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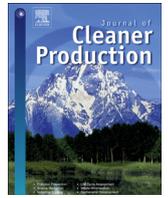
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# The responsive bioeconomy: The need for inclusion of citizens and environmental capability in the forest based bioeconomy



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## ABSTRACT

As climate change becomes an increasing concern in European countries, the bioeconomy could challenge previous conceptualizations about how states, citizens and corporations interact in everyday practices of natural resources governance. The conceptual understanding of responsive governance of the forest-based bioeconomy is an example of this challenge and is the topic of discussion in this paper. In Finland, there are efforts to support the transition towards the bio-based economy and to reform forest governance in an attempt to respond to local circumstances while mitigating global climate change. The recent articles have addressed the bioeconomy concept from political discourse point of view, the citizens participation has not yet been addressed sufficient in the current bioeconomy discourses. In order to fill this gap, this paper provides an empirical case from Finland and connects it to the theoretical contribution of responsive bioeconomy. The paper connects the capability approach and the forest based bioeconomy in the context of Finland. And argues that citizens could have capabilities and ability to participate in decisions about matters that directly affect their well-being. However, in the case of the forest based bioeconomy, the inclusion of citizens requires an interactive collaborative approach to empower various institutions and people to meet and debate on the development of their own living environment and environmental capability (i.e. those bioeconomy opportunities to achieve outcomes people value). Citizens may not be able to find solutions and create the new innovations which the bioeconomy strategy require, yet it is the citizens who will live under the changed access to opportunities and entitlements including environmental services. For this reason, responsive governance and its adaptive and interactive administration need to ensure that many change actors are taken into account as a matter of basic justice in various processes of the bioeconomy transition. Therefore key aspects of change, such as citizens' values, interests, knowhow and environmental entitlements need to be taken into account.

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## 1. Introduction

The governance of natural resources is entering an increasingly challenging phase in European countries and elsewhere. It has become common in the European context to use the term bioeconomy once defining of the development of innovations for replacing non-renewable natural resources with renewable ones. Finland was one of the first countries to developing its own bioeconomic strategy and the final version of the “Finnish bioeconomy strategy: sustainable growth from bioeconomy” was published in 2014. For example in Finland, climate change and the transition to the bioeconomy are creating new challenges for the sustainable

development and management of natural resources. The forest-based bioeconomy in Finland is seen in particular as the new path towards a sustainable green economy (MEE, 2014). Although the rush to support growth and innovations in the Finnish bioeconomy is hardly questioned in political discourses, the Finnish bioeconomy strategy (2014) also seeks to promote interactions between citizens, bioeconomy operators and decision-makers both as concerns policy processes as well as in utilization and conservation of natural resources.

In the future, the bioeconomy can significantly influence the three dimensions of sustainable development and distributive justice. Dobson (1998: 39) is critically looking the dimensions of sustainable development discourse from a ‘distributive-justice’ perspectives. According to Langhelle (2000:296), Dobson’s critical thinking about the relationships between distributive justice and

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environmental sustainability leaves out the option that sustainability is a necessary condition for justice. [Lessmann and Rauschmayer \(2013:110\)](#) calls "... better understanding of collective capabilities, norms, intentions, institutions and so on and their link to individual capabilities, norms, intentions, institutions and so on, on a conceptual level, but also in practical governance processes." [Amartya Sen \(1999\)](#) introduced the concept of capability: "Capabilities" here means the conditions of enablement that make it possible for people to achieve goals, and the availability of opportunities to achieve outcomes people value. Based on the argument of [Sen \(1999, 2005\)](#) and [Alkire \(2007\)](#), the conditions and opportunities of human well-being should be defined in a deliberative process that incorporates individual opinions and values. However, [Lienert and Burger \(2015:6\)](#) claims that such public opinion-based, bottom-up approaches for selecting the valuable dimensions of well-being are extremely difficult to carry out: "... a priori selecting well-being criteria, or poverty dimensions, is problematic insofar as there are no general criteria available for what could count as valuable". And [Lessmann and Rauschmayer \(2013\)](#) argue that it is difficult to replace 'needs' in the Brundtland definition of sustainable development with 'capabilities' and claims the necessity to include both when dealing with issues of sustainable development.

[Lehtonen \(2004\)](#), in a review of the synergies and trade-offs between various dimensions of sustainable development, states that economic activities should be at the service of human beings while at the same time safeguarding the environmental and biophysical systems necessary for human existence. [Holland \(2008:320\)](#) claims that "because of the extent to which human capabilities are dependent on the natural environment, we should treat certain environmental entitlements as a matter of basic justice". [Holland \(2008\)](#) suggests that in a world subject to large-scale ecological interactions, the Sen's capabilities approach needs to pay attention to the ecological conditions that enable the minimum threshold of protection of the capabilities (i.e. access to livelihood opportunities) required for justice. However, there is also the need to consider the level of protection of capabilities that a society can justify without impacting on ecological conditions in ways that undermine the capabilities of vulnerable people elsewhere. There can be a conflict between the opportunities society offers to support people's livelihood on the one hand and the environmental conditions needed to sustain people elsewhere and in the future. However, scholars argue based on public reasoning (e.g. [Sen 2005](#) and [Alkire 2007](#) and deliberative democracy (e.g. [Fung and Wright, 2001](#) and [Evans, 2004](#)), that the task of weighing between various capabilities should be left to the political and ethical considerations of each society based on public deliberation and reasoning. Deliberations between citizens, the bioeconomy actors and national decision-makers and administration could engage citizens in combating climate change and in co-developing the objectives of the actions related to the bioeconomy. Although interactive multi-actor governance can be criticized as lacking arguments supported by empirical evidence, facilitation of citizen interactions and participation in decision-making in governance debates is commonly found to be desirable ([Pateman, 1970](#); [Chambers, 1974, 2005](#); [Barber, 1984](#); [Nalbandian, 1999](#); [Fung and Wright, 2001](#); [Evans, 2004](#); [Smith, 2005](#); [Callahan, 2007](#)).

