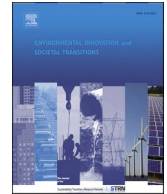



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## Tracing the 'just' in just transition: conceptualizations of justice by citizens' juries in climate policy-making

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### ABSTRACT

The efforts to mitigate climate change have been accompanied by calls for a just transition, meaning a sustainability transition that takes into account the social costs of policy change. While several studies have addressed the social justice impacts of climate policies, the desired implications of just transition remain contested, and the concept is constantly shaped by different actors involved in the policy-making of sustainability transition. In recent years, randomly selected citizen bodies, called deliberative mini-publics, have been convened to address issues of justice and to advance the acceptability of climate policies through the inclusion of citizens' diverse viewpoints. However, relative to their increasing use in climate policy-making, mini-publics' definitions of just climate policies have received little attention. The paper argues that mini-publics' policy recommendations can enrich just transition scholarship's understanding of the contestations revolving around justice in transitions. It therefore sets out to analyze the statements of three citizens' juries discussing climate change mitigation policies in Finland. Based on an analytical frame drawn from the literatures of energy, environmental, and climate justice, the paper deconstructs the conceptualizations of justice present in the juries' outputs. The results show that especially support for low-income groups and the acknowledgement of regional diversity are deemed important by the juries, who expect active measures from public authorities to safeguard both citizens' well-being and environmental values. The findings suggest that advancing just transition requires policy mixes, where mitigation measures are explicitly combined with redistributive policies and investments in infrastructure and public services.

### 1. Introduction

The pressing urgency to mitigate climate change has left many democracies pondering the balance between efficacy and public acceptance of climate policies. The protests of the French Yellow Vests movement in 2018 reminded decision-makers how ambitious climate policies can generate backlash, despite a general support for climate change mitigation (Douenne and Fabre, 2020). As one response to real and anticipated public dissent, many European countries have convened citizens' assemblies and citizens' juries to advice climate policy-making. (Boswell et al., 2023; Smith, 2024). The assemblies and juries, generally called deliberative mini-publics (DMP), gather a randomly selected group of citizens to form a considered opinion on a given policy question based on informed deliberation (e.g. Smith and Setälä, 2018). Specifically, many climate DMPs have been prompted to devise recommendations on how to achieve climate targets in a socially just way.

The task to consider the social justice implications of climate policies ties DMPs to the broader agenda of a just transition. Described

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in general terms, just transition implies shifting to an environmentally sustainable society not dependent on fossil fuels, and taking into account the social costs and disparities occurring during such a change (e.g. Ciptet and Harrison, 2020, Sareen and Haarstad, 2018). The concept first emerged in the US in the 1970s and 1980s, when the labor union movement sought to reconcile environmental protection with the interests of workers during a time when a swathe of polluting industry sites faced closures (Steviss et al., 2020). In recent years, just transition has become a prominent feature of influential climate policy documents, such as the Paris Agreement and the EU's Green Deal (Jenkins et al., 2020; Fleming and Mauger, 2021).

The desired implications of just transition, however, are often open to interpretation and contested in practice (Newell and Mulvaney, 2013; Stevis and Felli, 2015; Wang and Lo, 2021). The growing number of actors promoting the agenda further obfuscates what is meant with a just transition (Steviss et al., 2020). In just transition scholarship, multiple conceptualizations thrive, presenting various normative and empirical approaches to justice (Dirth et al., 2020; Wang and Lo, 2021; Heyen, 2023). In the day-to-day responses to climate change, contestation over the meanings of justice influences the policy solutions chosen (Bulkeley et al., 2014). All this highlights the dynamic nature of just transition, where the essence of justice is continuously debated and shaped by actors involved in the policy-making of sustainability transition (cf. Dryzek, 2015).

Several studies have underlined the importance of involving citizens in planning transition policies to ensure their fairness (e.g. Zoellner et al., 2008, Markkanen and Anger-Kraavi, 2019, Lamb et al., 2020, Newell et al., 2024). However, often studies discussing the fairness of sustainability transition adopt – implicitly or explicitly – some normative idea of justice as their measuring stick (Heyen, 2023). While such assessments are necessary in developing theories of justice and ethical standards regarding how sustainability should be pursued, they need to be complemented with research that addresses the political and contested nature of just transition and justice conceptualizations themselves. This paper adopts such a strategy by approaching justice of transition policies through the policy recommendations of climate DMPs. With their recommendations, climate DMPs engage in formulating the meanings of justice in climate policy-making. The paper argues that by providing a qualitative vantage point to citizens' opinions on transition policies' fairness, climate DMPs can improve the scholarship's understanding of the political contestations that shape just transition. Studying the outputs of climate DMPs not only aids in developing practice-informed theories of just transition, but also highlights the issues that policy-makers need to attend to in order to meet citizens' ideas of fairness and to improve transition policies' acceptability.

So far, the justice conceptualizations of climate DMPs have received little attention. The article produces knowledge of these conceptualizations by inspecting the case of Finland and the outputs of three citizens' juries, which were commissioned to deliberate climate policies specifically from the perspective of social justice. The paper starts with an overview of deliberative mini-publics and their role in climate policy-making. It then devises a framework of analysis based on the literatures of environmental, energy and climate justice. The following empirical sections first introduce the Finnish climate policy context and the studied juries, after which the framework is applied to analyze the juries' statements and the conceptions of justice they convey. The paper then discusses the findings in relation to the Finnish climate policy context. The results show that the juries recognize especially regional disparities and socio-economic status as factors that need to be taken into account in transition policy design, to ensure that the policies do not exacerbate inequalities. The juries balance several distributive criteria in their definition of just policies, and expect an active role from public authorities in securing both climate goals and individuals' well-being. Their reasoning suggests that especially mitigation policies relying on fees and price increases should be combined with redistributive measures to ensure their fairness in the eyes of the citizenry.

## 2. Deliberative mini-publics as formative agents of justice

DMPs are a form of democratic innovation (cf. Elstub and Escobar, 2019) distinguished by their combination of participant selection by lot and informed deliberation. Depending on the format,<sup>1</sup> the process involves 20–150 participants, who gather for a few days or even several weekends to deliberate a topical issue and to form a statement or recommendations based on their discussions. Participants are invited and selected using random sampling, often combined with stratification by socio-demographic or other relevant criteria. The deliberation process includes briefings, expert hearings and/or other forms of information provision about the topic. In addition, basic principles of equality, openness and mutual respect are underscored throughout the discussions, often by trained discussion facilitators. The result ought to be a well-reasoned public opinion, built on the knowledge, opinions, and values of participants through reason-giving and mutual justification (e.g. Smith and Setälä, 2018, Curato et al., 2021).

DMPs have been used to advise climate policy-making at the local, national, and at the global level (Smith, 2024). Especially in Europe, climate DMPs have seen a surge in recent years, leading scholars to talk about a 'wave' of climate assemblies (Boswell et al., 2023). The scope of assemblies' remit varies, but their core intent is to devise policies in response to the accelerating climate and ecological crisis. Most climate DMPs have been convened by public authorities, but processes initiated by civil society exist, too. According to Smith (2024), motivating factors to organize a climate DMPs have included public dissent and distrust towards the prevailing political system, pressure from civil society, and policy-makers' targeted attempt to identify acceptable, yet effective policy solutions in the face of global heating. Indeed, as Smith notes, in Europe most climate DMPs' recommendations have surpassed governments' climate policies in their level of ambition (ibid.). While research on the impacts of DMPs is still developing, studies suggest that climate DMPs have helped in maintaining the momentum for ambitious climate policies and influenced climate law-making and policy plans, even if to a limited extent (Wells et al., 2021, Duvic-Paoli, 2022, Setälä et al., 2023, Smith, 2024).

<sup>1</sup> Common types of DMPs include citizens' juries, citizens' assemblies, deliberative polling, consensus conferences, and planning cells (Smith & Setälä 2018)

Scholars of DMPs have argued that DMPs benefit the handling of complex environmental problems due to their ability to induce deep reflection, pool diverse views and knowledge, and foster agreement on the problem's nature (Niemyer, 2013; Baber and Bartlett, 2018). Further, a randomly selected group of deliberators is expected to produce epistemic benefits, as the cognitive diversity of the group improves problem-solving capacity and balances out biases of individual thinking (Mercier and Landemore, 2012; Landemore, 2013), while also improving the impartiality of judgement (Dryzek and Tanasoca, 2021, 46–50). Yet critical views have been expressed, too. Blue (2015) has noted that expert-dominated framing of climate DMPs' topic may 'close down' deliberation on alternative solutions in climate policy-making. Consequently, Blue has called for greater attention to the normative assumptions of issue framing. Machin (2023) has argued that climate assemblies' outspoken goal to produce consensual statements conceals disagreement in a way that may be counterproductive to the pursuit of sustainability. Machin has also criticized climate assemblies' closed nature, and on this ground questioned their ability to truly disrupt the unsustainable status quo.

Still, despite their reservations, neither Blue nor Machin have dismissed climate DMPs, when properly designed, as potentially valuable parts of the climate policy debate. Moreover, empirical examples have demonstrated how participants in climate DMPs do engage in careful weighing of plural viewpoints and passionate debates, even challenging the initial agenda of the mini-public (Giraudet et al., 2022, Huttunen et al., 2025). DMPs can also provide qualitative information about citizens' preferences, which mere opinion polls fail to convey (Setälä et al., 2023). This information, in turn, may improve decision-makers' understanding of climate policies' acceptability among the citizenry.

Through their policy recommendations, climate DMPs also partake in the political contestations revolving around just transition, providing interpretations of justice and how it should be pursued. Several climate DMPs have been explicitly tasked to consider the perspective of social justice in their work. Even when social justice is not featured in the task, DMPs' recommendations often contain statements regarding issues of justice, e.g. the appropriate allocation of benefits and burdens (Smith, 2024). Climate DMPs' role thus corresponds with what Dryzek (2015) calls the *formative agents of justice*. Dryzek argues that before principles of justice are enacted through policy implementation, a formulation of what justice should mean in the given context needs to exist. He defines formative agents as, 'those who give shape to the normative principles of justice that should be adopted in a particular situation [-]' (Dryzek, 2015, 363). As an example of a context where formative agency is exercised, Dryzek uses the negotiation of climate justice and the 'common but differentiated responsibilities' within the United Nations Framework Convention on Climate Change (Dryzek, 2015, 364–365). However, contestations over climate justice also take place in more localized settings (Bulkeley et al., 2014).

