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# Towards an eco-welfare state: Enabling factors for transformative eco-social initiatives

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## Abstract

In eco-welfare states, welfare provision must operate within planetary boundaries, entailing societal transformations and significant emission reductions. This article contributes to the research on sustainable welfare and eco-social policies by examining transformative and integrative eco-social initiatives that aim to reduce environmental impacts while also ensuring that public actors have the capacities to reach legally binding social outcomes and enhance social inclusion. Theoretically, we combine welfare state transformation research with the concepts of social-ecological systems, provisioning systems and transformative capacity. Our empirical cases in Finland include public actors promoting sustainable public procurement, a network of carbon-neutral municipalities, sustainable lifestyles accelerators at the household level, and carbon footprint calculators as a potential free-to-use technique that supports widespread carbon reductions. We apply a qualitative research design to investigate what kinds of factors are crucial in enhancing the transformative capacity of provisioning systems and how various factors in practice enable the eco-social initiatives to support the transformation towards an eco-welfare state. Our findings identify key enabling factors for transformative capacity: social networks, collaboration and participation; knowledge, learning and monitoring; shared policy frameworks and visions; and financial

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resources. These factors are interrelated and can be brought to bear in no particular sequence. The results offer valuable insights into how welfare state characteristics with democratically governed public actors may facilitate transformation.

### **Keywords**

Eco-social, sustainable welfare, eco-welfare, social policy, transformative capacity, provisioning system

## **Introduction**

A radical and fundamental transformation of societies is called for to ensure a safe and just operating space for humanity (e.g. Raworth, 2017; Rockström et al., 2023). This challenge is particularly relevant in European welfare states, where social security systems and welfare services are based on institutions that are accumulating ecological debt, despite the high-level political targets of a just transition towards carbon-neutral societies, outlined in the European Green Deal. Since not one welfare state has yet achieved social outcomes within biophysical boundaries (Fanning et al., 2022; O'Neill et al., 2018), the question of how to accelerate the transformation and help current welfare states develop into eco-welfare states is thus crucial.

Previous research on the intersection of welfare states and environmental challenges has described the transformation towards more sustainable welfare systems. Various concepts have been developed under the headings of 'ecosocial welfare' (Fitzpatrick and Caldwell, 2001), 'eco-welfare state' (Gough, 2016), 'ecosocial state' (Koch, 2020; Koch and Fritz, 2014), 'social-ecological state' (Laurent, 2021) and 'sustainable welfare' (Gough, 2015; Hirvilammi and Helne, 2014; Koch and Mont, 2016; see also the contributions to this special issue: Fritz and Lee, 2023). We use the concept of the eco-welfare state to refer to a welfare state that operates in a safe and just space for humanity, within planetary boundaries and with a social foundation that ensures that citizens' needs can be met with dignity. In eco-welfare states, public authorities should ensure that the welfare provisioning of social security, education, social and health services and other public goods operates within the limits of ecological sustainability. This means considerable reductions of emissions and natural resource use from the current levels, especially in the Nordic countries (García-García et al., 2022). Transformation towards an eco-welfare state requires welfare states to develop integrative eco-social initiatives that help reduce environmental impacts, while also ensuring that public actors have the capacities to attain legally binding social outcomes and enhance social inclusion.

Social policy research on the transformation of welfare states concurs that transformations should be viewed as multi-dimensional institutional processes involving multiple actors and changes at various levels (Seeleib-Kaiser, 2008). However, the dominant social policy research on welfare state transformation lacks an understanding of interconnected social-ecological systems. We thus approach welfare states from the perspective of provisioning systems mediating the way in which biophysical resources are used and transformed into social outcomes (Fanning et al., 2020; O'Neill et al., 2018). To apply the macro-level discussion on welfare state transformations and the previous research on provisioning systems and different provisioning elements (Fanning et al., 2020), we draw on the analytical concept of transformative capacity, which has been used to understand the systemic capacities needed to transform social-ecological systems

(e.g. Olsson et al., 2010). Our premise is that transformative capacity requires changes and agency at many levels: state capacity but also capacity in the municipalities and private and civil society sectors (Wolfram, 2016).

