted. The focus of the analysis is on finding the dominant discourse of the Finnish forest policies by using the framework from Bäckstrand & Lövbrand (2006, see below).

Defining the leading discourse is important in order to reveal the driving values and perceptions of sustainability in the analysed policies. Also, it is important to analyse, whether there has been a shift in the dominant discourse through years and to which direction. The goal is to offer useful insights on the state of Finnish forest policy to policymakers and stakeholders as the analysis of sustainability framings help to inform ongoing and future forest policy revisions.

Bäckstrand & Lövbrand (2006) see bioeconomy as a newly emerging global environmental discourse. The authors have identified three types of environmental governance related meta discourses that characterise policy practises of international environmental governance. In this research, meta discourses are understood as discourses which dominate at certain points of time but may lose their significance in other points of time. The three overarching meta discourses are: ecological modernization, civic environmentalism and green governmentality. This research utilizes the framework from Bäckstrand & Lövbrand (2006) in order to find out which of the defined meta discourses, if any, is dominant in Finnish forest policy. The discourses and their characteristics are discussed in detail in this chapter.

Kleinschmit et al. (2014) argue that bioeconomy is rooted in the ecological modernization discourse, where economic growth goes together with environmental protection. In ecological modernization, ecological degradation is disconnected from economic growth; there is a win-win situation where industrialization is made environmentally friendly with new technologies and more flexible and cost-effective policy making (Bäckstrand & Lövbrand, 2006). In ecological modernization discourse, new innovative technologies and market-driven strategies can make capitalism and industrialization more environmentally friendly. Moreover, collaborative, decentralized policy making act as key solution to reach win-win situation. The principal focus of this discourse is in cost-effective environmental problem solving, which leaves the developing countries as outsiders due to problems with equity and poverty (Bäckstrand & Lövbrand 2006). Bäckstrand & Lövbrand (2006) divide ecological modernization into weak and strong but argue that weak version represents the current discourse in global environmental policy rhetoric and practise.

According to Bäckstrand & Lövbrand (2006, 53): “The weak version is a technocratic and neo-liberal economic discourse that does not involve any fundamental rethinking of societal institutions.”.

Together with ecological modernization, green governmentality is the prevailing discourse in industrialized countries (Bäckstrand & Lövbrand 2006). In the discourse of green governmentality, science and new technologies are a solution to environmental problems and to moving away from business-as-usual. According to this discourse, rationality, authorities and agencies can shape the human behaviour into favourable direction, by affecting aspirations and lifestyle choices of individuals and groups (Bäckstrand & Lövbrand 2006). Knowledge and expertise in various forms play an integral part in this discourse to manage the environment. Green governmentality allows an extension of governmental control to the entire planet through an idea of “stewardship of nature” and comprehensive management of natural resources (Bäckstrand & Lövbrand 2006, 54). In this discourse, the authoritative role is given to scientific expert advisors. According to Bäckstrand & Lövbrand (2006, 55): “green governmentality can be understood an elitist and totalizing discourse that effectively marginalizes alternative understandings of the natural world”. In more reflexive version of green governmentality, local actors are invited to participate in ecological problem solving. Reflexive green governmentality has some similarities with the democratic participation principles from civic environmentalism discourse. (Bäckstrand & Lövbrand 2006).

Civic environmentalism stresses local participation and bottom-up approach to environmental concerns. According to civic environmentalism discourse, including marginalized groups, such as indigenous people, is critical in solving environmental problems (Bäcktrand & Lövbrand 2006). Bäckstrand & Lövbrand (2006, 55) state:

> “The civic environmentalism discourse is associated with the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, where the language of participation and “stake-holding” entered the global environmental agenda”.

The decision-making power in international negotiations remains on the governments, but active participation of non-state actors, non-governmental organizations (NGO's), and businesses is recognized. Civic environmentalism is sceptical towards win-win rhetoric of ecological modernization, and highlights trade-offs between sustainable and economic development. Civic environmentalism demands fundamental change away from business-as-usual to reach sustainable development (Bäckstrand & Lövbrand 2006).

Table 1 represents evaluation and identification of the meta discourses discussed in this chapter (ecological modernization, green governmentality and civic environmentalism) drawn from work of Bäckstrand & Lövbrand (2006, 2007). The table shows the main aspects of the environmental governance related meta discourses.

Table 1 Evaluation of meta discourses of environmental governance

	Objectives	Challenges	Methods	Emphasis	Fundamental re-thinking
Ecological modernization	Forests are a tool for low-cost climate mitigation	Environmental conserns hinder economic development	Innovative technologies, market driven strategies, flexible policy making	Flexible, cost-effective environmental problem-solving	No
Green Governmentality	Forests are a tool for carbon sequestration and act as carbon storage	Nature is an infrastructure that has to be protected and managed	New innovations, knowledge and expertice, forest carbon	Human stewardship over nature, climate management	No
Civic Environmentalism	Forests are a source of biodiversity, culture and livelihood	Power structures such as capitalism and patriarchy generate environmental problems	Participation, biodiversity preservation, result based problem solving	Collaborative decision making and participation solves environmental problems	Yes

Source: Adapted from Bäckstrand & Lövbrand (2006, 2007).

The analytical framework presented in this chapter is utilized in the analysis of the research data and it was found suitable for the research as it presents three types of meta discourses that could be characterized from forest policies. Using the framework of three overarching meta discourses helps in focusing the research to a narrower setting and to compare the result with earlier research. Hence, the goal of the research is not to identify a new discourse, but rather to look at which of the already identified discourse is the most dominant one or in case that no dominant discourse can be found, which of the presented discourses resonates the most with the analyzed policies.

2.1 Validity of the research and ethical dimensions

Forestry plays an important role in the transition to bioeconomy, which is increasingly popular among governments globally. However, bioeconomy is not innately ecologically sustainable. This research aims at delivering useful insights for policy makers and the whole forest sector on the framing of sustainability and on the dominant discourses that are used in the forest policy documents.

The aim of this research is to analyze how sustainability is framed in the Finnish forest policy documents and examine whether a dominant forest policy discourse exists. The aim is not to offer solutions or recommendations on how sustainability should or should not be framed, although this thesis is partly critical towards the current forest policies. In critical research, it is important to remain diplomatic but without self-censorship. One can ask, is it suitable to give criticism without offering solution to found problems? As stated in the earlier chapters, discourses are a form of power and often hidden. Revealing the dominant discourse increases transparency and can start a process towards problem solving. In addition, this research discusses the role of forests in terms of social values and questions the current thinking that economic growth automatically leads to growing welfare, encouraging to think human wellbeing in a broader setting.

3 METHODS

3.1 Research design

The research is conducted as a discourse analysis with the assistance of a computer software ATLAS.ti. Discourse analysis is chosen to fulfill the aim of the study and to uncover meanings and attitudes within legal texts. The software is used to help in revision of the data that is coded during the research, and in organization and visualization of the data. Furthermore, it is used to reveal linkages within and between the data. To use ATLAS.ti, an initial list of codes was developed through first reading and used in the analysis process. However, it is possible to add new codes during data coding, if relevant. The research design follows the work of Kleinschmit et al. (2017) and Bäckstrand and Lövbrand (2006). The goal of the research design is to provide a lens to critically examine the direction of Finnish forest policy takes in the framing of sustainability in the forest policy documents.

To identify the sustainability framings in the policy documents, following themes and guiding questions are used:

1. Objectives: What are the main policy objectives or goals of the document?
2. Challenges: What are the main challenges to reaching the objectives?
3. Strategies: Which strategies, methods or tools are adapted to overcome the challenges?
4. Emphasis: Which values are promoted? Is the emphasis of the policy on environmental, economic, or social concerns?
5. Fundamental rethinking: Does the policy include fundamental rethinking of problems around sustainability?

The guiding questions are used as a tool to organize the research data. Categorization of data allows comparison of discourses between the policy documents. Furthermore, they help in identifying which aspects of sustainability are emphasized and whether environmental issues are integrated in the policies and at which level. Drawn from Kleinschmit et al. (2017), the quality of sustainability integration is analyzed with the fourth and fifth themes: emphasis and fundamental rethinking.