The traditional governance models that stress the importance of bureaucracy and hierarchy are considered to be incompatible with genuine democratic participation ([Moynihan, 2003](#)). A supranational economic political elite has become a major global "player": For example in Finland, scholars has argued (e.g. [Korvela, 2012](#); [Wiberg, 2013](#); [Mustalahti et al., 2015](#)) that the elites network and operate independently regardless of the opinions of citizens. Internationally, there is on-going tension between proponents of

central control versus local/community control over the natural resources and reflects the underlying dilemma between management for conservation and management of natural resources for exploitation. Policymakers have used various means to justify centralization. Similar arguments relating to depoliticization and anti-politics ([Ferguson, 1990](#)) have also been raised by scholars of international environmental action and development studying the governance of natural resources and 'techno-bureaucratic doxa' (see for example [Ghai and Vivian Jessica, 1992](#) [Kothari, 2001](#); [Goldman, 2003](#); [Wilson et al., 2006](#); [Ojha, 2006](#); [Scheba and Mustalahti, 2015](#)). In the case of the techno-bureaucratic-economic framing of the bioeconomy, the dominance of the industrial perspective in the interpretation of the bioeconomy concept emphasizes the role of industrial sectors in managing biological resources (such as fishery, forestry and agriculture sectors) and of economic interest in the European context ([Schmid et al., 2012](#)). This is contradictory to one of the key pillars of sustainable development, socially sustainable development which can be seen as key to guarantee improvements in human capabilities to achieve well-being for both present and future generations.

Although several scholars (e.g. [Arnstein, 1969](#); [Thomas, 1995](#); [Box, 1998](#)) have identified different participation ladders, levels and degrees, it is challenging to implement and measure responsiveness and citizens' meaningful and responsive participation. It can be argued that the public administration should implement democratic values such as justice and moderation, and promote a sense of community and civil society ([Denhard and Denhard, 2000](#)). Participation and cooperation are important to strengthen public confidence in the administration, and in addition have a bearing on well-founded and improved decision-making ([Rask et al., 2012](#)). Cooperation represents a commitment to being involved by multi-level actors and politicians, and by citizens who agree to participate. But it is commonly argued by scholars that this is not how the relevance of interaction and meaningful participation of citizens is perceived ([Konisky and Beierly, 2001](#); [Wiberg, 2013](#); [Mustalahti et al., 2015](#)).

Generally, in Finland, deliberative and participatory governance is seen as challenging, and the limits of citizens' panels and other forms of deliberative administration in Finland are discussed by [Wiberg \(2013\)](#); for example, citizens' participation may simply be used to ensure the minimum requirements of representative democratic decision-making are met, and some cases even to manipulate the decision-making processes. In Finland, despite efforts at transparency and interactive public debate in relation to the current transition towards a bioeconomy trajectory, it has been challenging for citizens to meaningfully participate in the strategic decision-making.

This paper therefore argues that responsive governance has a crucial role to play in the success of the bioeconomy transition. This view is discussed using a conceptual understanding of the responsive forest-based bioeconomy in Finland that connects the concept of responsiveness with the capability approach. The recent articles have address the bioeconomy concept from political discourse point of view (see e.g. [Ramcilovic-Suominen and Pülzl, 2016](#)), the citizens participation has not yet been address sufficient in the current bioeconomy discourses. In order to fill this gap, this paper provides an empirical case from Finland and connects it to the theoretical contribution of responsive bioeconomy.

## 2. Case study and methods: the forest-based bioeconomy in Finland

Since early 2000, there has been a political discourse at the EU level about the bioeconomy. As early as in 2002, a biotechnology strategy was published in support of the so-called "knowledge-

based” economy in EU countries (European Commission, 2012a,b). The new term, Knowledge-Based Bio-Economy (KBBE), indicated that “biotechnology” had assumed a central position in political discourses (European Commission, 2004). Finland was among the first European countries to adopt the political discourse on the bioeconomy. According to Toppinen et al., 2015 in Europe investments in sustainability in the pulp and paper industry have great potential for change towards the future bioeconomy. However, Ollikainen (2014) has pointed out that existing discourses do not fully recognize the role of the forest-based bioeconomy, and that the EU bioeconomy strategy does not duly address forest sector renewal, for example.

In Finland, the core message was and has been that the forest-based sector is one of the key sectors that contribute to the bioeconomy. Between 2009 and 2011, a number of documents prepared the ground for the forthcoming strategy (e.g., SITRA, 2009; Luoma et al., 2011; Gustafsson et al., 2011). The Finnish bioeconomy strategy was drafted in a project established by the Ministry of Employment and Economy with input from other ministries, researchers and many other interested parties. The final version of “The Finnish bioeconomy strategy: sustainable growth from bioeconomy” was published in 2014. The strategy strongly emphasizes the forestry sector and its contribution in the bioeconomy transition.