Following Dryzek's definition, climate DMPs can be seen as sites where formative agency is exercised by individual citizens, but also as collective entities who exercise formative agency within the policy-making process. Few studies, however, have inspected how justice is defined in climate DMPs' outputs. In a case study of climate adaptation planning in Australia, Schlosberg et al. (2017) observed that a Citizens' Panel highlighted vulnerability and basic capabilities in their policy assessment. The Panel's observations differed from the local administration's approach, which approached adaptation more through risk. Lage et al. (2023) studied European climate DMPs' outputs from the perspective of sufficiency, and found that climate DMPs emphasize sufficiency and regulation as policy principles significantly more often than national climate plans. While Lage's et al. study did not concern notions of justice per se, it, like Schlosberg et al., demonstrate how citizens' collective ideas of desirable policy pathways may differ from prevailing plans.

### 3. Decomposing the 'just'

Even when climate DMPs are tasked to form recommendations of socially just climate policies, their statements may communicate understandings of justice without providing explicit definitions of it. To identify what qualities the statements attribute to just policies, this section constructs a framework for a descriptive inspection of the statements. I build upon the works of Fraser (2000, 2008) and the literatures of energy, environmental and climate justice, where several frameworks have been proposed to analyze justice and just transition. These frameworks often differentiate between various *dimensions* or *aspects* of justice.<sup>2</sup> The three most established dimensions include distribution, procedures, and recognition (e.g. Schlosberg, 2004, 2007; Gardiner, 2012, Walker, 2012, McCauley and Heffron, 2018, Williams and Doyon, 2019, Kaljonen et al., 2021). I examine these dimensions in detail subsequently.

*Distribution*, or redistribution as per Fraser (2008), relates to the questions of how harms, resources, risks and responsibilities are or ought to be divided (Walker, 2012; McCauley and Heffron, 2018). In sustainability transitions, issues of distributive justice materialize in the changes that impact the livelihoods and well-being of different groups and individuals (Williams and Doyon, 2019; Kaljonen et al., 2021). Three focal questions arise with regard to distribution: 1. What is the substance being distributed, 2. among whom is it to be distributed and 3. what are the principles or rules for distribution (Walker, 2012; Sovacool et al., 2019; Puupponen et al., 2023; see also Klinsky and Dowlatabadi, 2009)? Access, affordability, and energy security are central substances of energy justice (ibid., Newell and Mulvaney, 2013), whereas proximity (e.g. to hazardous waste sites) has been used to highlight distribution of environmental impacts (Agyeman et al., 2016; McCauley and Heffron, 2018, 4). Resources to develop one's capabilities can also be seen as a substance of distribution (Kaljonen et al., 2021).<sup>3</sup> Climate justice scholars have paid special attention to distribution at the international level, asking, for instance, how much should each country cut their emissions, or who is entitled to compensation for the damages caused by global heating (e.g. Vanderheiden, 2008, Bulkeley et al., 2014, Caney, 2014a). Causal responsibility, equality, need, and ability are examples of criteria that can be used to devise rules for distribution (Klinsky and Dowlatabadi, 2009; Klinsky et al., 2012).

<sup>2</sup> Also *varieties*, *notions* and *forms* are used to refer to substantively the same thing.

<sup>3</sup> This take should not be mixed with the capabilities perspective as a normative predisposition to justice, which concerns a broader set of issues (Schlosberg 2007, 34).

The *procedural* dimension of justice highlights institutions, power asymmetries and access to decision-making in transition processes. Central questions in contestations regarding procedural justice include: who is allowed or has the ability to participate, and what are the decision-making rules (Schlosberg, 2007; Williams and Doyon, 2019). Fraser (2008, 13–14) associates procedures and membership with ‘the political dimension of justice’, which defines ‘the circle of those entitled to a just distribution and reciprocal recognition’. The political dimension also entails the procedures of making claims and resolving disputes (ibid.). In the context of just transition, McCauley and Heffron (2018) relate procedural justice to community engagement and protest, but add that scholars have expanded the concept and applied it to individual practices and system-level processes, too.

The dimension of *recognition* highlights the structural and historical settings in which policy-making occurs, and which may prevent distributive and procedural ideals from being fulfilled (Schlosberg, 2004; Bulkeley et al., 2014). According to Schlosberg (2007, 14) recognition in environmental justice entails attention to the root causes of maldistribution: existing structures of social, cultural, symbolic and institutional conditions that lead to domination and oppression. Fraser (2000) defines recognition as parity of status in social interactions; individual’s recognition as a full member of the society. In sustainability transitions, recognition is associated with attentiveness to vulnerable groups and marginalized communities in decision-making processes (e.g. Sovacool et al., 2019), and the acknowledgement of different needs, values and positions of individuals or groups, as well as different forms of knowledge (Williams and Doyon, 2019; Kaljonen et al., 2021). For Williams and Doyon, recognition also signifies a need to ‘address previous and existing exclusion and disproportionate impacts’ (Williams and Doyon, 2019, 148).

Combined, the questions emanating from the aspects of distribution, procedures, and recognition provide a rich basis for the empirical analysis of justice conceptualizations. In addition, some frameworks reviewed for this paper also distinguish *restoration* and *cosmopolitan justice* as separate dimensions of just transition (McCauley and Heffron, 2018; Sovacool et al., 2019; Kaljonen et al., 2021). Restoration in sustainability transitions refers to the remediation of past injustices and harms, like compensation for environmental damage caused by an industry, but also to the planned compensation of unavoidable future losses resulting from the transition (McCauley and Heffron, 2018; Kaljonen et al., 2021). Cosmopolitan justice, in turn, highlights a shift in the application of justice principles from the bounds of nation states to the international level (Vanderheiden, 2008), or extending the application of justice to the global population (as opposed to states) (Sovacool et al., 2019) or even to future generations (Kaljonen et al., 2021).<sup>4</sup> Yet instead of being treated as distinct analytical dimensions, the restorative and cosmopolitan perspectives can also be seen as cross-cutting the established dimension of distribution, procedures, and recognition. In doing so, they highlight three key elements to consider in relation to each dimension: namely the *spatial scale*, the *temporal scale*, and *scope*.

As Gürtler (2023) argues, substantial justice claims are always placed in certain spatial settings. The impacts of transition policies, for instance, could be assessed at the local, national, or global context. Claims of injustice may concern the relationship of different territorial units, or that of center and periphery (ibid. 7). There may be severe disparities in the location of an environmental ill and its main drivers (Agyeman et al., 2016). For example, the bulk of the greenhouse gas emissions driving climate change have been produced in Global North, but the heating causes most severe damage in Global South (Gardiner, 2012). The assessment of transition policies’ fairness in the Global North, then, may produce quite different results depending on the scale of assessment, i.e. whether the well-being of people in the Global South are factored in or not. Further, spatial boundaries often determine who is included in decision-making procedures, and who is left out, making boundary-drawing a site of justice contestation (Simcock, 2014).

The temporal scale steers attention to the future short-term and long-term impacts of policies, but also the historical pathways that have contributed to present circumstances. The latter aspect is embodied in the calls for restorative justice (see above), or in the use of historical emissions as a distributive criteria in climate policy-making (e.g. Moellendorf, 2012). Sustainability transitions also raises questions of intergenerational justice, such as can the contemporary generations postpone climate change mitigation at the cost of future generations (Caney, 2014b). In addition, the temporal scale captures the aspect of speed (Padt and Arts, 2014). Cipler and Harrison (2020) note, for instance, that the need to advance sustainability rapidly can be in tension with the pursuit of equity and inclusive decision-making in transition policies.

Finally, scope refers to the inclusiveness of justice considerations, i.e. the breadth of social groups and issues under consideration when just transition is defined (Stavis and Felli, 2020). A narrow scope of just transition in the energy sector, for instance, would only cover certain branches, whereas a broad scope would concern the full energy system (ibid.). In recent years, environmental justice literature has also increasingly devoted attention to the non-human world and social-ecological relations (Schlosberg, 2013; Agyeman et al., 2016). Whether non-human animals and nature are recognized as stakeholders in justice assessments is an additional question of scope (Kaljonen et al., 2021; Schlosberg, 2007).

Connecting the consideration of space, time, and scope with the dimensions of distribution, procedures, and recognition renders a matrix of analysis questions (Table 1), which help in deconstructing and comparing different conceptualizations of justice in the context of sustainability transition. The matrix complements existing analysis frameworks by incorporating the restorative, cosmopolitan, and ecological aspects into the three established dimensions (distribution, procedures, recognition), thus reducing analytical ambiguity while retaining the sensitivity to spatial and temporal dynamics. The framework facilitates reviewing the justice perceptions of climate DMPs regardless of their topic or exact output format.

<sup>4</sup> Cosmopolitan justice also refers to a normative predisposition towards justice, comparable to other broad, normative approaches like liberal egalitarianism or the capabilities perspective (Biermann and Kalfagianni 2020).

**Table 1**  
Guiding questions to analyze justice conceptualizations.

	Recognition	Distribution	Procedures
<b>General</b>	Are the existing structural conditions addressed? Are vulnerable groups addressed?	What is the substance of distribution? What is the principle of distribution?	Are procedures of decision-making addressed? What are the rules for solving disputes?
<b>Scope</b>	Whose rights, opinions and knowledge is recognized? Are ecological values and non-humans considered?	Which groups should benefit? Which groups should carry risks and costs? How broadly are distributive impacts considered?	Which groups should make the decisions? Who is responsible for the outcomes?
<b>Spatial scale</b>	Are spatially distant people considered? Are regional disparities addressed?	On what levels are the distributional impacts assessed? Are distributional relations of different territories considered?	What are the borders of the decision-making community? What levels of decision-making are considered?
<b>Temporal scale</b>	Are past harms acknowledged? Are the rights of future generations considered?	Is compensation of past harms or future losses considered? Is the impact of speed addressed?	Are historical power imbalances acknowledged?