3.2 Text analysis

This section presents the procedure of text analysis and the software that was used. In addition, the code book is presented. ATLAS.ti is a tool for qualitative discourse analysis that helps arrange and manage research material. It is especially useful when the goal is to find meanings and linkages from the data at hand. In this research, ATLAS.ti was the key software for analyzing the research data. It was used for coding, organizing and visualizing the data. The core idea of how ATLAS.ti was used in this research, was to mark words, sentences and chapters of interest creating an object, that can be further analyzed. The objectives or "quotations" are then coded with descriptive code words into thematic groups. In this way, the software helps in focusing on relevant parts of a vast amount of data. It is important to note, that ATLAS.ti does not produce ready-made analysis of the data, but rather acts as a tool for analyzing and organizing it. ATLAS.ti can be taken as a research assistant, who helps to keep the data organized, but does not complete the analysis for the researcher.

3.3 Qualitative text coding

The research material was analysed with ATLAS.ti software. The material was coded with codewords that help to manage, organize and compare the research data. A code book was made in order to help in structuring the analysis. Due to vast amount of research material, it was found useful to conduct the coding in different levels, starting the analysis from broad topics and proceed into small, less visible details within. Each document was analysed as its own entity, however, same codewords were applied in each document. ATLAS.ti was used to first identify the main features of the document, and then identifying meanings, some underlying, by using descriptive codewords. In addition, the software was used to identify linkages and to see for example, which themes co-exist by visualizing the data into networks.

The coding is carried out in four different levels which are explained next. Table 2 represents the four levels of the coding and the aim of each level:

1. **Level of coding – Descriptive, identifies the document**

- Document name
- Date
- Words (Word count)
- Type (Policy document)
- Author
- Headline
- Level (National)

In this case, all the documents are national policy documents published by Ministry of Forestry and Agriculture.

2. **Level of coding – Identify the content. What are the:**

- **Objectives** (What are the main policy objectives or goals of the document?)
- **Challenges** (What are the main challenges to reaching the objectives?)
- **Methods and tools** (Which strategies, methods or tools are adapted to overcome the challenges?)

3. **Level of coding – Which values stand out or are promoted in the framing of objectives, challenges, methods and tools?**

1. **Economic** – Market driven objectives and challenges, code words are such as industry, products, trade (materials, products, carbon), employment, efficiency, innovations
2. **Environmental** – Ecological and "green" objectives and challenges, code words are such as the biodiversity, soil, water systems, CO2, carbon balance, conservation and protection of natural habitats
3. **Social**: Objectives and challenges based on Finnish people's lifestyle and culture, code words are such as traditions, recreation, consumption habits, participation, education, level of income, equality between men and women.

   It should be noted that employment could fit in two categories: economic and social. However, analyzing the research material it was noticed that employment was framed as an economic issue. Employment was considered in the strategies in terms of increasing incomes and tax revenues and the social benefits of increased employment were not highlighted.

4. **Level of coding – What is the level of integration of environmental issues?**

   Is there fundamental rethinking of environmental issues in the document? Environmental issues are:

   a. **Prioritized** – Environmental concerns are prioritized over other concerns.
   b. **Considered** – Considered but not prioritized.
   c. **Equal** – Considered equally among other issues.
   d. **Integrated** – Integrated into objectives, challenges, methods and tools.
   e. **Rhetorical** – Integrated into objectives without specific implementation.
   f. **None** – Environmental concerns are not considered at all.

Table 2 The four levels of coding

1st Level identifies	2nd Level identifies	3rd Level identifies	4th Level identifies
- Document name - Date - Words - Type - Author - Headline - Level	- Objectives - Challenges - Methods - Tools	The dominant values: - Economic - Ecological - Social	The level of integration of environmental issues: - Prioritized - Considered - Equal - Integrated - Rhetoric - None
Outlines of the document and the content		Emphasis and promoted values	Fundamental rethinking of environmental issues

The goal is to identify how the issues around sustainability are framed. Also, it is investigated whether the framing changes through years and to which direction. To summarise, this is the procedure of the analysis:

1. Identify the characteristic (Round 1 & 2), emphasis and values (Round 3) and the level of integration of environmental issues (Round 4) of the document.

2. Which meta discourses are found if any (ecological modernization, green governmentality, civic environmentalism, table 1)? Which one is the most dominant if any? How would you describe the dominant discourse?
3. Is the language of participation and bottom-up approach visible (the Spirit of Rio)? Are there changes over time?

3.4 Research data

The data for the analysis is gathered from Finnish forest policy documents, namely the National Forest Programme 2010 and 2015, the Government report on Forest Policy 2050, and National Forest Strategy 2025. The next sections briefly introduce contents of the research data.

3.4.1 National Forest Programme (NFP) 2010 and 2015

National Forest Programmes are strategic action plans, the objective being to promote sustainable management and use of forests. The programmes have been prepared since 1993, after the Rio Conference on Environment and Development was held in 1992. The programmes are prepared in accordance with principles set in the Rio Conference (Ministry of Agriculture and Forestry 2008). National forest programmes are documents that set the direction of Finnish forest policy (Kröger & Raitio 2017). The aim of the programmes is to increase citizens' wellbeing through diverse forest use while obeying principles of sustainable development. The programmes are directed by the Department of Forestry of the Ministry of Agriculture and Forestry. These programmes also aim to expand forest-based manufacturing and service offering an economically, socially, ecologically, and culturally acceptable and sustainable manner. (Ministry of Agriculture and Forestry 2008). This research will analyze two forest programmes; the National Forest Programme 2010 and the National Forest Programme 2015. The latest NFP is valid until 2020.

3.4.2 The Government Report on Forest Policy 2050 and The National Forest Strategy (NFS) 2025

The Government Report on Forest Policy 2050 "outlines a long-term vision and strategic objectives for the management of forests and the main measures to be taken" (Government Report on Forest Policy 2050 2014, 6). The report was published in 2014 and it was a reaction from the Finnish government to national and global changes, such as climate change, population growth and urbanization, new technologies, scarcity of resources and structural changes in the global economy.

The Government saw that these changes in the global context required long-term evaluation of the situation (Kröger & Raitio 2017). The National Forest strategy 2025 is based on the Government report on Forest Policy, and it was published in 2015. It identifies the key objectives for forest-based business and activities until 2025. NFS priorities goals under 7 themes and steps to achieve them. The National Forest strategy replaces previous National Forest Programme (Kröger & Raitio 2017).

3.4.3 Forest Biodiversity Programme for Southern Finland (METSO)

As the METSO programme is an integral part of NFP 2015, and also discussed in NFS 2025, this section briefly introduces the contents of the programme.

Forest biodiversity programme for Southern Finland, known as METSO aims at establishing favourable and stable trends in forest ecosystems. METSO was prepared parallel with the National Forest Programme 2015 and is based on voluntary conservation efforts by landowners. Voluntary forest protection is important especially in the Southern Finland, as the network of national parks is not yet well developed. It is up to landowners, whether or not they are willing to participate in the programme. METSO supports active nature management in order to increase biodiversity in the conserved area. Forest owners can offer their forests for permanent or temporary protection (Ministry of Agriculture and Forestry 2008).

The METSO programme was designed to improve biodiversity by improving network of protected areas and by developing commercial forests' nature management practices. Ten different forested habitats can be preserved under METSO programme and regional environmental and forest authorities make the decision on suitable areas for METSO. Landowner will receive a compensation for the land he or she offers for protection. Compensation is paid according to legislation in the Nature Conservation Act or the Act on the Financing of Sustainable Forestry. (Ministry of Agriculture and Forestry 2008).

3.5 Limitations of research data

The research data consists of forest policy documents that are published by the Finnish Ministry of Agriculture and Forestry. The research focuses on governmental policy documents only, and not on general debate or media and NGO publications around the topic, although it can have affected the policy making externally. The research does not include the updated versions or follow-up reports of the policies, but only the first official publication of the policy was analyzed. For example, an updated version of the National Forest Strategy 2025 was published in 2019, but it is not included in this research and only first version published in 2015 was analyzed. A further research opportunity would be to analyze the updated versions of the policies and assess to which direction the policy has developed into.