This paper therefore builds on the concept of the forest based bioeconomy and explores the role of responsiveness and environmental capabilities, in the sense of Amartya Sen’s capability approach (Sen, 2003): In the case of responsive forest based bioeconomy, the center aspects for the analysis are the opportunities and entitlements with which people can achieve the outcomes which they value.

Policies relating to the bioeconomy are constrained by the context of already-existing political discourses, yet transition towards the forest based bioeconomy is fostered by political discourses. In this study, various documents serve as data for critical discourse analysis (for a full list of documents analysed see Annex 1). Discourse here refers to the idea of a specific entity, which in connection with this work is the forest-based bioeconomy, as presented and discussed in strategy papers as well as in other written communication. Since 2014, the bioeconomy has been increasingly addressed using discourse analysis (see for example Pülzl et al., 2014; Kleinschmit et al. forthcoming). However, the extent to which and how bioeconomy discourses integrate responsiveness and environmental capacities have not yet been the focus in studies of the forest-based bioeconomy.

The basic assumption of discourse analysis according to Hajer and Versteeg (2005:176) is “... that language profoundly shapes one’s view of the world and reality, instead of being only a neutral medium mirroring it”. Based on this assumption, in this paper discourse analysis is not employed to seek a solution for implementing a responsive forest-based bioeconomy. Rather, the intention is to trace the discursive power struggles which underlie responsive bioeconomy governance and to seek an understanding of the environmental capability struggle where “conflicts between discourses may be exacerbated, sidestepped or resolved” Richardson (1995).

Methodologically, political discourses are both an expression of and a prerequisite for social interaction (Pynnönen, 2013; Holmgren, 2015). Critical discourse analysis is a socio-political research method focusing on the creation of power and inequality through discourse (van Dijk, 1993). In the present study, the central idea of discourse analysis is the concept of discourses as tending to interpret and create an image of reality. Discourses operate as a frame for reality, defining which world is seen and which information, ideas, values and ideologies can move and be

passed on to others. The review of strategy documents, articles and discourses related to bioeconomy in Finland was carried out based on a conceptual understanding of responsive governance and how it could be connected to the bioeconomy concept (see also Mustalahti and Kusmin, 2016). In this paper, I use the case of the forest-based bioeconomy in Finland as the main framework for discourse analysis while mirroring the key concepts — responsive bioeconomy, governance, environmental capability — and debate on these not only in Finland but also in the international literature.

The political bioeconomy discourses to begin with will therefore have to be reconstructed by analysing the bioeconomy strategy and forest programs and strategies with reference to the bioeconomy in Finland (for a full list of documents analysed see Annex 1). In this regard, a qualitative focused coding of elements of responsiveness and environmental capabilities in forest-based bioeconomy discourses was undertaken to structure and group statements responding to the two following themes and questions, inspired by Lehtonen (2004) and based on Amartya Sen’s ‘capability approach’:

### 2.1. Responsiveness

How is responsiveness between different actors in the forest sector and bioeconomy connected in these bioeconomy discourses? What aims or solutions are presented for the perceived responsive governance between macro and micro levels of administration, local citizens, civil society and the private sector? How are these policy goals to be achieved? Here the focus is on how the bioeconomy strategy as well as forest-related documents and the broader literature referring to the bioeconomy frames the role of **inclusion of citizens in forest-based bioeconomy**.

### 2.2. Environmental capabilities

How are the environmental capabilities in the forest sector and bioeconomy connected in these bioeconomy discourses? What aims and solutions are presented for the perceived environmental capabilities relating to the bioeconomy? Here environmental capabilities means the actual access by citizens to opportunities and entitlements with which to achieve outcomes which citizens value in the forest-based bioeconomy. Here the focus is on how the bioeconomy strategy as well as forest-related documents and the broader literature referring to the bioeconomy frame the role of **environmental capability in the forest-based bioeconomy**.

These themes and questions were the basis upon which the major narratives referring to the responsive forest-based bioeconomy were reconstructed. However, it is acknowledged that human capabilities are dependent on the natural environment (Holland, 2008:320). Therefore this paper also attempts to understand if any environmental entitlements should be considered as a matter of basic justice in the case of the responsive forest-based bioeconomy. The systems thinking approach is therefore also employed and defined as meaning that instead of isolating the analysis of specific discourses (the documents in Annex 1), systems thinking is expanded to take into account a larger number of discourses, interactions and literature.

While weak integration of these two themes → responsiveness and environmental capabilities → was expected in the strategy and policy documents, a strong form of discourse could be located when broader textual analysis was applied (for example to relevant national and international literature in the references list). A broader systems analysis was performed to illustrate and generate further understanding of the bioeconomy discourses around these two themes and how they are connected in the case of a responsive forest-based bioeconomy. In the following chapter, I discuss the key findings of critical discourse analysis combined with the systems

thinking approach.