#### 4. Cases & context

The study investigates the outputs of three climate juries, organized in Finland in 2021 and 2022. Finland provides a fruitful case to study climate DMPs' views of just transition. At the time of the juries' organization, Finland's climate policy was in a flux. A technologically developed and wealthy welfare state, Finland has had the material means to advance an ambitious climate agenda. In the early 2010s, major parties and key interest groups still favored policy action that prioritized economic growth over climate measures (Gronow and Ylä-Anttila, 2019). A gradual change in policy emphasis started occurring towards the end of the decade. In the 2019 parliamentary elections, climate change mitigation became a prominent topic, and opinion polls suggested high support for climate measures among the population (Borg et al., 2020; Ministry of Environment, 2019). The centre-left government, formed after the election, adopted an ambitious goal to reach net-zero by 2035, and labelled itself as a world leader in climate change mitigation (Finnish Government, 2019). Municipalities and regions, too, were devising plans to improve their climate action (Puurula et al., 2022). The path seemed open for a determined acceleration of sustainability transition.

At the same time, the evolving climate policy trajectory was subject to heated public debate. Especially an increase in fossil fuel taxes to cut emissions from traffic was deemed unjust by many, as most rural households relied on private cars (Heiskanen et al., 2024). Aims to popularize electric vehicles were also met with some frustration (ibid.). Another key area of debate was forest policy, which climate experts criticized as insufficient for reaching the net zero target, while forest industry underlined forests' economic functions and benefits for the national economy (Näyhä and Wallius, 2024). Populist right-wing politicians portrayed ambitious climate policies as harmful and unjust for Finland in the international scale (Vihma et al., 2021). Youth activist groups, in turn, sought to push the policies even further, stressing urgency and moral responsibility to act in the face of the crisis (Piispa et al., 2023). The turn of the decade thus witnessed an intensified public contestation on climate policy measures and their fairness.

The active policy debate painted the scenery for the three climate juries studied. The first jury convened in spring, 2021 to deliberate fourteen draft policy measures of Finland's Medium-Term Climate Change Policy Plan. The draft measures concerned transport, heating and food, i.e. policy areas that affect individual consumers. The jury was national in reach and met for two and a half days online.<sup>5</sup> The second and third jury were regional and focused on a specific policy area. The second jury was organized in spring, 2022 in Finland's southernmost region, the populous Uusimaa. It met for four days in total and discussed policy measures to reduce emissions from transport. The third jury convened for four days in fall, 2022 to craft recommendations regarding fair and climate smart forest use in Lapland. The regional juries' deliberations linked to regional net-zero and Green Deal plans. The juries are labelled as the National Jury, the Transport Jury, and the Forest Jury, respectively, in the remainder of the paper.

The juries involved roughly 30 participants each, and followed established procedures of DMPs. Participants, who were randomly selected, heard experts on the jury's topic, posed them questions, and deliberated in small groups and in plenary. Based on their reflections, each jury crafted a statement, which contained recommendations on climate policy and which was handed to national or regional officials. The author was involved in the organization of all three juries. Jury characteristics are summarized in Table 2.

All juries had an explicitly stated task to address the fairness of certain climate policies or a policy area. The format of the statements varied. The National Jury's statement (Appendix A) contained general remarks of climate policies' fairness and effectiveness, followed by comments on the fourteen draft measures. The Transport Jury's statement (Appendix B) had a loose format, and was roughly three times as long as the other two statements. It consisted of jurors' reflections on the pros and cons of different transport policy measures. The Forest Jury's statement (Appendix C) was divided into three parts. The first described the state of Lapland's forests, the second identified key problems in forest use, and the last outlined the jury's recommendations. Regardless of the format, the statements can be regarded as jury members' collective positions on just policies in their respective contexts.

The study focuses specifically on juries' statements, rather than their internal deliberations, since it is the statements through which

<sup>5</sup> The online format was necessitated by the Covid-19 pandemic.

**Table 2**  
Summary of the juries' characteristics.

	National Climate Jury (April 2021)	Uusimaa Transport Jury (April 2022)	Lapland Forest Jury (November 2022)
Topic/task	How can climate measures targeting consumers be implemented in a fair and effective way?	What are the most important measures, from citizens' perspective, to curb emissions from road traffic and how can they be implemented in a fair and acceptable way?	Just and climate-smart forest use in Lapland
Context	Drafting process of the Medium-Term Climate Change Policy Plan; Jury discussed 14 draft measures	Implementation of the Regional Climate Roadmap; Jury discussed 14 emission reduction measures	Implementation of the Green Deal Roadmap of Lapland; no specific measures
Convener(s)	Climate Policy Round-table, Ministry of Environment	Helsinki-Uusimaa Regional Council	Regional Council of Lapland
No. of participants	33	32	33
Selection	Stratified random sampling, nationwide; quotas for age, gender, level of education, region. One seat reserved for a member of the Sámi indigenous people.	Stratified random sampling from the regions residents; quotas for age, gender, level of education, place of residence, primary means of transport, attitude towards climate action	Stratified random sampling from the regions residents; quotas for age, gender, level of education, place of residence.
Length & mode	2,5 days, fully online	4 days, face to face	4 days face to face + one evening online
Output	Statement (~860 words) with general comments regarding climate policy and comments on each of the 14 draft measures.	Statement (~2300 words) regarding emission reduction measures on four key areas: reducing vehicle mileage, motive power transition, advancing public transport and advancing walking and cycling	Statement (~700 words) with description of the situation, key problem areas and recommendations on just and climate-smart forest use in Lapland

juries engage in policy-making and public debate: outsider rarely have access to the juries' internal deliberations. [Huttunen et al., \(2025\)](#), however, have also observed the internal processes of the second and third jury and tracked the development of justice claims in the jurors' discussions. The current article complements the study of [Huttunen et al. \(2025\)](#) by adding a national jury case and by relating the juries' outputs to the wider public debate on Finnish climate policies.

## 5. Analysis: citizens' juries' conceptualizations of justice

To inspect how the juries interpret justice in the context of climate policies, I coded the juries' Finnish-language statements sentence by sentence based on how the content related to the analysis questions. Coding categories corresponded with the cells in the framework matrix ([Table 1](#)), yielding four categories within each dimension. If a sentence related to more than one category, it was classified into all of them. Only if a sentence was vague or did not relate to any of the analysis questions, it was left unclassified. The coding was carried out using NVivo 14. Structured this way, the material was then re-read to inspect which elements the juries related with justice within each dimension. The following analysis in [Section 5.1–5.3](#) describes the juries' notions of just policies classified under the three dimensions, outlining common themes and remarks distinct to each jury. [Section 5.4](#) reviews interlinkages between the dimensions and summarizes the findings.

### 5.1. Recognition

I report the analysis starting with the dimension of recognition, since recognition can be seen as underpinning the other dimensions ([Bulkeley et al., 2014](#)). Within the dimension of recognition, two structural factors stand out in juries' assessments of transition policies' fairness: regional differences and socio-economic status. Regional disparities were deemed important for policy formulation especially by the National Jury and the Transport Jury, whose statements argued for differentiated transport policy measures for different geographic areas based on the areas' dependency on private cars: "*In annual vehicle taxation, for example, regional factors are taken into consideration: different rules for the north and south, as is possible in compulsory motor vehicle insurance*" (National Jury). The Forest Jury, too, mentioned regional differences within Lapland as a key factor to consider in just forest use. It is noteworthy, though, that the consideration of regional differences mostly took place within the territorial remit of the juries: the National Jury's statement discussed territorial differences within the national and the Transport Jury within the regional level. The Forest Jury, in turn, mentioned the role of Lapland's forests for the whole country's climate targets. However, aside from an isolated remark by the Transport Jury concerning biking conditions, the statements did not make references to regional disparities at the international level.

The National Jury and the Transport Jury also identified people with low income as a group that merits special attention in climate policy design. The Transport Jury noted, for instance, that "*[i]f emission trading is implemented, it must be taken into account that it does not create unreasonable impacts to people with low income*". The National Jury, while commenting a draft policy to raise heating oil taxes, stated: "*The measure would increase the inequality of different groups of people, especially pensioners and those with a low income.*" Underscoring the impacts on low-income people could result from the fact that many measures discussed by the first two juries relied on tax increases, subsidies, and fees. The juries' remarks suggest that recognizing and compensating such measures' disproportionate effects on low-income groups (within Finland) is a precondition for just policies. The Forest Jury noted that emission reductions should adhere to social and economic sustainability, but it did not detail these qualities further.

Among groups who have suffered of or are considered to be vulnerable to the negative effects of transition policies are indigenous

people (Williams and Doyon, 2019). The Sámi indigenous people, whose lands cover northern parts of the Lapland region, surfaced in the National Jury's and the Forest Jury's outputs. The National Jury stated, with reference to the Indigenous and Tribal Peoples Convention, that climate policies affecting the Sámi should not be implemented without their free, prior, and informed consent. The Forest Jury's statement, in turn, acknowledged that 70 % of Finland's forest nature reserves are located in the Sámi region. The Forest Jury also mentioned that there had been a logging limitation imposed in the Sámi region ten years ago, which had reduced logging in the Sámi region. Implicitly, this comment referred to disputes over forests between the Sámi and the Finnish state officials (Peltonen et al., 2020). Despite these known disputes, the Forest Jury did not make any recommendations regarding the Sámi's position vis à vis forest use. Findings by Huttunen et al. (2025), who studied the Forest Jury's deliberations, suggest that while the Sámi's rights were discussed extensively at the start of the Jury, in the statement's crafting phase the Jury chose to focus on locals' rights in general, without highlighting the Sámi's rights specifically.