4 RESULTS

4.1 National Forest Programme 2010

Published in 1999, the National Forest Programme 2010 considers economic, environmental and social sustainability. The programme is described as "a balanced whole, comprising the economic, ecological and social dimensions of sustainability" (Ministry of Agriculture and Forestry 2001, 9). In addition, forest-related education and know-how is highlighted. The programme was written, carried out and monitored in an open and broadly co-operative environment with stakeholders and citizens. Almost 3000 people had joined open forums, and a vast number of interest groups were participating in the preparation of the programme. 68 million Finnish marks were assigned for the implementation of NFP 2010. Most of the funds were allocated to silvicultural and forest implementation, forest management planning, education of forest owners and ecosystem management. The major objectives of the programme are to increase the Finnish forest industry's use of domestic roundwood by 5-10 million cubic metres annually by 2010, to double the value of wood industry's exports to 4.2 billion euros annually and to increase the annual use of wood for energy production from 800 000 to 5 million cubic meters.

In the programme, sustainable development is ecological, economic and social. However, the economic and social sustainability have a leading role, while ecological sustainability has a more rhetoric one. Cooperation, participation and bottom-up approach are acknowledged in the preparation of the programme, and it is intended to continue in the monitoring of the programme. Environmental protection is integrated into policy objectives without specifying the implementation. There is a lack of strategy to move from words to action, hence, it can be said that ecological sustainability is mainly rhetoric.

The programme does not have a detailed assessment on the impacts of the measures of NFP 2010 on the environment. This is, according to NFP 2010, due to lack of time. Due this, only a tentative assessment on the effects on the environment was made and a more detailed assessment would be done before implementation of the programme in 2000. The assessment is described as “a quick assessment” (Ministry of Agriculture and Forestry 1999, 34) done by three specialists. According to the tentative assessment, the programme does not have a noticeable effect on forest bio-diversity (positive nor negative). However, according to the tentative assessment, the programme has a positive effect on carbon sink.

The government works as a facilitator and its main responsibilities are to maintain competitive price of energy, maintenance of road networks, and to establish development and technology programmes central for developing the wood industry and the use of wood energy. The role of market participants is to aim at using forests in a way that is economically and environmentally sustainable in the long run. Economic, environmental and social values are considered in the vision of the programme: “Sustainable wellbeing from diverse forests”.

4.1.1 Objectives, challenges and tools

The programme has eight objectives, which all have multiple perceived challenges and methods or tools to overcome those:

1. Forest sector supports sustainable development;
2. Opportunities for growth in the forest industry;
3. Forestry should be profitable and provide employment;
4. Securing ecological sustainability;
5. Forests should be well managed;
6. Forests for recreation and natural products;
7. Strengthening forest know-how;
8. Finland active in international forest policy. (Ministry of Agriculture and Forestry 1999, 8-9).

From the objectives, numbers 1, 2, 3, 5 and 8 can be classified as economic, 1, 4 and 5 as ecological and 1, 3, 6 and 7 as social. The first objective comprises economic, ecological and social sustainability. Objective three contains economic and social aspects and the fifth objective has both economic and ecological goals. The most dominant themes in terms of emphasis given in the objectives and strategies are:

Economic: Market orientation, increased use of domestic round wood, increased use of forests for energy and new products, increased value of exports, increased international influence.

Ecological: Sustainable forest management and use of forests, more funds to forest conservation, carrying out conservation programmes, new solutions for monitoring the environmental state of forests, assessment of the influence of forestry activities on the environment.

Social: Rural livelihood and new job opportunities, education of forest owners and new skilled labour, new research, co-operation between producers and users of new research information (Forum of innovation).

In the programme, environment is seen as an entity that, when well-managed, can increase and maintain the productivity of forests. Increased use of forests creates a flow of income which is needed to conserve forest habitats. Profitable and competitive forest sector facilitates the conservation of forest biodiversity and the consideration of social and cultural values of forests (Ministry of Agriculture and Forestry 1999). Environment is not seen as a problem for forest industry, but as something that needs to be managed in order to maintain the productivity of forests. Increased productivity then creates income that is needed to conserve natural habitats. It can be said that nature conservation is not the main objective, but a necessary tool to increase productivity of forests. Environmental protection is included into the objectives without specifying the implementation. Also, the assessment of the programmes impacts on the environment is only tentative due to lack of time. In the programme, there is no strategy to move from planning to action, hence, ecological sustainability is mainly rhetoric.

The main tools for securing ecological sustainability of forests are the development of ecosystem management in commercial forests, reducing the environmental strain from forestry with the Government Resolution regarding water protection and establishing conservation programmes for privately owned land. In addition, an appointed work group would analyse the need of forest conservation based on research results and draft a programme for forest conservation (METSO programme). Connected to the forest conservation means, safeguarding the multiple-use of forests (hunting, reindeer herding, picking of berries and mushrooms, landscape and cultural values, outdoor recreation and tourism) would be considered and promoted. However, the programme lacks a strategy of implementation. The objectives concerning nature, especially on recreation and natural products is set on a very general level, which can make it difficult to evaluate the progress.

It is mentioned in the programme (Ministry of Agriculture and Forestry 1999) that since the Rio Conference in 1992, European forest ministers have agreed to Helsinki process, which defines ecologically, economically and socially sustainable forest management principles specified for European conditions. However, the programme does not elaborate what are the principles, or how, if at all, they are adapted to the programme.

Maintaining and developing livelihoods in the Finnish countryside is one of the main focuses of the programme. According to NFP 2010, this is achieved with more intensive forest management and increased use of wood because it creates employment in the countryside (Ministry of Agriculture and Forestry 1999, 11). Cultural values and appreciation of forests are enhanced with forestry know-how through research and training. Producers and users of information are brought together in a Forum of innovation. Finland would promote its interests regarding forests and the environment through participation in international forest policy, research, training and efficient communication.

The described challenges and chosen methods and tools to overcome them often reflect economic and social values, such as better market positioning with increased value of exports, decreased dependency on imports, increased use of forests, new or increased job opportunities in the countryside, education of forest owners and new research.

4.2 National Forest Programme 2015

Published in 2008, NFP 2015 is prepared in accordance with the principles from Rio Conference on Environment and Development, the objective being promotion of sustainable management and use of Finnish forests. Seven ministries together with the private sector and stakeholder groups participate in the implementation of the programme (Ministry of Agriculture and Forestry 2008). The aim of the programme is to "Increase the welfare of Finnish citizens through the diverse use of forests in compliance with the principles of sustainable development." (Ministry of Agriculture and Forestry 2008, 3). The programme aims to ensure that forests continue to be a source of diverse welfare and prosperity; the idea is to expand forest-based production of services and products in a socially acceptable, and ecologically and socially sustainable way. Government acts as a facilitator, and its responsibility is to ensure proper preconditions for a competitive forest sector with legislation, research, and development programme funding. The target state set in NFP for the year 2015 can be somewhat challenging to achieve: The use of domestic wood has increased remarkably while the forest biodiversity also improves (Ministry of Agriculture and Forestry 2008).

The short-term key objectives of the National Forest Programme 2015 include the increased use of domestic wood, improved transportation network, and ensuring the sufficiency of skilled labour in forest sector. In addition, during the implementation of NFP 2015 the focus is on increasing the bioenergy production, mitigation of climate change, execution of METSO programme and on minimising the damage that forest management causes on nature (Ministry of Agriculture and Forestry 2008, 12).

As an outcome of the programme, opportunities for the multiple use and management of forests are increased, benefitting forest related businesses, forest owners and "general citizenry alike" (Ministry of Agriculture and Forestry 2008, 12).

According to the programme, increased use of forests creates many opportunities for forest-based businesses. The new product offering from Finnish forests should be market- and customer-oriented. Existing products would be developed further into products with high value-added, and forest-based entrepreneurship is diversified. Increased use of bio-based energy would bring more revenue to private forest owners through sales of wood for energy along with traditional sale of timber and pulpwood. In addition, wood is seen as a cost-effective material for construction, while it simultaneously works as a tool to mitigate climate change. The programme also touches the topic of leasing or trading carbon sinks as a way to increase carbon sequestration and the income of forest owners but without going into details (Ministry of Agriculture and Forestry 2008). The programme aims to increase the use of domestic wood by up to 15 million cubic meters annually while also increasing the growing stock of forests by 100 million cubic meters per year (Ministry of Agriculture and Forestry 2008).

The impacts of the programme are referred as "wide-ranging" (Ministry of Agriculture and Forestry 2008, 8). The positive impacts are economic and social: the value of production in forest sector grows, income from energy wood and stumpage earnings increase which lead to a rise in State revenues. The value of ecotourism increases and approximately 5000 more people are employed to forest sector. About ecological impacts, it is acknowledged that the increased wood harvesting has "an impact" on the forest environment (Ministry of Agriculture and Forestry 2008, 8). Because the aim of the programme is to intensify the use of forests, it can be assumed that the impact is negative. According to the programme, the impacts on forest environment and biodiversity are tackled with "the best and most cost-effective methods available" (Ministry of Agriculture and Forestry 2008, 8) but it is not specified, what the methods are. The gap between the assumed impacts on economic and social welfare and ecological welfare is noticeable.