In this article, we aim to contribute to the research on sustainable welfare and eco-social policies by analysing what kinds of factors are crucial to enhancing the transformative capacity of provisioning systems, and how various factors in practice enable eco-social initiatives to support the transformation towards an eco-welfare state. As our empirical cases, we have chosen four eco-social initiatives in Finland: public actors promoting sustainable public procurement, a network of carbon-neutral municipalities, sustainable lifestyles accelerators at the household level, and carbon footprint calculators as a potentially free-to-use technique that supports widespread carbon reductions. Our qualitative, theory-oriented analysis shows how transformative capacity factors such as social networks, knowledge, shared policy frameworks and financial resources help eco-social initiatives achieve sustainability outcomes in practice.

The paper is structured as follows. First, we theorise on welfare state transformation, provisioning systems and transformative capacity. Second, we introduce the chosen eco-social initiatives in the Finnish welfare state context, along with our data and methods. Third, we present the empirical findings on four factors of transformative capacity, and to conclude, we discuss the challenges of eco-social initiatives and propose contributions to future research and practice.

## **Transforming welfare states through enhanced transformative capacity**

Research on social-ecological systems has focused on how to unlock a locked-in regime and increase the transformability of systems in situations where ecological, economic, or social conditions make the existing systems indefensible (Olsson et al., 2010: 266). Along with social policy research on welfare state transformations and historical institutionalism (e.g. Rothstein and Steinmo, 2002; Pierson, 2004), institutional development and public policymaking are characterised by path dependence, lock-in traps and rigidity, which makes transformations slow. Institutional changes rarely shift paradigms, but the change occurs through incremental, cumulative change processes where various, seemingly ‘small wins’ potentially cumulate into more fundamental institutional transformation (Béland and Powell, 2016; Salo et al., 2022). This explains why changes often take place through ‘quiet revolutions’ in which internal processes reduce the resistance to change (Olsson et al., 2010: 266).

The research on sustainability transformation has increasingly used the provisioning systems framework when focusing on the interaction between biophysical resource use and social outcomes, and trying to understand how political-economic dimensions such as institutions and actors interact with energy and material stocks and flows (Fanning et al., 2020; O’Neill et al., 2018; Plank et al., 2021; Schaffartzik et al., 2021; Vogel et al., 2021). We find this framework useful for research on eco-social policies and sustainable welfare because it focuses on changing intermediate factors, rather than social outcomes in terms of need satisfaction. It thus suggests that the transformation towards an eco-welfare state does not require changes in universal needs (we need, for example, health and autonomy) but does call for transformation of various doings, beings, and material resources that are used to satisfy universal needs (i.e. changing need satisfiers; see also Hirvilammi et al., 2023). Such changes entail new practices, roles, and divisions of responsibilities between different provisioning elements, such as state institutions and households, or necessitate participatory new technologies that can be used to improve low-carbon need satisfaction (Fanning et al., 2020; Plank et al., 2021).

Recent studies on provisioning systems have included capitalist relations and political economy in analyses of material and energy flow (Schaffartzik et al., 2021) and have discussed the importance of providing high-quality public services, greater income equality and public health services (Vogel et al., 2021); nevertheless, the provisioning systems framework still lacks an explicit consideration of welfare-state institutions. We thus suggest that combining welfare state research and the provisioning systems framework would deepen the understanding of social policy regulation and welfare capitalism in the transformation of welfare provisioning. In welfare states, the provisioning systems are firmly based on legislation, political forces and institutional path dependencies that must be considered when transforming these systems. Moreover, welfare state institutions such as social security, social and health services and employment systems are closely linked with ecologically unsustainable growth imperatives of capitalist welfare states (Corlet Walker et al., 2021; Hirvilammi, 2020; Koch, 2021).