Ecological values were associated with just policies especially in the Forest Jury's statement: "[I]t must be acknowledged, however, that not all harm caused to nature can be compensated with money." The emphasis on nature values was plausibly prompted by the Jury's task to consider forest use. The other two statements, however, also acknowledged that potentially adverse environmental effects caused by mitigation policies should be taken into account, though this was a sentiment of lesser prominence. Regarding the temporal scale of recognition, the National Jury was the only one to explicitly mention future generations. The statement endorsed a balance between current and future generations' rights: "There should be an appeal to individual responsibility so that rights are not restricted, but living conditions are nevertheless secured for future generations."

## 5.2. Distribution

'Polluter pays' was a distributive principle which emerged across all juries' statements. The National Jury, for instance, favored imposing higher taxes on emissions and subsidizing environmentally advantageous alternatives, e.g. for transport. The Forest Jury highlighted that companies should compensate for the environmental damage they cause. Further, the Forest Jury saw that economic activity in forests should be subordinate to climate goals: "An annual maximum harvesting quota is needed based on how much logging is sustainable from the perspective of maintaining carbon sinks and what is the need to regrow forests." These remarks reflect the Jury's recognition of the importance of ecological values.

As for the National Jury and the Transport Jury, the recognition of regional and socio-economic disparities conditioned their views on when and how extensively the 'polluter pays' principle should be applied. The National Jury, for example, justified its critical stance towards fossil fuel tax increase as follows: "The taxation of fossil fuels should not yet be increased, as it will affect low-income groups the most, in other words, those who cannot afford an electric car but who, however, need a car." The Transport Jury approved regulation on private car driving in locations where public transport coverage was high, i.e. where mobility needs could be fulfilled with other means. Conversely, the Transport Jury reasoned that applying regulations to private motoring across all regions would result to unacceptable inequality between rural and urban inhabitants, if public transport was not simultaneously improved. Basic (mobility) needs and the 'ability to pay' principle thus emerged as important criteria for distribution alongside 'polluter pays'.

When it comes to the parties that should finance mitigation and restorative policies, all juries' remarks positioned the state and municipalities as the main cost-bearers. Especially the National Jury expressed worry over the economic stress that the measures would cause to individuals, and advocated tax exemptions and subsidies, rather than fees and price increases, to incentivize sustainable behavior. For example, the Jury suggested lowering the taxes of non-fossil fuel vehicles and removing the car tax of new automobiles to renew the Finnish car stock. The Forest Jury, in turn, was concerned about insufficient finances to compensate those forest owners, who wish to protect their forest instead of logging it. Yet even when the juries envisioned many policies that would require increased public spending, their statements hardly addressed the question of how such public spending should be financed. This observation stands in contrast with the Finnish political discussion, where spending cuts have been the favored economic policy over the years (Auto and Törrönen, 2018).

Regarding other distributional matters, the juries' scope of consideration extended further, even beyond their initial remits. The National Jury, which was tasked to discuss emission reduction measures of the so-called burden-sharing sector, also highlighted the measures' connection to the emission trading sector. The Transport Jury, in addition to transport policies, expanded their statement's scope to make remarks on city planning and even energy production. In addition, the Transport Jury, distinctly from the other juries, expanded the consideration of distributional burdens spatially, beyond Finland's borders. It maintained that environmental damage caused by mining and biofuel production needs to be factored in when assessing e-cars and biofuels as transport alternatives: "For example, the production of palm oil causes to cut down a lot of rainforests." The Forest Jury took a stand on national emission reductions, although its task concerned Lapland's forest use only. Thus the framing of the task did not prevent the juries from taking up issues of (national) climate policies more broadly, when deemed relevant for just transition.

A notable thread in the National Jury's and the Forest Jury's statements was that information was portrayed as a key resource to be distributed. The National Jury saw information provision as a precondition for citizens' equal ability to prepare for policy changes and to apply for different subsidies, e.g. to retrofit their house. The Forest Jury saw up-to-date information as a crucial basis for policy-making: "Scientific facts and ability to identify risks are needed to support decision-making. This will support awareness of the future demand and the adequacy of carbon sinks." It advocated for the education of forest owners, but also for public communication about the state of Lapland's forests and the climate impacts of different silvicultural methods. In the Transport Jury's output the role of information for consumers and decision-making was mentioned only briefly. Instead, the jury identified ease of use, shorter travel time of public transport, and safety as key benefits to pursue.

Finally, the temporal dynamics related to distribution also received some attention from the juries. The National Jury and the

Transport Jury underlined, that individuals need sufficient time to adjust to the necessary changes. Commenting the shift away from fossil fuels, the Transport Jury noted: “*Those who have a lower socioeconomic status or live in sparsely populated areas should have longer time for the transitions (-).*” The Forest Jury, in turn, turned its gaze to the past. It saw that a reform of the Forest Act in 2014 had facilitated premature logging and therefore obstructed the pursuit of climate goals, and recommended restoring some of the Act’s old provisions. The recommendation illustrates the interlinkages between the distributional and the procedural dimensions of justice.

### 5.3. Procedures

Procedures of decision-making received scarce attention in the National Jury’s and the Transport Jury’s statements. The National Jury maintained that “[*c*]itizens’ perspective needs to be strongly taken into account when deciding upon the funding of the measures (-)”, whereas the Transport Jury emphasized local thinking. The Forest Jury’s conceptualization of just policies, however, was characterized by an emphasis on decision-making procedures. While putting the ecological state of forests at the fore, the Jury also acknowledged that forests have multiple legitimate uses and users, whose interests need to be reconciled. The statement identified open dialogue and participatory planning, both at the regional and municipal level, as means to this end. Further, the Jury stressed long-sightedness in decision-making as a prerequisite for sustainability.

Regarding the responsibility to realize just policies, all juries saw public authorities as the most central actors. This view was conveyed in the juries’ portrayal of the state and municipalities as the main cost-bearers, but also in other remarks. According to the National Jury and the Transport Jury, for instance, authorities should set an example by favoring ecologically sustainable options in public spending. The two juries were wary of restrictions, however, and instead saw the state as an enabler, who should provide structures for a sustainable life while ensuring that individuals retain freedom of choice amidst changing policies. “(-) [*T*]he measures that aim to lower the vehicle-kilometers created by passenger cars should foremost be based on incentives and (-) coercive means should be the last resort” (Jury 2). The Forest Jury, in turn, was more sympathetic towards state regulation to secure sustainable forest use, which was reflected in their recommendation to introduce a logging quota (see Section 5.2).

Apart from public institutions, the National Jury and the Forest Jury highlighted the responsibility of private enterprises, e.g. to inform consumers of their products’ environmental impact. Isolated notions of individuals’ responsibility, too, were included in the National and Transport Juries’ statements: “*Travelling time should not become unreasonable, but people should also understand, that climate-friendly transportation can be slower*” (Transport Jury). The Forest Jury appealed to local authorities to promote logging reductions at the national level: “*The Regional Council of Lapland and Lapland’s MPs must be active in promoting and following these things.*” None of the juries, however, expanded their statements’ procedural considerations beyond the national level, even when such considerations did feature at least in the Transport and Forest Juries’ discussions (Huttunen et al., 2025).

### 5.4. Interlinkages of the dimensions

For analytical purposes, questions in the analysis framework were divided under three distinct dimensions of justice. In practice, however, in the conceptions of justice distribution, procedures, and recognition intertwine (Schlosberg, 2007), as is also evident in the preceding analysis. A few examples illustrate these interconnections. In their comments on regional disparities, for instance, the juries recognized regionally unequal impacts of climate policies, and advocated for *distributing* resources in a manner which mitigates this inequality. The Forest Jury’s recommendation to reverse some of the Forest Act’s provisions attempts to impact *distributional* outcomes by redesigning the *rules* of forest management. The National Jury’s *recognition* of the Sámi’s position led them to advocate for a strong Sámi voice in the policy-making *process*. The three-dimensional framework thus helps to uncover how different elements of justice relate to each other in citizens’ reasoning about just policies. Fig. 1 summarizes the key findings and depicts the identified characterizations of just policies in relation to the analytical framework.

## 6. Discussion & conclusions

Using the analytical framework to inspect the three juries’ statements uncovers some common threads in their conceptualizations of justice in sustainability transition. All juries saw that transition policies should acknowledge distinctive regional features and socioeconomic inequalities. They endorsed the ‘polluter pays’ principle (albeit conditionally), and envisioned a strong role for the public authorities in providing the preconditions for sustainable living. The results also help to make sense of some of the contestations revolving around climate policy-making in Finland. The National Jury’s critical position towards fossil fuel tax increase aligned with the discontent expressed especially by the rural population (Heiskanen et al., 2024). With its statement, the Jury was able to illuminate reasoning behind this opposition: simply imposing higher costs on individual ‘polluters’ to change their behavior is deemed unfair, if genuine, more sustainable alternatives are lacking for many. In such cases, emission reduction measures cause regressive side-effects (e.g. Markkanen and Anger-Kraavi, 2019, Lamb et al., 2020). The government’s Medium-Term Climate Change Policy Plan, however, indicated few ways to tackle these effects. The Transport Jury’s statement demonstrates, in turn, that when feasible options exist, even restrictive measures can receive support. The juries’ remarks suggest that advancing a just transition requires policy mixes, where mitigation measures are explicitly combined with strong redistributive policies and investments in infrastructure and public services.