The economic and social impacts are concrete and positive while the impact on environment is presented only in vague detail, implying it might be negative yet lacking an action plan to reverse the negative outcome caused by more intense forestry. The conservation of biodiversity mostly relies on Forest Biodiversity Programme for Southern Finland 2008–2016 (METSO programme), which was prepared together with NFP 2010. The main climate benefits defined in the NFP 2015 are growing forests and wood construction that sequester carbon, and reduced GHG emissions from replacement of fossil fuels with bioenergy. Impacts of increased energy wood harvesting on forest biodiversity, water and nutrient balance of soil will be studied and legislation and instructions on harvesting methods will be fixed accordingly if necessary (Ministry of Agriculture and Forestry 2008).

NFP 2015 seeks for ways to marketize the material and immaterial commodities offered by forests in order to increase the welfare of Finnish citizens. The programme recognises the increasing value of immaterial commodities provided by forests: the value is increasing since natural resources will be scarcer in the future, while the general standard of living and amount of leisure time rises. Citizens have a growing interest towards renewable commodities that forests offer. The programme plans to utilise this positive precondition to create a favourable public image to wood processing and the forest sector. The goal is to increase the use of forests in a socially acceptable way, customer-orientation as a key condition.

4.2.1 Objectives, challenges and tools

Finland's National Forest Programme 2015 has six priorities:

1. Securing a competitive operating environment for the forest industry and forest management;
2. Enhancing the climate- and energy-related benefits of forests;
3. Protecting the biological diversity and environmental benefits of forests;
4. Promoting the use of forests as a source of culture and recreation;
5. Strengthening skills, expertise and acceptability of the forest sector;

6. Promoting sustainable forest management in international forest policy. (Ministry of Agriculture and Forestry 2008, 7).

Each priority has its own objectives, and measures to attain them have been proposed. From the priorities, numbers 1, 2, 5 and 6 are economic, 2 and 3 are ecological and 4 and 5 are social. However, when looking at the proposed methods and focus points to reach the priorities, the majority can be classified as economic, second comes social values and third ecological. Drawn from this, it can be said that while the priorities seem to cover ecological, economic and social aspects,

economic values, such as improved efficiency, increased profit, cost effectiveness, and increased loggings, are in fact emphasized.

The six key priorities have 21 detailed objectives, challenges, measures to overcome the challenges, and a target level for the year 2015. The major challenges identified in the programme can be categorized in six categories, namely

1. Supply and demand of wood: The increasing use of biomass for energy requires increased harvests. However, due to the nature of forest ownership in Finland, which is heavily concentrated on family ownership, it is challenging to increase the supply of harvested wood. Forest owners might not know the harvesting potential of their forests, are not familiar with forest management methods or do not want their forests to be harvested due to recreational or other non-use values of forests
2. Transportation network: The road and rail network play an essential role in increasing the harvesting volumes and use of domestic wood. Growing volumes require the transportation network to be in a good condition and usable throughout the year.
3. Labour force and education: Growing volumes of energy- and roundwood harvests require more labour in the forest sector. The changing nature of the sector requires constant on-the-job training. The attractiveness of the field is increased with the development of work conditions, and work and management methods.

Currently not enough forest workers, forest machinery operators and timber haulage drivers are graduating whereas there is an oversupply of graduates from higher education institutions. Moreover, high-quality research and expertise should be maintained in order to create new businesses and to be competitive internationally in the forest sector.

4. Nature-related challenges: Moose populations and root-rot fungus prevent regeneration of forests. The overall impacts of climate change on forest ecosystems are not well known and adjustment to climate change will require new forest management methods. Forest biodiversity conservation needs increased attention especially in the commercial forests in the southern parts of Finland. Increased harvesting requires mitigation of negative impacts on forest biodiversity, the soil nutrition and the production capacity of the forests. Depletion of natural resources and global growth in the need of energy are major long-term challenges.
5. Tourism and recreational use of forests: Domestic ecotourism is expected to increase but the potential of ecotourism among domestic and foreign tourists can only be released if entrepreneurs in the field actively promote their services to customer groups. Citizens must be educated about the right to public access in order to prevent any damage on the nature.
6. Public acceptability of forest sector: "Operations of the forest sector can only be developed in new directions if the sector enjoys public acceptability. Public acceptability must be achieved on ethical, social, political and economic levels." (Ministry of Agriculture and Forestry, 2010, 32). Some of the forest-related goals are in contradiction with guidelines for sustainable forest management.

NFP 2015 has set 27 target levels for the year 2015. From those, 15 are economic, 9 are ecological and 9 are social. Some of the target levels represent two or three values together. Six of the target levels are rhetoric and 21 concrete. Concrete here means, that the programme has set a numerical value for the desired target level helping the evaluation of progress.

Rhetoric means, that there is no numerical value, but the target level is set on a more general level, using a descriptive word such as "increased", "improved", "sufficient". It can be difficult to assess whether or not any progress has been made, when a numerical value is missing.

From the target levels set, 12 out of 15 economic target levels were set on a concrete level with numeral indicators, e.g. “The annual consumption of sawn wood in Finland is at least 1.2 m^3 per capita (0.94 m^3 in 2006)”, (Ministry of Agriculture and Forestry 2008, 22). In both ecological and social target levels three out of nine were set on a general, rhetoric level, e.g. “Sustainable forest management has increased in the target countries.” (Ministry of Agriculture and Forestry 2008, 34) and six out of nine on a concrete level: “The number of children and young people participating in forest-related events per year is 300,000 (195,000 in 2006).” (Ministry of Agriculture and Forestry 2008, 32).

4.3 Government Report on Forest Policy 2050 and National Forest Strategy 2025

The Government Report on Forest Policy 2050 (the Report), published 2014, and the National Forest Strategy 2025 (NFS), published 2015, are analysed together, because they share the same value and strategic objectives. In addition, the framework of both documents is the same or have strong similarities and is hence possible to analyse as one entity. For example, the same analysis of changes in the operating environment of forest-based business and activities is presented in both of the documents. In this analysis, the Report and NFS will be referred together as “the documents”.

The Government Report on Forest Policy 2050 “outlines a long-term vision and strategic objectives for the management of forests and the main measures to be taken” (Ministry of Agriculture and Forestry 2014, 6). The Report was a reaction from the Finnish government to national and global changes, such as climate change, population growth and urbanization, new technologies, scarcity of resources and structural changes in the global economy.

The Report outlines the long-term forest-policy framework. According to the Report, the aim of future forest policy is to establish a ground for growing forest-based bioeconomy and diverse welfare. In the Report, welfare is understood as a combination of factors, such as revenue of the national economy and employment, health, recreation and biodiversity. The National Forest Strategy 2025 is based on the Report, and it identifies the key objectives for forest-based business and activities until 2025. It contains detailed measures to reach the prioritised objectives set by the Report. NFS is designed to contain measures, in which the public sector can influence by its actions. The primary goal is to create a competitive environment for forest-based businesses while securing biodiversity. Both the Report and NFS was prepared with participatory, broad-based stakeholder cooperation directed by the Ministry of Agriculture and Forestry and supported by the National Forest Council (2014). The vision of the Report and NFS is: "Sustainable forest management is a source of growing welfare" (Ministry of Agriculture and Forestry 2015, 7).

The premise of the documents is that the Finnish forest sector will undergo major changes within the upcoming decade. Trough diversification, forest-based business and activities will offer growing opportunities to the sector. New investments help to integrate the industry with other fields, such as chemical and energy industries, while also increasing the demand for wood. In addition, according to the documents, new investments enable the transition from fossil to renewable raw materials leading to growing welfare from forests. Scientific research should be aimed at finding innovations and business opportunities from forest resources. The measures to secure biodiversity of forest nature and ecological sustainability of forests are nature management in commercial forests, promotion of climate change adaptation with diverse forest management, promotion of health impacts of forests, enhancing the valuation of multiple uses of forests and enabling access to forests for all. (Ministry of Agriculture and Forestry 2014, 2015). According to the documents, Finns will benefit from increasingly active yet sustainable forest management in the form of new jobs, increased revenue, better environment for recreation and improved biodiversity. Moreover, services related to forest-based businesses and activities will have increasing demand and forest policies must answer to that demand (Ministry of Agriculture and Forestry 2015).