### 3. Discussion of key findings

#### 3.1. Responsiveness in context of bioeconomy in Finland

Responsive governance requires people's participation in decision-making and public debate (Roberts, 2004; Hyle, 2016). In the case of natural resources governance, such governance requires clear responsibilities, accountability and discretionary power transfers (Ribot, 2003), and access to "ability to derive benefits from things" (Ribot and Peluso, 2003). According to Denhardt and Denhardt (2000), the task of government and public services is to enable the citizen's participation and to influence services and decisions that concern citizens. This is also curial in the case of the bioeconomy: for example, various policies and laws related to climate change mitigation, energy efficiency and bioeconomy interventions directly affect the lives of citizens locally, nationally and internationally. In Finland, the Government Foresight Report (State Council, 2013) stresses the importance of citizen's inclusion, and various scholars in Finland have highlighted the need for transparency, interaction and inclusion in local development interventions (e.g. Niemi and Salminen 2005; Rask and Laihonon, 2011; Mustalahti et al., 2015). In Finland in recent years, there has been a growing debate on the future and the goals of democracy (State Council, 2014). This has stimulated discussion and ideas on the development of democracy and citizen participation (Wiberg, 2013) as a model for transparent and responsive governance which allows equal participation of citizens. From the point of view of the State, the question is rather how to influence citizens' habits or transformation of citizen's behavior in another direction/desired direction (State Council, 2014: 19). Representative participation (for example, elected representatives during planning processes), direct participation (for example, citizens' active participation, initiatives and panels) and influencing citizens' possibilities to participate in policy formulation, are ways to involve citizens in representative democracy and strengthen the management of interactivity and direct democracy. The development process for the Finnish bioeconomy strategy was to try to involve various actors. The process entailed the holding of five key actors' working groups in a participatory way as well as three regional and industry consultations in different parts of the country (MEE, 2014).

According to the strategy, the public was informed about the preparation of the strategy and was given the opportunity to have their say. Involving citizens in drawing up a strategy meant the opportunity to present their views via an internet-based survey (Biotalous.fi and Otakantaa.fi sites). However, it seems that inclusion of citizens in drawing up the strategy has been mainly symbolic, and citizens have had little influence in shaping the strategy. It is impossible to say from the content of the strategy to what extent the views of citizens have been taken into account because the surveys are only briefly mentioned in the summary of the strategy and the results are not clearly analysed in the text.

This is not surprising when taking into account the short history so far of direct inclusion in the forestry sector in Finland with its focus on large-scale national economic objectives. Furthermore, the term forest-based bioeconomy is not well-known and ordinary citizens' capacity to exert influence and bring expertise or interest to bear is not necessarily very high. Implementation of the responsive bioeconomy in Finland would require a broader public deliberation. In such a process, political decisions and their justification could emerge through dialogue in which all citizens, irrespective of education or their position in society, were able to participate, to listen to the arguments and discuss them on an equal footing. Such an approach promotes a sense of community and

transparency and seeks genuine dialogue and exchange of ideas, which in turn leads to critical and reasoned argument-based decision-making (Fung and Wright, 2001; McCoy and Scully, 2002; Evans, 2004). Critically, it may be asked whether Finland, the political parties, the forestry sector and their coalition,<sup>1</sup> are ready for this kind of decision-making and information sharing, for example on forest policy decisions. Harrinkari et al. (2017) argues that in case of forest policy making in Finland, there are three identified advocacy coalitions, namely Forestry administration, Private forestry and Environmental coalition. As described in the introduction section of this paper, the forestry sector in Finland is a classical example of techno-bureaucratic-economic framing, and the dominance of the professional perspective in the interpretation of the bioeconomy concept emphasizes the economic values in management of biological resources. This argument is not only based on discourse analysis of various documents but the author's own experience of having professional training in forestry and of working closely with actors in the forestry sector.

However, can it be assumed in the current transition stage of the forest based bioeconomy in Finland that there is enough information, transparency and well-understood knowledge to create a variety of innovative options that enable citizens to make wise choices between forest exploitation and conservation models or to create viable business models? Responsive governance thus also has its limits, and the processes can also be frustrating and unsuccessful. By contrast, representative political decision-making may be anti-democratic and the outcome predictable. The forest-based bioeconomy in Finland is a good example of the strong influence of the powerful coalition of the forestry sector and main political party and their interests in creating an economic success story, a new "Nokia". The struggle to counter the economic crisis and the existing strong forest based bioeconomy advocacy coalition (namely between political parties, forestry administration and private sector) will also affect the opportunities for participation of citizens and public debate on the sustainability (social-environmental-economic) of the bioeconomy and on the reliability of public administration and the forestry sector, for example with regard to forest policy decisions and natural resource use. The forest-based bioeconomy may not be solely about economic innovation to support national economic growth. The bioeconomy might also impact on citizens' rights and interests, their economic opportunities and well-being. An environmentally and socially responsible and sustainable forest-based bioeconomy requires decision-makers, citizens and the forestry sector to have the ability and the will to adopt the responsive approach.

Discourse analysis of various documents (for a full list of documents analysed see Annex 1) indicates that there is a growing debate on how the forest-based bioeconomy can impact for example on the landscape, berry picking, hunting and recreational use. However, the recent bioeconomy strategy and forest law does not emphasize these issues. The Finnish bioeconomy strategy document shows that there has been strong coalition power during discourses or because of the limited interest or knowledge of the general public

<sup>1</sup> In Finland, Harrinkari et al. (2017) argues that there are three identified advocacy coalitions, namely Forestry administration, Private forestry and Environmental coalition since from 1990s to 2010s. Environmental coalition representing environmental paradigm mainly referred to international legally binding rules and non-legally binding agreements. Private forestry and Forestry administration coalitions, which represented forestry paradigm, stressed market-related arguments: "Even if the coalitions' argumentation seems similar, the positioning of these two coalitions differs significantly, since after all, Private forestry coalition is interested in maximising the benefits for shareholders of forest industries and/or forest owners. Meanwhile, Forestry administration coalition attempts to maximise the benefit for the whole nation."