Some tensions between the three statements emerged, too. Most notably, the Forest Jury’s more permissible stance towards restrictive policies departed from the National Jury’s and Transport Jury’s views. The latter were asked to assess the fairness of mitigation policies from the perspective of individuals, in policy areas which directly impact basic needs. The individual-focused tasks, coupled with a predetermined set of policies to comment, may have produced a critical frame of reference from the outset regarding

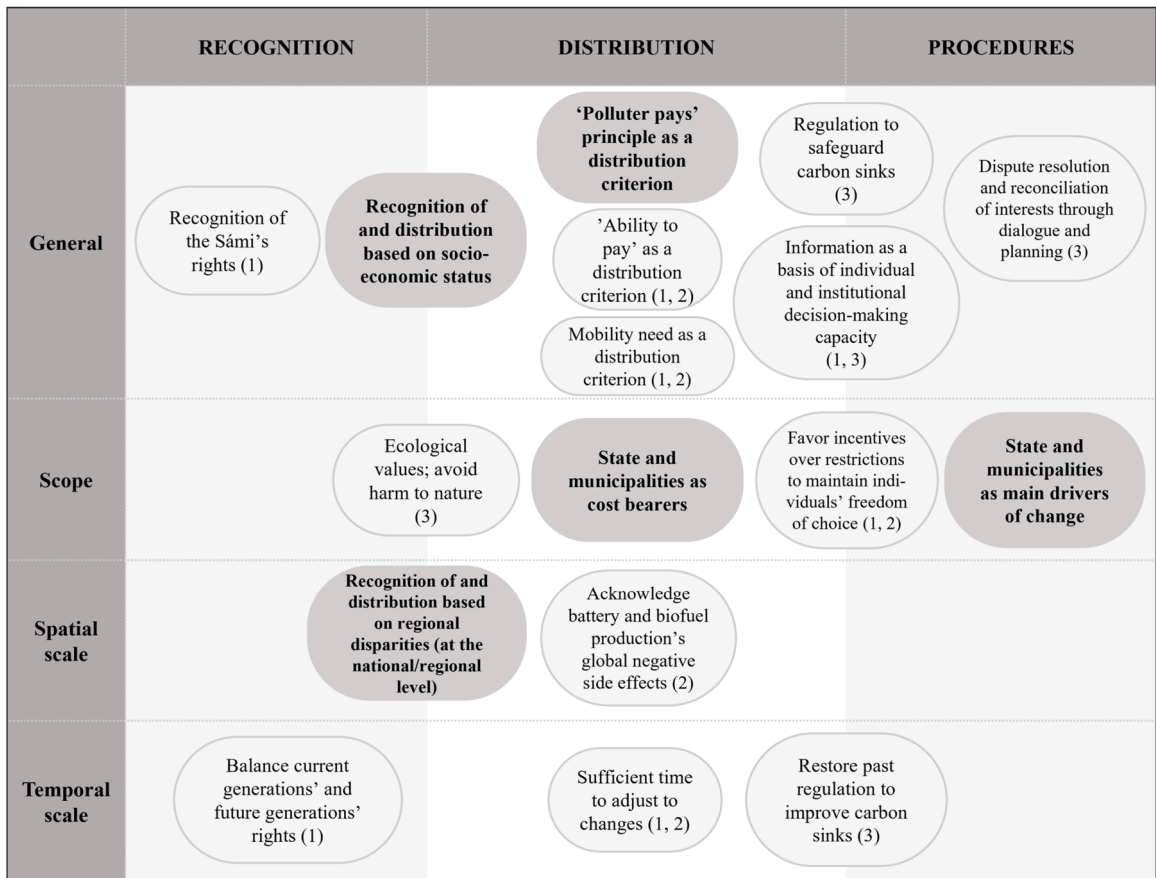


Fig. 1. Juries' conceptualizations of just policies in relation to the analytical framework. Themes common to all juries are denoted with bold text and a dark background. Bracketed numbers denote the perspectives of the National Jury (1), the Transport Jury (2), and the Forest Jury (3).

restrictions to freedom of choice. The Forest Jury's task, in contrast, was more open-ended, and the object of their deliberation, forests, constitutes a public good owing to forests' ecological value and the Finnish everyman's rights.<sup>6</sup> Even though private forest owners' rights were addressed during the discussions (Huttunen et al., 2025), in the Forest Jury's collective conclusions safeguarding the public good turned out more significant than forest owners' private property rights. The difference in the juries' views suggest that the subject and task of the juries influenced jurors' approach to justice, which supports earlier findings on the significance of agenda setting in DMPs (e.g. Elstubb et al., 2021).

Importantly, including the aspects of time and space in the analytical framework reveals how the juries' notions of just policies were mostly rooted in the 'here and now' – in the confines of the Finnish state and in the present moment. Even though climate change is a global issue that spans generations, the statements' language hardly referenced distant or future people. On the face of it, this seems to go against the hopes that DMPs could improve the consideration of long-term issues or the interests of affected out-groups (e.g. Setälä, 2025). Discussions of the Transport Jury and the Forest Jury show, however, that the rights of future generations and international responsibility did concern many jurors, whereas some jurors' suggestions to dismiss climate action or to shift responsibility failed to garner broader support (Huttunen et al., 2025). This reasoning is not explicit in the statements, but it is implicitly reflected in the juries' acknowledgement of the importance of climate change mitigation. Based on Huttunen et al., (2025), it is not clear why global and intergenerational arguments were not included in the statements, but it could pertain to the juries' primary remit, which only covered assessing the fairness of policies at the regional or national level. Still, the observations lend support to Dryzek and Tanasoca's (2021) presumption that deliberation curbs self-interested claims, when the shape of justice is defined.

By acknowledging the need for climate action, the juries rejected the claim of some populist politicians that ambitious climate policies are unjust for Finland (cf. Vihma et al., 2021). The Forest Jury's statement also challenged the forest industry's established

<sup>6</sup> Everyman's rights in Finland grant anyone the right to e.g. forage wild foods, walk, ski and cycle, and camp temporarily in the nature, even on privately owned land.

narrative, where current logging levels are justified on the basis of the well-being they produce to Finland (cf. [Näyhä and Wallius, 2024](#)). Having established ecological goals as an important component of just forest use, the Jury was willing to impose more restrictions to logging. The outcome aligns with the Jury's deliberations, where the influence of forest industry was perceived as unfairly dominant ([Huttunen et al., 2025](#)).

In general, though, the statements engaged with questions of justice less at the systemic level. For instance, even when the National Jury and Transport Jury were concerned of some measures' adverse side-effects, they did not address the possible causes of the prevailing inequalities, like established economic structures, or global power imbalances. Neither were the current modes of energy production challenged. Again, perhaps the juries' remit or their national and regional scale prompted a practical orientation towards the statements' production, where the current level of well-being in Finland was taken as given (cf. [Huttunen et al., 2025](#)). It is also worth noting that the breadth and depth of jurors' deliberations was limited by the duration of the process, which lasted only a few days and contained multiple phases and tasks. Nevertheless, the doubts about DMPs' capability to challenge the systemic drivers of climate change (cf. [Blue, 2015](#), [Machin, 2023](#)) cannot be refuted in this case.

Of course, DMPs' capacity to transform climate policy trajectories, and the strength of their formative agency (cf. [Dryzek, 2015](#)) depends on their consequences; their influence on public policies but also on public discourse, the perceptions of the citizenry, and decision-making institutions (e.g. [Jacquet and van der Does, 2021](#)). Studying the influence of the three juries is, unfortunately, outside of the paper's scope, but a couple of cases of impact could be traced: The National Jury's recommendations increased the attention to information provision in the Medium-Term Climate Change Policy Plan [Setälä et al., 2023](#)), and the Forest Jury's recommendation about the logging quota sparked some public debate ([Leisti 2022](#)). In the grand scheme of things, however, a change in government composition after the 2023 parliamentary elections has rendered these small impacts redundant. The sitting right-wing coalition has overturned many of the previous government's climate measures and imposed strong austerity measures, including cuts on social security. So, if during the time of the juries there was some divergence in citizens' ideas of a just transition and Finnish climate policies, those differences have likely become even more pronounced.

The paper has approached just transition as a dynamic concept, which is contested and shaped by the actors involved in climate policy-making, including climate DMPs. By studying the conceptualizations of justice in the outputs of three Finnish citizens' juries, the paper has demonstrated how climate DMPs' statements can help to understand the contestations revolving around the essence of justice in sustainability transition and to trace factors that contribute to climate policies' acceptability. The statements imply that citizens expect just climate policies to adapt to geographical and socio-economic differences, highlighting ability to pay and needs as factors to consider in cost distribution alongside the 'polluter pays' principle. The statements also envision a strong role for public authorities in ensuring that the ecological goals of just transition are met without compromising the current level of well-being. The results help to explain why some policy measures relying on flat-rate tax increases or price increases through market mechanisms elicit opposition from the citizenry, even though there is a general willingness to pursue climate action.

The need for climate change mitigation was acknowledged in the statements, but global, intergenerational, and systemic issues underlying this need were scarcely addressed. This seems to amplify the skepticism towards climate DMPs' transformative potential ([Machin 2023](#)), but perhaps a more positive reading of the juries' 'localized' approach is possible, too. Even within their limited contexts, the juries were able to outline important omissions in policy design, both in terms of well-being and ecology. The jurors translated their experiences, values, and learnings into concrete suggestions on how to improve the fairness of climate policies from citizens' point of view, giving shape to abstract principles of justice (cf. [Dryzek, 2015](#)). It is worth asking, however, does it weaken the statements' influence – and thus DMPs' formative agency– if the rationales behind ambitious climate actions are not explicated alongside more localized justice considerations?

Some limitations of the study are worth noting. Firstly, even when citizens' juries involve a randomly selected subset of the population, their collective outputs only give a limited view of the elements of justice relevant to citizens. Important perspectives might be missing from the deliberations altogether, or the process may fail to integrate some perspectives in the DMP's joint reasoning (cf. [Kulha, 2025](#)). A more holistic understanding of citizens' justice conceptions would require studying material from multiple sources, such as social media, polls, and protest groups. Secondly, inspecting the statements reveals only little of the reasoning behind DMPs' justice conceptualizations, which is why the discussion of the findings has been complemented with [Huttunen et al. \(2025\)](#) analysis of the Transport Jury and Forest Jury transcripts. For the National Jury, however, transcripts were not available. Finally, a fuller understanding of justice contestations would be produced, if the analytical framework was applied to other policy-shaping agents' views alongside DMPs' outputs. The present study has also focused on one country only, although a great deal of climate policy-making takes place in international forums. Future studies could thus broaden the objects of study and compare DMPs' ideas of justice across countries.

## Author statement

All contributions to the article by Katariina Kulha.