According to the documents, forest-based business and activities play a key role in Finnish bioeconomy that will ultimately generate economic growth in Finland. Increased forest use and decreased carbon sink is compensated by replacing fossil fuels with bio-based fuels. According to NFS, carbon sink can be reduced to the international benchmark level. This would mean a drastic change in the carbon sink: in 2013 carbon sink in Finnish forests was 29 million tonnes of CO_2 equivalent whereas the target level in 2025 is set on 10-17 million tonnes of CO_2 equivalent (Ministry of Agriculture and Forestry 2015, 28).

In addition to more intensive use of timber, it is planned to intensify the use of other ecosystem services related to forests, such as landscape, carbon sink, water and biodiversity. According to the documents, these intangible goods can offer remarkable business opportunities in the future. Indeed, one of the leading ideas of the documents is to commercialize the intangible goods of forests. According to the documents, ecological and social sustainability of forests ensure the demand for forest-based products and services. Hence, it is important to maintain social acceptability of forestry.

Social acceptance enables the growing use of forest resources, the storyline being similar to National Forest Programme 2010 and 2015: increased use of forests will generate growing welfare to Finnish citizens. NFS was written based on the Report, but it is not solely independent; its implementation is closely linked to other strategies and programmes, such as Bioeconomy Strategy, Energy and Climate Policy Strategy and National Biodiversity Strategy. NFS priorities goals under 7 themes and steps to achieve them and it replaces the previous National Forest Programme.

4.3.1 Objectives, challenges and tools

The Government Report on Forest Policy 2050 has three objectives and a set of measures that aim to develop the forest-based business and activities. The National Forest Strategy 2025 follows the objectives set by the Report, with addition of seven sub-objectives. The objectives and sub-objectives are:

1. Finland is a competitive operating environment for forest-based business.
    a. Forest sector grows, enterprises and business are renewed, and new and growth enterprises are developed.
    b. Supply of raw materials allows for increased use of forests and new investments
    c. EU and international forest policy promote sustainable use, acceptability and competitiveness of forests and wood
2. Forest-based business and activities and their structures are renewed and diversified.
    a. Know-how on forest-based business and activities is diverse and responds to changing needs
    b. Administration is flexible, effective and customer-oriented
3. Forests are in active, economically, ecologically and socially sustainable and diverse use.
    a. Forestry is active and business like
    b. Forest biodiversity and ecological and social sustainability are reinforced (Ministry of Agriculture and Forestry 2015, 7)

The objectives represent mainly economic values with social aspects. New businesses, increased use of raw material from forests, business-like forestry and flexible administration are central features of the objectives. The ecological aspect is the last point of the list, being "Forest biodiversity and ecological and social sustainability are reinforced" (Ministry of Agriculture and Forestry 2015, 7). Similarly to the NFP 2010 and 2015, the main goal is not to create healthy, biodiversity-rich forest resources for the benefit of nature, instead, abundant forest resources enable better and increased exploitation of them. In other words, forest nature is managed in order to increase the productivity of forests, not because of the intrinsic value of forest nature.

In NFS, the perceived challenges can be divided into economic, social and ecological ones. To reach the objectives and overcome the challenges, NFS has defined a forest strategy project portfolio that has 11 projects. The projects are designed to answer to most urgent needs on which the public sector should focus in the near future from the publishing year onwards (meaning 2015-2020). The chapters below describe each objective with its respective challenges and tools to overcome them.

The first objective represents economic values, resource efficiency and flexible policy making is central to reaching the goals. Growth of global economy will lead to growing welfare and increase consumption and the use of forest products globally. Especially the demand for higher value-added products is expected to rise. The use of printing paper is decreasing and replaced by electronic formats and the production of pulp and paper is switching to countries with lower production costs. This creates challenges for the traditional forest industries. However, according to NFS, new technology enables marketing of new products and solutions in forest-based business and can also increase productivity evening the gap in production costs between developed and developing countries. Domestically, ageing of the population makes economic growth challenging, and increases public expenditures. Finland's trade balance is on deficit due to weak exports. The supply of wood is smaller than the harvesting potential, which can have a negative effect on new investments. The goal of forest policy is to secure the operating environment for forest-based businesses and EU legislation should not hinder active use of forests. Innovations, entrepreneurship and business-like forest ownership are encouraged. Forest road network should be repaired and managed to enable active use of forests.

The second objective represents economic and social values. Global challenges are population growth and ageing of population. Domestically, citizen's relationship with forests is changing due to urbanisation, demographic change and immigration. High priority is placed on designing and offering services to forest owners. Education and training should be developed to meet the future needs and to make forest sector an attractive field for new professionals. Occupational welfare should be improved. Sectoral boundaries should be lowered and co-operation between different sectors is encouraged. Administration should be flexible, cost-effective and customer oriented. Environmental permit procedures should also be flexible and quick in order to safeguard investments to new production. To answer to the changes in operating environment, competence of employers, employees and entrepreneurs in the forest sector need diversification. Because the plan is to intensify the forest use, need for vocational education in forest-based businesses is growing, and the availability of skilled labour need to be secured. Publicly funded research and development should be primarily targeted to exploitation and commercialization of forest resources.

Researchers and businesses should increase their co-operation in order to channel knowledge into new and competitive products and services.

The third objective emphasises the business opportunities of forest resources and it represents economic and some ecological values. Business-like forest ownership is encouraged. The goal is to help forest owners to make active decisions on how they want to use their forests (commercial use, protection, landscape conservation). The goal of the strategy is to promote active and business-like forestry and through that grow the property sizes and lower the average age of a forest owner. Business-like forest ownership is promoted through taxation and an incentive scheme is established. Biodiversity loss is halted with new conservation areas and sustainable forest management in commercial forests. More deadwood is left in the forests which will halt the biodiversity loss and improve the ecological status of forest environment. Diversified forest management is a tool to mitigate climate change and to adapt to changed climate. As the goal is to intensify forest use, the role of forests as carbon sink will decrease. The decrease will be compensated by replacing fossil raw materials with renewable ones.

According to the documents, global challenges, such as climate change, availability of clean water, biodiversity loss and changes in the land use will change the operating environment of forest sector in the future. Demand for natural resources grows along with population growth and growing welfare, and the need for agricultural land will increase. This is expected to result in decreasing volumes of forests globally (Ministry of Agriculture and Forestry, 2014, 2015). However, according to the documents, new natural resources will be taken into use and the resources will be used more efficiently thanks to new technologies. Domestically, ecological challenges consider the uneven division of protected forests (strong concentration in the northern Finland), forest-dependent living species and the lack of management of seedling stands and young stands (Ministry of Agriculture and Forestry 2014, 2015).

In NFS, the implementation and success of the strategy is assessed with 27 indicators. The indicators have a target level to be reached by 2025 and the target level is compared with the initial level in 2013. Rather than setting a numerical goal, most of the indicators are set on a general level showing a trend, such as “growing” or “declining”. In this research, these targets were coded as “Rhetoric” because without numerical indicator, it is difficult to assess whether or not the goal has been reached sufficiently (e.g. 0,01% increase in a certain indicator could be considered as growth, when there is no actual change). In some indicators, there is no initial value, so it is difficult or even impossible to evaluate whether the trend is growing or declining. From 27 indicators, 11 are economic, 6 are social and 10 are ecological. Economic indicators describe for example timber sales, source and consumption of energy, and turnover of forest-based businesses. Social indicators describe for example the number of graduates from forest-related education, number of children who participate forest-themed events and the number of visits in national parks. Ecological indicators describe for example the annual increment of growing stock, annual carbon sink of growing stock and the implementation of METSO programme per hectares.

From economic indicators, only two are concrete. Concrete in this case means that the target level is set on a numerical value, such as “Energy use of solid fuels, of which forest chips: 15 million cubic meters in 2025.” (Ministry of Agriculture and Forestry 2015, 17). There are no numerical (concrete) social indicators. Instead, all of the social indicators describe a trend, such as “increasing” or “meets the need”. From ecological target levels, seven were set on a concrete level, which is a positive finding. Concrete targets are such as “The average volume of deadwood in Southern Finland in 2025: five cubic meters per hectare” (2015, 28) and “Early management of seedling stands and management of young stands (ha): 140,000 hectares in 2025” (Ministry of Agriculture and Forestry, 2015, 25).