engagement in discourses. This reflects on another typical policy problem of strategic interaction: citizens capacity is not always sufficient for constructive discussion (Wiberg, 2013). At worst, democratic governance may even strengthen the role of the elite, marginalizing the less dynamic regions further and weakening national congruence (OECD, 2001:20). It is therefore not surprising that scholars argue that citizens often are not willing nor able to participate and that interactive governance might be unsustainable and idealistic (Dahl, 1989). Interactive governance requires a citizen to have a certain level of knowledge and ability, enthusiasm, commitment and time, yet there is no certainty of this (Mustalahti et al., 2015). It might even be unrealistic to assume that the individual citizen would be able to master the various aspects of complex bioeconomy-related knowledge in any substantial way. Ordinary citizens cannot be expected always to question the decisions made by experienced parliamentarians in relation to the bioeconomy transition.

The individual is often regarded as too driven by emotions and selfishness, or else he is too apathetic and passive (Stivers, 1990). When citizens are relatively satisfied with their situation, they will be content with playing a more passive citizen's role. For example, this is clearly the case in forestry issues in Finland where a growing number of forest owners do not participate in the debate related to forestry issues, or even know where their forests are located: Finland is facing this situation because forest ownership has changed and forests are not the economically so important for those owners who live far from their property (Rämö et al., 2009). According to Saarikoski et al. (2010), the challenge is to get the general public to become engaged and to address conflicts constructively in order to draw up collaborative plans that will contribute to actual changes in forest management activities.

### 3.2. Environmental capability as a key to transition towards sustainable bioeconomy

In theory at least, the bioeconomy could involve citizens, the service sector, industrial and other economic sectors that produce, manage and utilize resources such as: agriculture, horticulture, fisheries, forestry, landscape, bioenergy and bio-refineries (Koukios, 2015; Lewandowski, 2015; Lopes, 2015). In Finland, SITRA (2009) presents the bioeconomy as a new way of thinking and creating well-being via responsible use of renewable resources. SITRA, a funding organization, operates directly under the Finnish Parliament. SITRA's investment activities are market-driven but decision-making processes are tied to parliamentary systems. SITRA has been actively involved in bioeconomy discourses as well as providing funding for new innovations in Finland. Environmental capability as a term is not integrated in the bioeconomy discourse, but the SITRA (2009) approach clearly connects bioeconomy to "capabilities" that will enable people to achieve things and provide opportunities to realize the outcomes people value. SITRA's strong support to the new bioeconomy innovations embraces the idea that a broad spectrum of actors have environmental capabilities and interest in the production of sustainable products and services in various fields of the economy. Alongside their commitment to market-driven development, SITRA also emphasizes the understanding that the bioeconomy should be built on citizens' values in relation to production and consumption of renewable biological resources (SITRA, 2009). And SITRA is not alone in their arguments that environmental capabilities (i.e. in the sense of Holland, 2008) have increasing value. For example, Hetemäki et al. (2014) argue that the industry has to accept the need to pay for carbon emissions, even if many of the competing regions outside the EU are not going to do so in the foreseeable future.

However, in Finland as in European countries generally, the

reason for the attention paid to the economic framing of the bioeconomy is the dominance of the industrial perspective in the interpretation of the bioeconomy concept. This perspective, in the European context, emphasizes the role of industrial sectors in managing biological resources such as fishery, forestry and agriculture (Schmid et al., 2012). Hetemäki et al. (2014) argue that the current major challenge of the pulp and paper industry in Europe is how to bring about a transformation towards a low-carbon bioeconomy and how to create the necessary new green innovations towards that goal. As market globalization has increased and there has been a shift of production to low-income countries in the Global South, and as awareness of sustainability issues has grown, the pulp and paper industry in Europe has also become more vulnerable as regards competitiveness and company image (Mikkilä and Toppinen, 2008; Pätäri et al., 2016). This shows that citizen's growing appreciation of the environment in terms of values and interest in production and sustainable products does matter in the transition towards a sustainable bioeconomy. Put another way, environmental insight and understanding have more weight – as environmental capabilities – in the mix of opportunities and entitlements available to people in their search to achieve the well-being they value.

The fight against climate change and the role of the bioeconomy in economic growth is further emphasized in current forest law and the national forest program. However, in this context, nature and environment are mainly understood as resource providers and the environment is mainly addressed as a challenge, or as something that needs to be safeguarded with the help of the bioeconomy (Kleinschmit et al. Forthcoming). The forest-based bioeconomy in Finland, despite the more critical and social scientific discourses (e.g. Kleinschmit et al. 2014; SLL, 2014), is seen predominantly as the new path towards a sustainable green economy (Finnish Bioeconomy Strategy, 2014). The rush to support bioeconomy growth and innovations in Finland is hardly questioned in the political discourses analysed in this paper. An interactive debate between civil society and forestry sector-driven actor coalitions is a challenge for Finland's current forest-based bioeconomy strategies and program.