## CRedit authorship contribution statement

**Katariina Kulha:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. – National Climate Jury Statement

### General observations

The financial impact of the actions is a cause of general concern for citizens, although people are willing to take action to slow down climate change. The national expenses incurred by the new climate actions have to be divided fairly between different sectors. Citizens’ perspective needs to be strongly taken into account when deciding upon the funding of the measures suggested by the Medium-term Climate Change Policy Plan.

When deciding on the transition periods for tax increases, the freedom of choice and financial freedom of consumers shall be taken into consideration. In other words, the transition periods should be sufficiently long so that the financial burden of individual consumers will not grow too rapidly. Tax increases should be targeted at climate emissions and compensations should be made elsewhere, without increasing the total tax ratio.

Individual and regional differences must be taken into consideration and, whenever possible, options should be available.

Freedom of choice must not be unnecessarily restricted with these actions. It must be possible to live and work everywhere in Finland. Also, there should be an appeal to individual responsibility so that rights are not restricted, but living conditions are nevertheless secured for future generations.

When it comes to actions directed at the burden-sharing sector and, in particular, consumers, the impacts of the actions on the environment (climate + biodiversity) as well as the financial impacts on various socio-economic groups shall be taken into consideration extensively. Additionally, attention should be paid to the way in which the measures directed at the burden-sharing sector may impact the sector under emission trading, so that problems are not merely shifted from one sector to another.

In public administration and municipalities, the current tax revenue should be directed at climate-friendly traffic, housing and food, thus setting an example. The responsibility of product manufacturers shall be emphasised in the actions, since consumers seldom have an opportunity to fully ascertain the origin and ecological sustainability of a product.

The internationally and nationally recognised rights of indigenous peoples shall be acknowledged. Actions and projects intended to stop climate change but that have negative impacts in terms of maintaining and developing the language and culture of the Sámi people must not be implemented without the Free, Prior and Informed Consent (FPIC principle, Indigenous and Tribal Peoples Convention) associated with the rights of indigenous peoples.

Financial actions shall be strongly and clearly communicated to consumers, so that all income groups are able to apply for various subsidies and deductions or can otherwise take the new financial changes into account in their activities. The informational guidance should be broad and thorough, for example, in the form of climate education starting from comprehensive school. The information provided should include clear and compact justifications for the financial actions to increase the citizens’ awareness. In particular, those with low income and the elderly should be taken into account in the informational guidance concerning subsidies.

#	Measures	Comments on the measures
1	Implementation of the investment programme with regard to walking and cycling as well as improving the walking and cycling conditions will be continued	Equality shall be taken into account in the planning of pedestrian and bicycle paths. Investments should be allocated to areas where the use and need for bicycle paths is the greatest, when looking at the benefit-use ratio. Other measures promoting the use of pedestrian and bicycle paths shall be taken into account in budgeting and decision-making. These include traffic safety, maintenance, bicycle parks and communications. In sparsely populated areas, widening roadsides may also be an option.
2	Support given to the public distribution infrastructure for transport electricity and gas will be continued and increased	Subsidies should be allocated in an equal fashion to all areas, including sparsely populated areas. The distribution infrastructure of biogas, in particular, shall be sufficiently extended to cover the entire land. In the case of biogas, sufficient availability to citizens at a competitive price shall be taken into consideration. In order to be able to implement the measure in a fair and effective manner, the purchase subsidy should be directed at both new and used full electric cars and expanded to cover rechargeable hybrid vehicles, with restrictions suitable to the climate targets. The subsidy should also be allocated for the development of the sharing economy, whereby there would not be a need for such a high number of cars but, instead, more people would have the opportunity to use a car without owning one.
3	The present purchase subsidy for full electric vehicles will be continued and the amount of the subsidy increased	Obtaining the subsidy also for the ethanol conversion of newer cars should be made easier. Possibilities for converting newer cars should, therefore, be researched and means should be explored to dissolve administrative problems to make the process, as a whole, simpler. Communication concerning the conversion possibilities should also be increased so that consumers would receive correct and up-to-date information.
4	The present conversion subsidies for changing an old petrol-powered car to run on ethanol or gas will be continued	The subsidy should be directed specifically at households. The number of cars to be scrapped could be a maximum of two per household per campaign. In addition to the present options, it should be possible to use the scrapping premium to purchase a used electric car.
5	A scrapping premium campaign or campaigns will be implemented	In addition to private employers, the State and municipalities shall also organise a comprehensive charging infrastructure for their employees. Other legislation shall be taken into consideration when implementing the subsidy to avoid possible gaps. Also, small-scale enterprises should be considered in the preconditions for the subsidy so as to ensure that they also would have a real possibility to build charging stations. Within new construction, an obligation to build charging stations could be considered. The problems related to electricity transmission prices should be taken into consideration, for example, when it comes to the high electricity transmission price.
6	Subsidies for private charging infrastructure aimed at housing companies will be continued and increased. In addition to housing companies, the support will be expanded to cover also workplaces	In order to be able to implement the measure in a fair and effective manner, attention should be paid to whether long-term funding is provided for the measure. Everyone shall have equal opportunities to convert their heating system, regardless of their level of income, in the form of either a subsidy, a loan guarantee or a combination of the two. Municipalities shall be obligated to provide low-threshold guidance on different forms of subsidy in an efficient and equal manner.
7	Investment subsidy (giving up oil heating)	Vehicle taxation, including the tax on motive source, shall be consistent and based, in all respects, on the emissions of the vehicle. The car tax shall be abolished so as to encourage people in Finland to drive newer cars. Taxation of cars powered by fossil-free fuels should be further cut. The currently valid exemptions from vehicle tax should be expanded so as to ensure regional fairness. In annual vehicle taxation, for example, regional factors are taken into consideration: different rules for the north and south, as is possible in compulsory motor vehicle insurance.
8	Changing car taxation and vehicle taxation	The taxation of fossil fuels should not yet be increased, as it will affect low-income groups the most, in other words, those who cannot afford an electric car but who, however, need a car. Increasing the taxation of fuels is fair only when the prices and supply of used electric cars are on the same level with vehicles powered by fossil fuels.
9	Increasing the taxation of fossil fuels	The CO <sub>2</sub> subsidy component of fuel tax, which reduces the tax on renewable fuel, shall be continued. The sufficiency and domestic security of supply of biogas and electrofuels, meaning fuels produced by electricity, need to be secured to prevent an unpredictable or sudden increase of prices. Price increases caused by the expanded distribution obligation shall be monitored and, if necessary,
10	Biogas and electrofuels will be included in the distribution obligation	In order to implement the measure in a fair and effective manner, it must be taken into consideration that heating is a basic need. The measure would increase the inequality of different groups of people, especially pensioners and those with a low income. Consumers should be guided away from using oil heating by other means, such as an investment subsidy.
11	Substantial increase in the taxation of heating oil	

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(continued)

#	Measures	Comments on the measures
12	Increase in the level of the domestic help credit	In order to be able to implement the measure in a fair and effective manner, it must be taken into consideration that the potential elimination of the related deductible would improve the availability of the tax credit for all. Additionally, we propose an increased "ecological domestic help credit" to be implemented in addition to the standard domestic help credit. The ecological credit would be earmarked for measures that improve the energy efficiency of the property.
13	Less wastage, more healthy and environmentally friendly food	The manufacturing costs, transport costs and ecological sustainability of products need to be researched further. Information needs to be communicated to consumers, as well. Communication and information need to be increased already from a young age. Public funds in early childhood education and schools shall be guided towards an environmentally friendly and healthy diet to set an example. Wastage shall be taken into account when planning menus. Recycling food waste shall be made easier, for example in grocery shops.
14	Lower price of environmentally friendly food	The production of domestic vegetable proteins and environmentally friendly food will be supported. Additionally, the consumption of ecologically sustainable meat, such as fish, game and reindeer, will be encouraged. The measures shall hold to positive encouragement, such as subsidies and lower taxation. When looking at equal consumption options for consumers, it should be made sure that no prices of food products are artificially increased. The increase in food expenses caused by special diets due to illnesses should,

## Appendix B. – Uusimaa Transport Jury Statement

### Deliberative mini-public's statement concerning transportation's emission reduction measures in Uusimaa region

#### THEME 1: LOWERING THE VEHICLE-KILOMETERS CREATED BY PASSENGER CARS

The mini-public stated that the measures that target to lower the vehicle-kilometers created by passenger cars should foremost be based on incentives and that coercive means should be the last resort. Measures should be equal, in other words, they need to consider for example the differences in geographical features and the target groups' socioeconomic statuses. Currently the measures are fairly unequal. For example, measures targeted to localities or sparsely populated areas are nonefficient or create unreasonable disadvantages.

Decision-making needs to hold on to local thinking. In population centers where it is possible to act immediately to lower the vehicle-kilometers created by passenger cars, measures need to be taken. Not all areas need the same measures since localities and population centers have individual needs. Reducing passenger car traffic requires functional public transportation. It is important that the whole Uusimaa region gets a functional cross traffic and feeder traffic.

This way the measures to improve public transportation are in every way desirable since they lower the vehicle-kilometer in an equal way. Municipal and governmental finance for public transportation enables privately unprofitable routes and transportation in other than just financially profitable routes.

The mini-public also raised a question concerning the need to lower the vehicle-kilometers created by passenger cars since it will become emission-free when electric cars become more common. However, it must be noted that the production of electric cars also creates emissions. This topic relates also to the topic of subsidizing the purchase of electric cars.

On one hand, the mini-public thought that all the measures lower the vehicle-kilometers created by passenger cars if they are implemented correctly: the implementation needs to be equitable, efficient and just. In addition, the mini-public discussed lowering city centers' speed limit (30 km/h).

#### Congestion charges in the metropolitan area

Concerning congestion charges in the metropolitan area, the deliberative mini-public emphasized a) where would the borders of the charge be and b) to what would the raised funds be used to. The borders of the congestion charges impact significantly the mini-public's views concerning the issue, if the charges would create unacceptable harm to those travelling to the metropolitan area. Implementing the congestion charge system creates significant changes, which sets demands for urban planning (for example, park and ride infrastructure, public transportation). Some participants supported a wide congestion charge area when others thought that Ring III is unnecessarily large area and thus congestion charges should be directed to traffic that heads to Helsinki's city center (the border could for example be at Tullinpuomi). Some exercise of trade demands driving and should thus be considered for example to get discounts or solid and one-time charge, so that the professional can enter the area without a charge. The mini-public also presented that the charges should not concern exercise of trade at all. Commuting done by professionals whose job description does not require the use of car, should not be considered viable for the discount.