5 DISCUSSION

This discussion section aims at contextualizing the research results in the light of literature presented earlier. The focus is on summarizing and discussing the key findings. The policy changes over time are discussed, following with a section of identified trade-offs and their implications, and finishing with discussion of the dominant meta discourse and its impacts in the context of Finnish forest policy.

5.1 Key findings of the analyzed policies

5.1.1 National Forest Programme 2010

In the National Forest Programme 2010, sustainability is economic, ecological and social. Economic development facilitates ecological and social sustainability and is hence the leading value. It is stated in the programme, that its perspective is market-orientated, and exports of forest products create the flow of income that is needed in developing sustainable forest management. Furthermore, profitable forest sector creates the preconditions for safeguarding forest biodiversity and to consider social and cultural values. According to NFP 2010, growing use of forests increases the welfare of Finnish society: increased income from forest-based industries and new job opportunities allow more resources for protecting nature and cultural values while also decreasing the dependence and use of fossil fuels which lead to decreased CO_2 emissions. In addition, growing use of forests for national production decrease the dependency on imported products and materials and create employment in rural areas. New technologies do not play a role in NFP 2010, but the focus is rather on new research information, use of the information in practice, and the education and guidance of forest owners and labour. The programme takes into consideration the contradiction between increased use of forest resources and growing environmental consciousness among citizens.

Social acceptability is earned through sustainable use of forests and through communications. In the programme, there is a win-win situation where increased use of forests creates more welfare to Finns. Win-win situation together with market orientation determine, that the most dominant meta discourse in this programme is ecological modernization.

The programme highlights participation and co-operation of different groups in preparation, implementation, and monitoring of the programme. The premises of the programme were openness, co-operation, and bottom-up approach which all reflect the Spirit of Rio. According to NFP 2010, to maintain mutual understanding, trust and direction, the flow of information and co-operation between government, private sector and non-governmental organizations should be taken care of. Stakeholders and citizens were welcomed to take part in the process of creating and monitoring the NFP 2010. The programme promotes a bottom-up approach and aims at bringing researchers and users of the research information together. A web page was opened in 1998 to publish the drafts of the programme for everyone to see and comment, having 6800 visitors during the preparation of the programme. The role of government is to facilitate rather than govern a suitable environment for reaching the goals of the programme (well-managed road network, competitive price of energy, development and technology programmes and education).

In summary, the findings highlight an emphasis of anthropocentric views rather than ecocentric. According to the programme, with increased use of forests, the well-being of people and nature increases due to new jobs and growing income, which brings resources for environmental conservation. The findings indicate that there is a win-win situation where well-being of Finns and forest nature increase from more intensive use of forests. The lack of ecological impacts assessment due to running out of time communicates a low prioritization of ecological objectives when put against economic and social ones.

The main tools to reach the objectives set on the programme are education and new knowledge, increased funding for technology and development projects and nature conservation, developing new tools for monitoring the state of forest nature, and co-operation between forest owners, companies and organizations nationally and internationally. The research findings indicate that the responsibility for innovations is given to private companies. No sections in the programme could be identified that would suggest a fundamental rethinking on how to tackle environmental problems but rather looks for ways to conduct business more efficiently, and this way bringing resources to protection of nature and cultural values attached to forests. The research findings demonstrate that the dominant discourse reflects ecological modernization.

5.1.2 National Forest Programme 2015

NFP 2015 defines transgenerationality as the core of sustainable development (Ministry of Agriculture and Forestry 2008). In the programme, it means that biodiversity is considered in forest management methods. The programme takes pride on its multidimensional approach to sustainability and diversified content. However, the view of the programme is anthropocentric rather than ecocentric: healthy forests are a source of raw material and immaterial commodities. The goal is to marketize and develop new products and services based on forests, bringing increased welfare to citizens. The state of biodiversity should remain sufficient from a generation to another and there are no ambitions to increase the biodiversity. Climate benefits from forests are attained from the use of wood-based energy and wood products. According to the programme (Ministry of Agriculture and Forestry 2008, 21): “The greatest benefits in terms of the sustainable use of natural resources and the mitigation of climate change can be produced by using wood to replace other materials.”. In other words, forests are most useful when harvested. Nature conservation tools and methods are decided based on latest research information and on monitoring the impacts on nature caused by forestry. The impacts of climate change are studied, and preparations are made towards the effects of it. Ecological sustainability is strongly attached to economic sustainability: strong, vital, biodiverse forests enable an extensive and diverse use of forest resources.

According to the programme, it was prepared in harmony with principles adopted in the Rio Conference on Environment and Development. However, it is not identified, what the principles are and how they are incorporated in the programme, or how the principles of Rio are understood in the preparation of the programme. Hence, the adaptation is mainly rhetoric.

NFP 2015 is prepared and implemented in a cooperation with seven different ministries, and representatives from stakeholder groups. It is recognized that in order to accomplish the goals set on the programme, it is vital to cooperate between different interest groups, public and private sector. The programme aims to make forest sector more equal among genders. As the share of female forest owners is growing, advisory services for forest owners are adjusted accordingly. Also, the gender gap in forest-related jobs is considered in plans to make forest-related education and jobs more attractive to both genders. The responsibility of public sector is to communicate with stakeholders and to fund research and development programmes. The private sector is in charge of creating forest-based product and service offering that is market- and customer-oriented. There are efforts to integrate the principles of Rio in the programme, however the outcome is mainly rhetoric and less visible than in NFP 2010.

In summary, the findings demonstrate an emphasis on economic values and the dominant discourse is ecological modernization. The findings demonstrate that there are no sufficient measures set to balance the negative environmental impacts from forestry, nor to improve the state of forest biodiversity. According to the NFP 2015, increased use of forest resources increases the economic activities and State revenues, while attaining significant environmental benefits from improved water protection and conservation of forest nature. However, it is acknowledged in the programme, that more intensive forest management methods and increased exploitation of forest resources have a negative impact on forest nature. This reflects a low prioritization of ecological values and an economic orientation. According to the research findings, the programme maintains business as usual but with a hint of green, the goal being to innovate new production from forest-based resources.

The findings also demonstrate that the economic and social impacts of the programme are concrete and positive while the impact on environment is presented only in vague detail, implying it might be negative yet lacking an action plan to reverse the negative outcome caused by more intensive forestry. There are economic, social and ecological goals in the programme. However, the research implicates that in case of a conflict between different objectives, for example, increased harvests and increased state of biodiversity, environmental aspects risk not to be prioritised.

According to the research findings, forests are a tool for a low-cost mitigation of climate change, functioning as carbon sinks but mostly as material for construction and bioenergy. The conservation of forest habitats is acknowledged in the goals of the programme, and the METSO programme was established for the conservation of biodiversity. Despite this, the research findings highlight that similarly to NFP 2010, this programme does not step outside the box, but rather creates ways to conduct business as usual more effectively and self-sufficiently. Furthermore, citizens' positive associations towards forests and nature are used to create socially acceptable atmosphere around intensified use of forests.

5.1.3 Government Report on Forest Policy 2050 and National Forest Strategy 2025

The documents follow the ecological modernization storyline: Increased use of forests lead to increased welfare of citizens. Ecological goals and concerns are presented at the end of the objectives list, following the trend from NFP 2010 and 2015. There is a strong emphasis on commercializing ecosystem services in addition to traditional timber sales. The premise is, that increased use of forest resources creates more revenue which leads to growing welfare. Forest ownership should be active and business-like, and the importance of forests as forest owners' income should increase in order to secure the increased supply of raw material. Administration should be flexible, efficient and unbureaucratic. Legislation should not create "unnecessary barriers" to sustainable use of forests (Ministry of Agriculture and Forestry 2015, 15).

According to the documents, new technologies will offer solutions to ecological challenges in the future. Ecosystem services should be managed sustainably based on scientific findings. However, according to the documents, public R&D funds should be directed to research in new business opportunities and marketization of forest products and services, instead of research on biodiversity and forest nature conservation or on climate change mitigation. It is acknowledged in the strategy, that without ecological and social sustainability, there is no demand for forest-based products and services due to lack of social acceptance.