Based on evaluation of forestry sector strategy papers and programs, coalitions (i.e. Forestry administration and Private forestry in terms of Harrinkari et al., 2017) are very visible in relation to policy arenas promoting transition to the bioeconomy. In the bioeconomy discourses, the prospect of the environment benefitting from economic growth is framed as an additional benefit resulted from pursuing other goals. This view is expressed in the Finnish Bioeconomy Strategy: "In addition to securing felling opportunities and growth, protecting forest biodiversity and natural values must also be part of exploiting the forest" (MEE, 2014:14). And same argument continues under the section called "Cost-effectiveness and environmental benefits from efficient biomass utilization." (MEE, 2014:15). It seems that there has been very limited debate and strategy discussion on how the forest-based bioeconomy impacts on social sustainability<sup>2</sup> and multi-purpose forest management and conservation. This raises the question of the environmental capacities<sup>3</sup> of our society: once active debate is missing, there may not be enough information or capacity to enable and empower citizens to enter

<sup>2</sup> In the Finnish Bioeconomy Strategy (MEE, 2014:31), Table 2 presents the key figures and indicators for the implementation of the Bioeconomy Strategy but none of these are related to the social sustainability.

<sup>3</sup> i.e. conditions of enablement that make it possible for people to achieve goals, and the availability of opportunities to achieve outcomes people value. Based on the argument of Sen (1999, 2005) and Alkire (2007), these conditions and opportunities of human well-being should be defined in a deliberative process that incorporates individual opinions and values.

into constructive debate, apart from the values or emotions held by individual citizens. For this reason [Holland \(2008:320\)](#) argues that due to the extent to which human capabilities are dependent on the natural environment, we should treat certain environmental issues as a matter of basic justice. Although citizens might not actively seek and have an interest to publicly debate (i.e. Sen's idea of public reasoning) issues such multi-purpose forest utilization (i.e. berry picking, nature tourism, landscape value etc.) and biodiversity conservation, those should be considered as a basic human right (i.e. Holland's idea to treat certain environmental entitlements as a matter of basic justice) for everybody just as clean water, food and education are basic rights.

This "basic justice" principle in bioeconomy discourses can be discerned in the accounts of the negative impacts of intensive forest management practices. Non-governmental organizations (NGOs) such as WWF Finland and the Finnish Association for Nature Conservation have been particularly active in this field in relation to environmental and nature conservation issues. These two organizations were also involved in working groups during the bioeconomy strategy development process. Their criticism has been directed most strongly at the need to raise the utilization rate of Finnish forests. Yet it is surprising how little of their value contributions are visible in the final version of the strategy. For example, none of these NGOs are mentioned as providing input for monitoring of the strategy implementation: *'the strategy implementation will be monitored using the indicators provided by public sources'* ([MEE, 2014:30](#)).

One reason for this could be that the powerful actors active in the bioeconomy discourse in Finland are a very homogenous group. And discourses are mainly driven by Ministries and the forestry sector which have an interest in economic growth. A similar type of "homogenous coalition" in terms of their adherence to the business model of development are recognized in other EU member countries. For example, in Germany the Federal Ministry of Food and Agriculture has published a comparable strategy, namely the "National Policy Strategy on Bioeconomy: Renewable resources and biotechnological processes as a basis for food, industry and energy" ([BMBF, 2014](#)). The main goal of this strategy is "the commercialization of all life" as criticized by [Gottwald and Krätzer \(2014\)](#) who describe the recent bioeconomy developments as an international alliance between the biotechnology, chemical, pharma, agricultural, food and energy industries, in close association with research and policymakers. [Gottwald and Krätzer \(2014\)](#) see this as a particularly worrying development mainly because of the way humans meddle with complex life forms that they cannot yet fully grasp. Gene technology and the development of genetically modified crops are the main focus of their criticism, but also the lack of transparency and the lack of civic participation in the bioeconomy discussion. Thus [Gottwald and Krätzer \(2014\)](#) argue that to some extent the term "bioeconomy" has already received negative connotations in Germany. They further urge the general public and civil society to become more involved in the debate and in decision-making.

In Finland, [Niskanen et al. \(2008\)](#) argue that the forestry sector has specific strengths such as environmentally friendly technological know-how, the national innovation system and public investments. Because of these strengths and know-how, forest products companies give public authorities the freedom to control the direction of the forestry sector development in Finland ([Niskanen et al., 2008](#)). This does not automatically mean that the environmental capabilities of these companies could support development of environmentally and socially sustainable bioeconomy. Yet the leap towards the bioeconomy and especially towards the forest-based bioeconomy is interpreted as meaning more diversified business structures that require the support of the

public authorities and other actors as regards long-term funding and commitment ([Niskanen et al., 2008](#); [Pätäri et al., 2016](#)). This also means a growing need for timber and various other forest-based natural resources. The criticism against increasing the utilization rate of Finnish forests should be taken seriously, not only because there might be serious environmental impacts in the future but also because of the economic sustainability of the growing bio-based business. There is an increasing need for adaptive and interactive administration to provide information as well as build up environmental capability for discussion of alternative solutions and inclusion of a variety of perspectives. As earlier defined in this paper, here the environmental capabilities means conditions of enablement that make it possible for people to achieve goals, and the availability of opportunities to achieve outcomes people value in the case of forest-based bioeconomy.

Need for inclusion of citizens and environmental capability in the forest-based bioeconomy?