Congestion charges have positive and negative qualities. One advantage is that they can calm down the city center and they encourage to use the public transportation. Congestion charges would help to evolve the city center more into a place of leisure instead of a place of passage. This could even increase the number of customers in stores, especially in the service sector.

The charges could also encourage people to take care of multiple errands at the same time. However, congestion charges have an unequal impact. One question that also raised a discussion was the question if there will be charging inside the congestion charge area

or will the charge be collected once from the person who enters the area during a specific time of the day. And if the charge's amount will be the same for all or if socioeconomic status will affect the amount?

In addition, it was stated that the congestion charges should not apply to people who have a need for care (for example, recurring trips to a hospital). It was suggested that for a starting point, an experimental model would be executed and then improved based on experiences. Stockholm's congestion charge system could be used as an example.

The question concerning the congestion charges did not achieve unanimity within the mini-public and thus was put into a vote. 14 participants supported congestion charges and 14 were against. Four of the participants did not make a clear statement concerning the topic.

#### **Parking policy that encourages sustainable modes of transport**

Concerning commuter traffic, parking spots can be reduced if the further development of the implementation of congestion charges' infrastructure and public transport will be carried out sufficiently enough.

Residents of cities also have cars that are rarely used and thus they do not produce a lot of emissions. Therefore, the limitation of resident parking or raising the costs of it will not instantly reduce emissions. However, raised costs can also lead to giving up of a car totally.

Reducing the amount of parking spots works as a primary policy instrument in urban areas, but it does not apply to sparsely populated areas. In order for policy instruments encouraging sustainable modes of transport to work, the amount of park and ride systems should be increased, and it should be free. This is an excellent incentive to use public transportation. Park and ride system is functional solution especially with rail traffic.

#### **Let's increase carsharing**

Carsharing usually indicates the services provided by commercial actors. The system is the same as renting electric scooters. In addition, housing companies can get their own carsharing systems. There are new operations models such as platforms for private individuals who can carshare (Airbnb of cars). The functionality and infrastructure needs of carsharing could be mapped by the government and private sector in shared Public Private Partnerships. In addition, it could be appropriate to electrify shared city bikes in localities.

Parking spots that are easily accessible and specifically meant for these cars promote carsharing. Renting a car should be easier and they should be located nearer. In addition, companies can provide carsharing system for their personnel. The mini-public thought that one challenge of non-commercial carsharing (for example, housing companies' cars) might be in worse shape, if there has not been an agreement on maintenance or insurance. Because of this, there was raised a worry, if the use of carsharing is realistic in real life. However, some participants believed that carsharing has a future since they can be a realistic option for example for young adults, students and other groups, who do not have the possibility to buy a car. Carsharing could be a functional solution for example for student residential properties and for other cohabitation systems.

Carsharing can have a future as a commercial action in areas, where is big enough population density and utilization rate such as in cities. There has been commercial experiments and it would be beneficial to examine why these have failed. The mini-public also raised a question if carsharing is in competition with taxis and if carsharing has a competitive ability especially in sparsely populated areas/localities. The mini-public thought that non-commercial carsharing is the more realistic option in sparsely populated areas.

#### **Workplaces carry out actions to lower vehicle-kilometers created by passenger cars**

The increase and possibility of remote work, benefits offered by the employer concerning public transportation, carsharing opportunities and benefit bikes (including electric bicycles) provided by employers are supportable actions. However, it should be noted, that executing this kind of model is not possible in all professions and thus is potentially unequal. In addition, it should be noted, that someone always pays for the benefits that the employer offers.

Instead, parking that is subject to a charge and/or increasing charges might create a negative backlash. One identified challenge was that government would steer private sector to raise their charges, which would benefit the private sector at the expense of the consumer. In addition, it is not thought that this action is a working policy instrument since the employee has to get to work anyway which leads most likely to a situation, where employee has to pay the raised charge. On the other hand, this action has been identified to be somewhat working policy instrument.

In conclusion it can be stated that the measures targeted to lower vehicle-kilometers created by passenger cars require that public transportation is equally offered to different areas while at the same time taking into consideration the differing needs of the areas. Alternative solutions should be easily accessible regardless of the person's socioeconomic status. The movement of people needs to be possible.

#### **THEME 2: THE CHANGES IN TRANSPORT FUELS**

The mini-public states that in the light of the current evidence, the electrifying of passenger car traffic is essential part of transforming passenger car traffic to more sustainable way of transportation. Political decision-making should steer and encourage consumers to use electric cars if possible. However, the environmental impacts of the production of the batteries and the sustainable production of electricity must be noted. Also, one must consider the availability of electricity in the future, the development of the electricity's prices and societal security of supply. In addition, there was a worry raised concerning the possible need for more nuclear power because of the needs of electric cars. Some participants did not think that this was a problem.

The precondition is that the electrification and biofuels transition takes into consideration the geographical and socioeconomic status. The transition has to be a realistic alternative for all. Those who have a lower socioeconomic status or live in sparsely populated areas should have longer time for the transition since they have practical limitations such as the lack of charging infrastructure, unfunctional public transportation or financial challenges.

Political decision-making should promote efficient use of biofuels in road traffic, especially during the transition phase of the

vehicle fleet. Based on research, the mini-public does not think that the use of biofuels in passenger car traffic should be a permanent solution in large scale. However, it is a partial solution since traffic cannot electrify fully. Biofuels can be used in the long-term in heavy traffic in which electrifying is hard to implement.

The building of biofuels' production plants should be encouraged. Finland's own biofuel production would also improve Finland's security of supply. Biofuels should be produced from the byproducts of industry and agriculture and forestry and from domestic waste. The mini-public thinks that it is not appropriate to carry out new cultivated area to produce biofuels. It is important, that the import and production of biofuels is based on a sustainable basis. For example, the production of palm oil causes to cut down a lot of rainforests.

Financing should be targeted to the support and development of material and battery technology. Investments to the recycling of battery materials are important. The recycling of batteries lessens the mining of new minerals and thus lowers the burden on the environment. Finding alternative battery materials (for example, from lignin) could lessen the burden on the environment that is created by the production of the batteries.

The mini-public thinks that it is hard to evaluate the efficiency of road traffic's emission trading. On one hand, emission trading can lead to great emission reductions and innovations, but on the other hand the immediate impacts to consumer (increases in prices) can turn out to be unreasonable large.

Increasing emission trading can turn out to be functional with reasonable restrictions; equality, justice and possible traffic poverty needs to be considered. Traffic poverty refers to a phenomenon, where a person does not have an opportunity to move with reasonable effort, moderate costs and reasonable time to those places, where the daily needs are satisfied. If emission trading is implemented, it must be perceived that it does not create unreasonable impacts to people with low income.

Advancing the charging infrastructure of electric cars is vital, so that the electrifying of car fleet is possible. Charging points should be broadly available in housing companies, workplaces and public spaces. At start, it might be rational to limit the state's responsibility to enhance charging infrastructure based on the efficiency, for example focus could be on the routes that are the most in use.

Financial support that eases the acquisition of electric cars should be bettered and targeted to more inexpensive electric cars (15 000 – 35 000 €). The acquisition of electric car with inexpensive and supported leasing payment system could be possible. For example, during spring 2022 there was a week-long campaign, where Peugeot e-2008 electric cars were available with leasing price of 249 €/month. If the price is supported by public economy, the price would be even lower for the consumer. During the transition phase, there should be different kinds of financial conversion support, so that vehicle fleet could be transformed to be biofuel-fired.

The scrapping premium system should be continued. There is a need for communications about scrapping premium system and about how it is possible to get financial support from the state in order to transform internal combustion engine car to gas- or ethanol-fired car. The mini-public also made a suggestion concerning tax reliefs for biofuels and especially for biodiesel.

### **THEME 3: PROMOTING PUBLIC TRANSPORTATION**

It is very supportable to develop public transportation in Uusimaa region, both in rural and urban areas, since low-carbon transportation solutions require public transportation that is significantly more functional than currently. Currently the coverage of transportation differs greatly depending on the parts of the regions and it is not realistic alternative for private car use outside Helsinki because of, for example, routes and schedules.

For public transportation to work, it should be easy to use and comfortable. Schedules should be made functional in the whole Uusimaa region and they should be streamlined so that the waiting times can be minimized. In addition, adding shifts would make changes quicker. It would also be important to coordinate different public means of transport's schedules. Currently, changes make trips challenging. There should be more direct lines. Travelling time should not become unreasonable, but people should also understand, that climate-friendly transportation can be slower. During rush hour, regional traffic's express buses could be taken into use, it could for example quicken commuting. In addition, it is important that public transportation's trunk lines are secured especially in commuting. Something that could also be considered is opening again closed stations such as Nuppulinna. The mini-public highlighted also for example continuing the train service from Kerava to Sipoo and the one-hour train to Turku. Connections should be made more functional to smaller regions. It was suggested that society should support public transportation through ticket prices. However, it is worth to consider, how profitable public transportation is in sparsely populated area. Decision-making should utilize research from other countries when planning public transport street. Public transport streets can be a functional way to decrease traffic, but in practice this is limited to bigger cities' centers.

Public transportation's departures can be supported by, for example, invitation-based transportation. It is challenging to execute market-based public transportation in sparsely populated area, but as a service that gets public support it has potential.

The fluency of services could be improved by information technology solutions. Village ride service needs to be developed and supported. Village rides require that drivers and cars have other runs, for example driving schoolchildren and other publicly and financially supported transports. The mini-public also suggested connecting the voluntary sector to the activity.

The mini-public endorses supporting park and ride possibilities and them being free. Park and ride should be free especially in sparsely populated areas. On the other hand, payment for park and ride could work as a ticket in areas where it is not free. There should be charging infrastructure near to the park and ride.