In 1998, when the National Forest Programme 2010 was written, the principles of Rio were fresh in mind and there was an effort to include the idea of bottom-up participation and equality of genders into the programme. In 2014 and 2015, when the Report and NFS were written, the principles of Rio are less visible. However, stakeholders were included into the decision making with a participative writing process and administrative bodies were in charge of carrying out the decisions. There is no transformational change in how to conduct forestry, rather the strategy aims to use natural resources more efficiently than before and to find new business opportunities to compensate the decrease of traditional forestry.

To summarise, the research identified the features of ecological modernization discourse to be the most dominant. Wellbeing form increased use of forests, commercialization of ecosystem services, flexible policy making, and new technologies reflect ecological modernization. The research indicates that there is no fundamental rethinking on how to tackle environmental issues and to stop biodiversity loss. Instead, more emphasis is put on how to commercialize the forest nature and ecosystem services. Hence, the research findings highlight an emphasis of anthropocentric rather than ecocentric views.

Intensified use of forests is legitimized with a vision that through decades Finns have made a living and found mental and spiritual welfare from forests. It is emphasized in the documents, that thanks to increased forest management, forests are currently in better shape than ever with 50% increase in growing stock in 50 years (Ministry of Agriculture and Forestry 2014, 7).

The successful forest management in the past decades then leads to increased welfare both in terms of revenue and mental health. NFS has succeeded in creating concrete indicators for monitoring the state of forest nature. The indicators are for example, the volume of dead wood per hectare and implementation of METSO programme per hectares. However, according to the research findings, production is prioritized over ecological concerns, which is in conflict with the perceptions of citizens, who are growingly conscious about nature conservation. The research findings demonstrate that in NFS, social sustainability consists of employment, occupational welfare and culture.

The cultural aspects of forests are recognized, but the cultural environment of forests is seen as a resource for new businesses rather than an entity that should be safeguarded for its innate value. Intensified forest management is made socially acceptable through bioeconomy discourse. The research findings indicate that in the NFS and the Report, bioeconomy represents an opportunity to capitalise on natural resources and the capitalization is expressed with terms as “active and business-like forestry” and “commercialization of ecosystem services”.

5.2 Changes over time – a brief comparative analysis on Finnish forest policy

The research results indicate a clear dominance of ecological modernization in all the analyzed forest policy documents. The research findings suggest that although the language used in the policies widely refers to sustainability, with closer inspection the understanding of sustainability focuses narrowly on economic aspects and is industry friendly. A win-win storyline is visible throughout the policy documents: the vision of growing welfare of Finns from increased use of forests remains the same in all analyzed policies. The dominant discourse remains the same during the publication years of the documents (1999-2015) and in all analyzed policy documents, the view is anthropocentric and economic values have a leading role.

Through the years, the views of ecological modernization become stronger in the policies, as the bioeconomy started to gain more ground in the 2010's giving a "disguise" for the legitimatization of industrial forestry. In addition, new technologies and technological fixes started playing a bigger role in the 2000's.

While the dominant discourse remains unchanged through years, the study demonstrates a correlation between the presence of the Spirit of Rio and time passed. The presence, or more appropriately the absence of the Spirit of Rio has grown during years since the Rio Conference in 1992. The Spirit of Rio was more visible in the National Forest Policy 2010, published in 1999. However, it fades away in the course of time and is not well represented in the Government Report on Forest Policy 2050 and in the National Forest Strategy 2025, which were published in 2014 and 2015. In NFP 2010, there are some visible attempts to incorporate the Spirit of Rio: the ground rules of the programme were openness, co-operation and bottom-up approach. These were achieved through participative writing process, where citizens and stakeholders were able to read and comment the programme online before its publication. Secondly, specialists of different fields were consulted, and thousands of citizens participated regional discussion forums during the preparation of the programme. Thirdly, a Forum of innovation was established as a platform for stakeholders from different groups to co-operate in finding solutions to issues around forest-sector. The following programme, NFP 2015, addresses possible gender inequalities within forest sector and seeks to increase equality between male and female forest owners through service selection. Also, there are attempts to increase the number of females entering forest-related education and jobs. In the most recent policy documents that were analyzed (published in 2014 and 2015), the Spirit of Rio had faded away and was noted with a mere sentence about "participative writing process".

The research results indicate that over time ecological modernization has remained the dominant discourse and has even became stronger in a "disguise" of bioeconomy in the latest forest policies, while the Spirit of Rio has become less visible after the 1990's and the principles set in the Rio Conference play only a rhetoric part in the latest policies.

5.3 Trade-offs and their implications

The challenge of bioeconomy is to meet increased biomass production with sustainability goals, and scholars (McCormick & Kautto 2013; Kleinschmit et.al. 2014; Kröger & Raitio 2017) have argued that the realization of bioeconomy holds many trade-offs. Indeed, in the analyzed policy documents there are trade-offs between economic and ecological goals, such as increased biomass utilization versus halting the degradation of biodiversity and protecting forest nature. There is a lack of reflections and explicit discussion of the trade-offs in the documents, despite the conflicting goals. The lack of consideration of trade-offs is not unforeseen, as the programmes analyzed are growth oriented, and optimistic in terms of employment and economic development.

Integration of ecological values and issues tend to decrease economic productivity and can have a negative impact on economic growth potential. An example of a scenario where an economic and ecological goal is conflicting is found in NFP 2015: "The use of domestic wood has increased significantly, and the biological diversity of forests have improved" (The Ministry of Agriculture and Forestry 2008, 12). There is no clear notion on what the plan would be to tackle the trade-offs and how they are considered in the planning of the policies. The most striking trade-offs in the analyzed policies are conflicts between biodiversity protection and increased productivity goals; carbon sequestration and intensified use of forest resources for production; the potential negative impacts of bioenergy production and the state of biodiversity and quality of water; the use of trees for industrial purposes and non-timber forest uses and products, such as tourism, recreation and reindeer herding.

As stated in the literature earlier (e.g. Kuhlman & Farrington 2010), economic goals tend to be higher in hierarchy, and can lead to weakening of ecological aspects. As the analyzed documents and bioeconomy in general tend to have multiple trade-offs, a lack of proper reflection on them raises a concern that ecological goals will not be fulfilled in the presence of dominant economic goals.

It should be considered in the policies, that aiming at constant economic growth and expansion of human activities will inevitably decrease the living space of ecosystems and can potentially lead to environmental degradation that cannot be compensated monetarily. These findings suggest that the integration of ecological sustainability is mainly rhetoric.

5.4 Sustainability in a forest-based bioeconomy – old wine in new bottles?

The analysis confirms that economic values have a leading role in Finnish forest policies and the premise of all documents is market orientation. In the analyzed policy documents, there is an uncontested assumption that business benefits people, ultimately leading to increased welfare. There is an effort to make industrial forestry socially acceptable again through bioeconomy. Indeed, bioeconomy acts as an opportunity to capitalize natural resources.

In the policy documents, ecological concerns are mostly addressed as the last point of listed goals which can be taken as a reflection of low prioritization. In ecological modernization meta discourse identified in the policy documents, ecological degradation is disconnected from economic growth; there is a win-win situation where industrialization is made environmentally friendly with new technologies and more flexible and cost-effective policy making.

The results of this research are in line with earlier research (for example Kleinschmit et al. 2017 and Kröger & Raitio 2017, see chapter 1.4) and with Bäckstrand & Lövbrand (2006) and Kleinschmit et al. (2014) who have argued that the dominant bioeconomy discourses reflect ecological modernization. Furthermore, the research indicates that economic considerations are the priority, while social and ecological values remain secondary. This finding corresponds with research from Kröger & Raitio (2017), McCormic & Kautto (2013), and Kuhlman & Farrington (2010), who have found that while economic, social and ecological aspects might be considered, economic aspects have the tendency to dominate the other aspects in environmental decision making.

Harrinkari et al. (2016) found that the administrative coalition, where the Ministry of Agriculture and Forestry is the principal actor, aims at combining all aspects of forest use, yet it is inclined towards the forest position which aims at increasing the use of forests and is driven by market values. This resonates with the research findings, which indicate that while sustainability is widely incorporated in the policies, the leading interest is in economic growth and industrial forestry. The research findings also resonate with Berg et al. (2019) who found that while sustainability is accepted as a policy goal in Finland, other goals, such as short-term financial interests, easily overlook sustainability goals. Moreover, in line with Berg et al. (2019) the study found that short term economic aims often dominate the policies over long-term goals and the impacts of policy decisions are not evaluated in the policies sufficiently. This is reflected in cases where ecological and social aspects are integrated into strategies, but evaluation methods and tools are missing. Consequently, political measures end up being short-sighted and can contradict with sustainability objectives.