Recently, scholars have argued that tackling climate change is not possible without the involvement of citizens (see for example [Kitchen and Mardsen, 2011](#); [Lammi and Rask, 2011](#)). Theoretically, this requires Empowered Deliberative Democracy and means the inclusion of citizens and ordinary people's abilities and participation ([Fung and Wright 2001](#); [Mustalahti et al., 2015](#)). However, as [Bliss and Neuman \(2008\)](#) argue, the inclusion of different actors in decision-making at worst may motivate citizens towards processes that they cannot question or over which they have no control. The right to participate in collective decision-making relies on our understanding of the ideal of Empowered Deliberative Democracy. While recognizing the benefits of inclusion, the integration of citizens in decision-making is truly rare ([Callahan, 2007](#)). In Finland, the results of civil activism are also not clearly established, and though citizens might be heard, their views does not always affect the decision-making process ([State Council, 2014](#)) or the strategic documents. The Bioeconomy Strategy does contain references to potential conflicts of the bioeconomy, and thus aims to strengthen open dialogue on the subject, but inclusion of citizens in drawing up the Bioeconomy Strategy has had little actual influence in shaping the strategy.

An adaptive and interactive administration and the citizens of the social world could change production and create a cross-technological revolution ([Heiskanen et al., 2014](#)) which is crucial for example for implementation of the bioeconomy in order to tackle climate change. However, cross-technological revolution and consumer awareness does not necessarily lead to a change in consumer behavior; and from the perspective of bioeconomy, consumer awareness can be perceived as cheap, easy and politically unchallenged way to influence consumption. The same can be argued in the case of the forest-based bioeconomy which needs various levels of behavior changes and environmental capabilities. Both of these changes need time. The bioeconomy requires behavior changes in society and the forest-based bioeconomy needs capabilities (in the sense of Sen) to make it possible for people to achieve goals, and the availability of opportunities to achieve outcomes people value. This would need to apply not only to the paper and pulp industries and biotechnological processes, but also to outcomes such as services, landscape values and tourism possibilities and natural resources economics in general and so on in a diversification of the forest-based bioeconomy.

WWF Finland in collaboration with the Tapio Center has published a forest management guidebook for forest owners ([Keto-Tokai et al 2016](#)). According to these authors, the use of high value added industries to produce the required higher quality wood could be done in a way which also better preserves natural values. For this reason, in the case of Finland, the forest owners' behavior, interests and values are important. In 2010, 61% of Finnish timber

production forests were privately owned, and made up 70% of the total volume of growing stock (METLA, 2011). The new Forest Act, which came into force in 2014, gave the forest owners more freedom to manage their forests as they wished. At the same time advocates of the forest-based bioeconomy and of climate change mitigation were stressing the importance of future value-added forest products industry (such as wooden buildings and high quality furniture). But when it comes to how bioeconomy products and services are to be increased, the Finnish bioeconomy strategy devotes far less attention to value added innovations than to measures to ensure the availability of raw forest materials. The new Forest Law together with new forest owners who have non-wood production objectives, may lead to a deterioration of wood supply (Karppinen and Tiainen, 2010). The implementation of the forest-based bioeconomy would require insights of forest owners' environmental capabilities (i.e. availability of opportunities to achieve outcomes forest owners' values). For example, the "insights" are related to variety of opportunities and entitlements – here, maybe entitlement to environmental education – for example those two different kinds of forest owners – those with non-wood production objectives (such as berry picking, nature tourism, landscape value) and others who currently value forests mostly for wood production.

Valkeapää et al. (2009) reported that people experienced the private sector and forest authorities as having too much power in relation to forest policy compared to the power of ordinary citizens, forest owners and recreational users. Participatory processes realized through collaborative forest governance actions (such as planning process, public hearings, joint actions in terms forest managements) could be necessary to create deliberation with forest owners and society at large. Yet collaborative processes can be a frustrating experience for different actors, and may not necessarily strengthen their faith in democratic processes (Wiberg, 2013). At worst, impacts of the failures, from the perspective of the citizen, can remain and a distant conversation and frustration can even create prejudices and unbelief in their own empowerment. Thus, participatory decision-making should apply in a tangible way to the citizen so that he or she will have the motivation and desire to participate in processes of change. Debate and decision-making related to the forest-based bioeconomy debate, decisions and processes should be bound to tangible goals, projects and bioeconomy opportunities at the local level to achieve outcomes which citizens value (i.e. increasing their capabilities in the sense of Sen).

In Finland, the forestry sector generally is concern on environmental issues while social sustainability issues, such as consumer behavior, citizen inclusion and human rights, continue to receive lower strategic attention in the policy documents Ministry of Agriculture and Forestry (2008a,b). Finnish scholars have shown that citizens are not only emitters, consumers or owners of natural resources (as in case of timber resources), but are also communally minded actors and partners when they are offered the opportunity. Lammi and Rask, (2011) have pointed out the need for a stronger policy and new practices that see citizens as resourceful problem solvers at the global perspective instead of self-interested actors with a narrow national vision (Lammi and Rask, 2011: 133). In the case of the future bioeconomy, citizens could be participatory decision-makers who want to take responsibility for and promote the common good. However, the bioeconomy debate takes place largely in EU, national or civil forums and among private sector coalitions, such as the forestry industry in Finland. Yet it is ordinary citizens who have to live with the consequences of natural resource management. Bringing the debate to the national, regional and local levels is important and requires effort. Citizens may not be able to find solutions and create the new innovations which the bioeconomy strategy require, yet it is the citizens who will live

under the changed access to opportunities and entitlements including environmental services (i.e. as Holland claims that human capabilities are dependent on the natural environment).