In cities, traffic arrangements such as traffic light benefits, trunk lines and public transportation lanes that quicken public transportation are seen as important actions. Quickening the regional traffic is also an important action because it makes public transportation tempting for new people. Electrifying public transportation is also a supportable action.

### **THEME 4: PROMOTING WALKING AND BIKING**

The mini-public states that it is extremely supportable to promote walking and biking. Its framework needs to be in good shape so that the possibility to choose is real. There are no negative impacts, but maintenance requires resources. Positive impacts are, for

example, incidental exercise, economy and reducing the usage of cars. However, questions were raised concerning the issue, how can we take into consideration those people who are not able to move around by walking or cycling.

Walking and cycling can be promoted by the following actions:

There needs to be safe and guarded places to store bicycles near railway stations (e.g., Tripla's bicycle park room). There needs to be maintenance points near to these, such as pumping and quick maintenance services. These exist already in numerous subway stations next to bicycle parks when going east from Ruoholahti. Bicycle spots need to be added to trains, so that bicycle-train option is possible.

The all-year maintenance of walk and bicycle lanes needs to be secured. The mini-public wondered if Oulu's model of winter maintenance could work also in Helsinki (e.g., bicycle center). In practice, it can be challenging to upkeep bicycle conditions all-year (cf. Amsterdam and other similar cities, where weather conditions are more favorable). In winter, the upkeep of bicycle lanes might be challenging, since maintaining all-year infra might not be profitable.

New and good walk and bicycle routes need to be increased where possible. Security needs to be increased by, for example, widening hard shoulders in sparsely populated areas. In ideal situation, existing lanes need to have cycle lane to increase their usability's attractiveness.

The surrounding of schools needs to be made as car-free as possible to promote children's independent traveling by cycling and walking. In that case, trips to school made with parents by car decrease. Separating cyclists from walkers to their own lanes increases security. Security is also enhanced by increasing traffic education for example through schools' traffic education so that traffic regulations are known by all walkers and cyclists. In addition, it is important to actively communicate traffic etiquette to all people using traffic. Widening the use of city bikes got support and it was also suggested that there would be electrically-assisted city bikes. Some attendees suggested that city bikes could even be free. Not all attendees shared the same views concerning city bikes. During the discussions, the speed limits to bicycles in densely populated areas and licenses for cyclists or possible surveillance were also brought up. Also, breathalyzers for cyclists were suggested as well as license plates for cyclists that could also possibly prevent thefts. Attendees disagreed on breathalyzers, licenses and other suggestions that make cycling more difficult since it was thought that extra cost factors, surveillance, maintenance etc. negative actions would most likely decrease cycling. Concerning city bikes and electric scooters, it was stated that breathalyzers could be useful although technically challenging solution.

It is possible to ride long rides with electrically-assisted bikes. Electric bicycles are also a lighter way for example for elderly people to cycle. The mini-public contemplated that the processing of bicycle thefts need to be advanced. The traceability of bikes needs to be enhanced. Though the availability of electric bikes is currently poor.

#### **THEME 5: OTHER ACTIONS**

In addition to the suggested actions, the mini-public discussed other possible ways and innovations that are directed to urban and construction planning and services, actions that make daily life easier and other comprehensive actions.

Urban and construction planning and services: Land use planning needs to take into consideration securing smaller areas' adequate supply of services in order to reduce longer travel needs. With the use of renewable energy sources, especially solar and wind power, it is possible to generate electricity more self-sufficiently even in urban areas. Building regulations could be changed so that it motivates to invest in wind and solar power already in the phase of construction. This change could support the electrifying of vehicle fleet. In addition, electricity will not presumably be the only energy source for cars in future.

Geothermal heat and uptake of waste heat as a heating solution for residential buildings saves energy for the needs of transportation. It should be invested in these during the construction and renovation.

Carbon sinks such as preserving cities' green belts is important in order to reduce net emissions.

Solutions that make everyday life easier: Hobby and exercise possibilities should be concentrated to shorter distances, for example connected to schools after the school day. This would reduce the need to drive kids to school with car after the workday. Municipalities should support action that reduces the need to travel and eases families' use of time by offering free slots for hobbies in schools and in other suitable spaces and support carpooling to hobbies.

Transport services could be used to reduce vehicle kilometers with, for example, home delivery of purchases and services. Transportation's vehicle kilometer can also be reduced by increasing so called route day thinking where transportation day and the availability of services is known beforehand. In this case, for example, a whole neighborhood could get their purchases home delivered on the same day.

Carpooling should be supported by leaving it outside of tax consequences when the activity is not professional.

The mini-public also raised up the topic of the use of digitalization and platform economy in order to promote smart mobility and reduce the need for transportation.

### **Appendix C. – Lapland Forest Jury Statement**

#### **Statement of the Forest Jury**

An overview of the state of forest use in Lapland

*The Lapland Forest Jury sees that in the climate wise and fair use of the forests of Lapland it is important to consider the following starting points:*

Metsähallitus plays an important role in the coordination of different forms of forest use. The state is the main owner of Lapland's forests (64 %), so it has a huge importance in decision-making related to the use of forests. There are a lot of carbon sinks in Lapland's forests. Lapland is not one unified region.

As forests have many users (e.g. wind power, tourism, reindeer husbandry, hunting, industry, recreational use, berry picking, mining industry), cooperation and conflict mediation is essential. Coordination is being done e.g. with land use planning, which is

managed by the municipality.

Tourism is of great importance to Lapland.

Logging in the Sámi's home region has decreased in recent decades, e.g. because logging has been limited for 20 years for >10 years ago. The situation has improved thanks to consolidation (camping, tourism, forestry). In addition, 70 % of the country's nature conservation areas are located there.

There are many old forests in Lapland, which are important for biodiversity. Old forests, whose growth has slowed, are not so good carbon sinks, but they are carbon storages.

Preserving carbon sinks requires sustainable use.

Up-to-date information on carbon sinks is missing.

The need for domestic raw wood material is growing. Securing a sufficient supply of timber is a challenge as the climate changes and demand increases.

The amendment to the Forestry Act (2014) allows regeneration felling in a forest, which is younger and where the diameter of trees is smaller than before.

Carbon sinks are reduced when regeneration fellings are done too early.

Private forest owners would like to protect forest more often than funding is available. Funding runs out every year.

Problems with the use of forests

*The Lapland Forest Jury sees that the most central problems in the current climate wise and fair use of Lapland's forests are the following:*

Partially conflicting operating pressures are increasing (forest industry's need for wood, mining, wind power, recreational use, reindeer husbandry, tourism etc.); at the same time the forests should both compensate emissions and produce raw material for industry.

The demand for raw wood material is increasing, which is a risk for the adequacy of carbon sinks and biodiversity. It is estimated that the Finnish land use sector's carbon sinks only cover half of the emissions from traffic and industry in Finland.

The challenge is to combine the needs of different users, different areas and livelihoods, by which fair use of forests in Lapland would be guaranteed.

Regeneration fellings are made in too young, half-grown forests.

Financial challenges of forest protection are unresolved both for private and state forests' part.

Metsähallitus must meet the yield requirements set by the Government, which are not in line with the climate goals. The problem is, that the Government does not make decisions, but postpones decisions to the future, even when there exists e.g. clear recommendations from the Climate Panel.

The problem is finding reliable, unbiased and easily understandable information and getting a general idea of what would constitute climate wise forest use.

Recommendations for Regional Council of Lapland and Lapland's Green transition division

*For the use of Lapland's forests to be climate wise and fair, the Jury gives the following recommendations to the Regional Council of Lapland and Lapland's green transition division:*

A general and Lapland-wide review of the state of forests is needed to improve information flow and to increase transparency. All forest use demands require constant monitoring so that the situation would remain sustainable. Metsäkeskus works as an impartial observing party.

In order to secure the sustainable use of forests, long-sightedness spanning government terms is required. Scientific facts and ability to identify risks are needed to support decision-making. This will support awareness of the future demand and the adequacy of carbon sinks.

An annual maximum harvesting quota is needed based on how much logging is sustainable from the perspective of maintaining carbon sinks and what is the need to regrow forests. The quota must cover both private and state forests as a whole. The purpose of the quota is to limit logging if necessary, it does not oblige logging. The preservation of carbon sinks and the fairness of the division of logging rights are assured with supervision.

The diversity of forests will be secured with the right kind with forest management/logging methods.

Finland's emissions should be reduced to the level of carbon sinks in an economically and socially sustainable way. This includes, for example, energy production, industry, consumers, traffic, and land use emissions.

We shall continue open discussion and participatory planning, where all involved parties and different stakeholders, such as different industries, regions, forest users and forest management associations' representatives, are involved. This discussion can also take place at the municipal level, when needed. In addition to different interests, climate and other environmental effects of different measures must be considered. Solutions must consider existing knowledge in addition to opinions.

The Forest Act and Forest Decree should be reconsidered, taking into account the preservation and augmentation of carbon sinks and carbon stock. In young undergrown forests, which have significance for carbon sinks, regeneration felling should be given up, as it was legislated in the previous forest law before the year 2014 based on the trunk diameter.

Private forest owners shall be encouraged to sustainably use and protect forests with financial incentives such as taxation and funding and with informational means such as education.

Business must genuinely and transparently compensate the harm it causes. It must be acknowledged, however, that not all harm caused to nature can be compensated with money. Business operations must avoid environmental damage. Circular economy must be significantly developed so that overconsumption of natural raw materials can be reduced.

The Government must without delay advance The Climate Panel's clear recommendations to rescue carbon sinks. The Government has to reduce the yield requirements of Metsähallitus' Metsätalous Oy and decide that the state forests are not felled beyond their

annual growth. The Regional Council of Lapland and Lapland's MPs must be active in promoting and following these things.

The Regional Council of Lapland should actively seek to spread information at the national level about the importance of Lapland's forests as Finland's carbon sinks and their role in climate change mitigation. Citizens should be offered comprehensible and reliable scientific information about the climate impact of different forest management and land treatment methods and other land use.

## Data availability

No data was used for the research described in the article.

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