According to Berg et al. (2019) Finns' already perform poorly by their carbon footprint on consumption. Given this, the society needs a transformational change away from over-consumption instead of making the current consumption patterns greener with the utilization of biomass. Discourse of ecological modernization contributes to the latter; it makes consumption environmentally friendly.

The starting point of all the analyzed policy documents is that increased revenues create welfare for citizens. However, it is somewhat flawed to perceive that social welfare is tied to growing incomes, when improvement of social conditions should be assessed with multiple indicators, not just on monetary terms. Instead of relying on the three pillars of sustainability thinking, new models, such as the Doughnut Model for sustainability have emerged (see chapter 2.2.1) to demonstrate the interactive nature of social and ecological development. The research findings suggest that social sustainability is mainly narrowed down to enhancing the rural livelihoods with increased job opportunities. Moreover, cultural values and citizens' appreciation of forests are acknowledged, but lacks concrete planning and especially indicators, that could help in assessing the progress.

Prioritizing production over ecological concerns conflicts with the perceptions from citizens, who are growingly conscious about nature and value immaterial benefits of forests.

As indicated in the theory section, sustainability is a wide yet vague concept, hence it allows actors to engage in it, without necessarily making any major changes in their actions or policies. The research findings demonstrate, that in the analyzed policies the "brand" of sustainability is to some extent used as a marketing tool and hence risks legitimizing an industry friendly agenda with bioeconomy acting as an opportunity to commercialize natural resources. Although the analyzed policies are published in the time span of three decades (1990's, 2000's, 2010's), there is no visible shift away from business as usual. Instead, old solutions are presented to new problems by making industrial forestry acceptable again, labelling it as bioeconomy: a situation well described with the phrase "Old wine in new bottles". As the phrase suggests, something new and innovative is added into an already existing system, leaving the core of the system untouched.

This research contributes to clearer understanding on the dominant discourse in the Finnish forest policy and to the understanding of the existing sustainability considerations in forest policies, which is crucial in order to realize the expectations set for the forest-based bioeconomy. Moreover, the results of this research will help to inform ongoing and future forest policy revisions by revealing the dominant discourse. Dominance of economic goals over biodiversity concerns can negatively affect the long-term benefits we gain from nature, such as the ecosystem services. Indeed, there should be work towards long-term opportunities instead of turning our natural wealth into cash. Referring to Kröger & Raitio (2017) there is a need for active decisions to not manage forests in order to increase their benefits instead of active forest management.

These findings should be considered for example when revising the current forest policies and in designing forest-related education and advisory services for forest owners. Furthermore, it is important that the general public agrees with forest policy, as they are the consumers of forest-based products and services.

Firstly, in the case of forest owners, uncontested prioritization of economic values can be contradictory to forest owners' values and objectives. The group of private forest owners is increasingly diversified and empirical studies show that forest owners have multiple objectives in their forest management (e.g. Kuuluvainen et al. 1996, Karppinen 2012). Secondly, forest owners might not be aware of the climate benefits of their forests; trusted advisors should take role in communicating the risks and opportunities of climate change adaptation instead of stressing only economic aspects. The same thing applies in all forest-related education. Students of the field should be educated to find new solutions to environmental problems and to fundamentally rethink the sector, instead of finding ways to legitimize again old solutions. Thirdly, for many citizens climate concerns have become increasingly important, which is still not well reflected in dominant policy discourses. The lack of reflection can become problematic as the citizens' values contradict with the plans to increasingly use biomass while the bioeconomy needs legitimization from the general public in order to thrive and succeed.

6 CONCLUSION

This research aimed at identifying how sustainability is framed in Finnish forest policies, and if a dominant discourse can be identified. In addition, the aim was to study, whether the Spirit of Rio has been included in the policies. Based on a discourse analysis of chosen policy documents published by the Finnish Ministry of Agriculture and Forestry, this study concludes that while ecological, economic and social sustainability are addressed, the most dominant meta discourse is ecological modernization with economy as the leading value. The results show that integration of environmental issues is mostly rhetoric, weak and show low prioritization. Moreover, there are trade-offs between increased use of biomass and sustainability goals, yet further reflection of the trade-offs is lacking. Furthermore, the results indicate that the Spirit of Rio was addressed in the document published closest to the Rio Conference and through time has faded away and is not recognized in the latest policy documents.

The research results show that sustainability is integrated into the Finnish forest policies; however, the integration is weak or rhetoric, and ecological values are overruled by economic ones. In case of a trade-off, economic goals have higher hierarchy than ecological ones (e.g. increased loggings versus enhanced biodiversity). Sustainability and ecological concerns, such as climate change are acknowledged as factors affecting the Finnish forest sector and changes in production and consumption patterns are called for. However, the policy goals mainly focus on the competitiveness of Finnish forest industry and economic growth. This indicates that environmental issues have a secondary position in the policies. The most dominant meta discourse is ecological modernization. The discourse highlights market orientation, flexible and cost effective administration and puts emphasis on new technologies that have a potential to solve environmental issues in the future. There are no notable changes in the level of integration of sustainability between the documents, instead, the dominant discourse and emphasis is the same in all four documents analysed.

There are attempts to include different groups in the decision making through public forums and all policies aim to increase the cooperation between various fields and levels of expertise. However, the most emphasis is put on cooperation between researchers and business representatives, the goal being to innovate new business opportunities from forest resources. The government is leading the direction by facilitating a suitable operating environment for businesses and business-like forest ownership. Despite the efforts of NFP 2010 to include the spirit of Rio into the policy making, the importance of participative policy making has faded over time. There has not been a transformational change in the forest sector during the publication years of the analysed policies (1999-2015). Instead, business as usual was continuous.

Sustainable development aims at creating higher well-being while maintaining neutral or positive effect on future resources. However, through time sustainability has been reinterpreted into economic, social and ecological sustainability. The research data indicates that the leading value of the forest policy documents is economic, and the view is anthropocentric rather than ecocentric. In this vision, market-orientation and new innovations create welfare to citizens through new earning opportunities derived from forests. In the documents, Government is the main actor, and its purpose is to facilitate a competitive forest sector. Private companies, researchers and forest owners are invited in the forest-sector to strengthen business know-how and to find new market opportunities.

Stemmed from these features, the dominant meta discourse is ecological modernization. A major challenge in the reaching of increased welfare is the non-sufficient flow of raw materials from forests due to private ownership of forests. In addition, sustainability goals and citizens' increased concern over ecological values contradict with the increased use of biomass. The aim of forest management is to increase the productivity of forests.

Healthy and abundant forest resources allow increased harvests and through this, generate income. The part of growing income is then used in protecting the forest nature. A circular process is created. In other words, in order to be protected, the environment needs to act as a source of income.

The method of this research was a discourse analysis, as the goal was to identify meanings and attitudes within the data. ATLAS.ti software was used in coding the research material. However, it was also found useful to write down intuitively themes and ideas from the data, and see which ones kept re-occurring. In line with previous studies, the data suggests that the leading value of the analysed forest policies is economic, and the policies are dominated with ecological modernization meta discourse. The main aspects taken from the Spirit of Rio were co-operation of stakeholders and participative writing process of programmes. However, larger topics of equity and stake-holding are not integrated to the policies. In addition, the Spirit of Rio has faded away along with time passed, and there are no efforts to fundamentally rethink the forest sector. While there was a notable change in the adaptation of the Spirit of Rio over time, the meta discourse of ecological modernization maintains its dominance throughout years in all the analysed documents. A future research prospect could be to compare the dominant discourses between major timber producers globally, such as Finland, Russia, Canada and Brazil.

Although sustainable development is portrayed as the aim of bioeconomy, the research results indicate that there is a strong dominance on economic values. As we have reached the 21st century, new metrics for assessing the state of welfare are needed. Instead of measuring welfare in terms of national income, we should look into genuine prosperity and lay appreciation on the irreplaceable natural resources. This kind of transformational change away from business as usual calls for co-operation and efforts from a broad group of stakeholders. After all, environmental problems are multidimensional, and hence should be tackled with people from different levels and areas of expertise.

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