The environmental organizations are concerned about the sustainability of the forest-based bioeconomy. For example, the Finnish Association for Nature Conservation report (SLL, 2014) is critical towards the liberal forest law which allows more intensive use of Finnish forests. It is striking how little attention has been given to the protection of biodiversity in the current bioeconomy strategy. In the current bioeconomy transition, national and international natural resource policy reflects the typical policy direction towards strategic interactions needed to promote the influential vested interests – economic interests in the case Finland – which often occur against the will of the citizens (for examples, citizens' willingness to protect biodiversity and limit intensive logging practices). For example, forest owners' values and interests could play a key role in the final decisions about how their forests are exploited, what kind of wood is grown and the extent to which forests are logged. According to statistics, private individuals own about 60 percent of Finland's productive forest land. Finland has about 632 000 forest owners, when including also co-owners of premises and at least two-acre premises.

In Finland, forest owners are nearly 14 percent of the population. Although, the percentage is high compared to other European countries, still the large number of the citizens do not own the forest land. However, the Finland's legal concept of everyman's right enables everyone to enjoy non-timber forest product and outdoor activities in both private and public forests. For this reason, it is important to understand that citizens holding different values and interests need the opportunity to make choices for themselves, to experiment, although they too need laws and regulation and we should treat certain environmental entitlements as a matter of basic justice. Without the availability of opportunities to achieve outcomes of multi-purpose forest utilization (i.e. harvesting timber, berry picking, nature tourism, conservation in their neighboring forest area) citizens may not have entitlement to benefit from forest based bioeconomy in a way which their value.

#### 4. Conclusions

In Finland, it has traditionally been a challenge for the forestry sector to promote open dialogue, and the multi-purpose forest utilization and conservation of forests is fraught with conflicts of interest. In case of the forest-based bioeconomy, the adequacy of supply of the raw material is the fundamental issue. The growing need for wood-based raw material will have various impacts, both positive and negative as well as social, environmental and economic. For these reasons, all efforts are needed to mobilize an even wider range of institutions, ordinary people, forest owners as well as small, medium and large industry and service providers to deliberate their environmental capabilities (i.e. those bioeconomy opportunities to achieve outcomes they value). But how should this be done so that strong actors do not dominate the discourses? The key challenge of a responsive forest-based bioeconomy will be empowerment of ordinary citizens, forest owners and small and medium business actors to provide a counterweight in the forest policy to the private sector and forest authorities (see e.g. Valkeapää et al., 2009; Mustalahti and Kusmin, 2016).

The important strengths and challenges of responsive bioeconomy governance are related to local benefits, the promotion of good governance and the strengthening of the protection and management of natural resources. This brings us back to the Sen's capability approach as well as Holland's (2008) argument that human capabilities are dependent on the natural environment and therefore environmental entitlements are a matter of basic justice.

And this is related to the power struggle between the environmental advocacy coalition and private forestry and forestry administration coalition that advocates for forest based bioeconomy in Finland. The discourse analysis of bioeconomy in Finland gives us understanding of how environmental entitlements are seen differently by different actors. If we simply see the forest-based bioeconomy in terms of opportunities to achieve outcomes which the forest sector values, we could argue that strategic planning related to the bioeconomy does support the transition towards the bioeconomy. But once we examine the discourses of the environmental coalition, strategic decision-making seems to have ignored the understanding of environmental entitlements as a matter of basic justice. Based on this discourse it could be also argued that the bioeconomy transition should guarantee improvements in capability to achieve outcomes which citizens value, such as well-being (social, economic and environment conditions or states of enablement) for both present and future generations.

It might not be possible to answer the question of what kind of citizen's involvement is sufficient for the bioeconomy transition. However, inclusion of citizens will be needed during the bioeconomy transition period, and it is particularly important that an interactive administration provides citizens with access to information and possibilities for deliberation. Addressing these challenges will require reform of natural resource governance and administration. This reflects to the argument that interaction with citizens may result in citizens daring maybe to make and support decisions that are more far-reaching than those defined by politicians limited by the electoral cycle.

Despite the doubts and criticisms raised, since 1967s scholars have argued for the participation of active citizens (e.g. activists, advocates, civil servants as well as ordinary people who are active where they live or work): Empowered citizens wish to develop their own environment capabilities, are likely be bound by the deeper social influences, and have the necessary skills, knowledge and ability to effectively participate in decisions on matters that directly affect their well-being (e.g. Pateman, 1970; Chambers, 1974; Barber, 1984; Hayes and Ostrom, 2005; Callahan, 2007; Rask and Laihonon, 2011; Mustalahti et al., 2015; Hyle, 2016). The responsive bioeconomy could become a new way of thinking. It could be a way to create alternative solutions and to respect a variety of perspectives on the use of renewable resources and environmental entitlements as a matter of basic justice (i.e. in the case forestry not only entitlements like clean water or biodiversity but also possibilities for berry picking, nature tourism and protection of landscape values).

For the forest-based bioeconomy, these solutions and perspectives require an interactive collaborative approach. Such an approach can empower various institutions and people to meet and debate on the development of their own living environment and on the bioeconomy opportunities at the local level for achieving the outcomes which they value (i.e. environmental capability). Responsive governance and its adaptive and interactive administration therefore need to ensure that as many factors of change or that are subject to change, such as values, interests and knowhow, are taken into account in various processes of the bioeconomy transition.

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