The previous research on welfare state transformation, social-ecological systems and provisioning systems highlights the importance of agency and institutional conditions in shaping transformations, but is not explicit on how to improve the transformative capacity of provisioning systems. When studying the explanatory factors behind welfare state transformations, it has been found that changes in systems depend on internal processes such as information, human labour, resources, active relations with societal actors and close relationships between the state and civil society (Huber et al., 2015: 8). To further develop this understanding, we focus on the concept of transformative capacity and draw on the previous research on closely related concepts, including governance capacity, organisational capacity, managerial capacity (Wang et al., 2012), institutional capacity (Isaksson and Hagbert, 2020) and urban transformative capacity (Wolfram, 2016). We understand transformative capacity as a systemic property that enables change in the desired direction. It is developed by the dynamic interactions between individuals, organisations and institutions at many levels: it requires state capacity, capacity in the private and civil society sectors and corporatist deliberation (Wolfram, 2016: 124).

Whilst the concept of transformative capacity has a diverse intellectual ancestry, there is general agreement on its key factors or indicators (Wolfram, 2016). Olsson et al. (2010) argue that transformative capacity is enhanced through agency to change paradigms, diversity of actors, power distributions and interactions among actors. It is also linked to regulatory frameworks, underlying norms and values, knowledge production and broadly to experimentation and innovation skills. Systems can change through trial and error. Romero-Lankao et al. (2013) have identified the following ‘capacity indicators’: networks, legal framework, participation and availability and use of information. An enhancing legal framework should be complete, unambiguous and reviewed periodically (Romero-Lankao et al., 2013: 788). According to Isaksson and Hagbert (2020: 85), the key elements of institutional capacity include knowledge resources, relational resources (the presence of social networks, level of trust and reciprocity, power relations) and mobilisation capacity. Knowledge and social networks are thus crucial factors. Wolfram (2016: 125) emphasises inclusivity, participation and actor networks across policy sectors as key elements explaining transformative capacity. Other factors he identified include a widely shared vision for meeting social needs, access to resources, practical experimentation, and social learning and reflexivity accompanied by empowerment. The previous research also emphasises that various capacity factors are inter-linked and influence each other. For example, citizens’ support may catalyse legislative frameworks, resulting in better financial resources and managerial execution (Wang et al., 2012: 843–844). We use this understanding of systemic feedback and various lists of capacity

factors as a theoretical orientation allowing us to identify the enabling factors of transformative capacity in our study.

## **Eco-social initiatives in the Finnish welfare state**

### *Research context and case selection*

Our empirical research on emerging eco-social policies is based on Finland, a Nordic welfare state with 5.5 million inhabitants. Regarding social outcomes, Finland appears successful, performing very well in many dimensions of well-being as measured by the OECD Better Life Index (OECD, 2022). In 2023, Finland was ranked as the happiest country in the world for the sixth year in a row (Helliwell et al., 2023). Yet, Finland has exceeded all biophysical boundaries except a boundary of freshwater use (O'Neill et al., 2018; Furman et al., 2019). The carbon footprint of an average Finn per year (9.7 tonnes) heavily exceeds 1.5-degree lifestyle targets, meaning that around a 90% reduction in carbon footprints is required by 2050 (Akenji et al., 2021). Also, the material footprints of Finns are among the biggest in Europe, exceeding the estimates of a sustainable level of resource use of 3–8 tonnes per person (Berg et al., 2019a; Eurostat, 2021).

The Finnish state has for decades been a strong actor in sustainable development policies and is currently a leading country in the global SDG Index (Sachs et al., 2022). A newly established Climate Act (423/2022) should help to ensure that Finland is carbon-neutral by 2035. In Finland, sustainable development in all its dimensions and the aim of carbon neutrality have been tackled both with established and emerging policies and with more local-level initiatives.

The starting point of our case selection was that welfare state institutions and provisioning systems must be transformed at various levels (e.g. Fanning et al., 2020; Seeleib-Kaiser, 2008). Among ongoing initiatives, we looked for interesting eco-social practices in which various actors seek to reduce harmful environmental impacts while also ensuring legally binding social outcomes and socially inclusive transformation.

In the following sections, we analyse four initiatives representing different actors and interlinked 'provisioning elements' (Fanning et al., 2020): the state, municipalities, households and techniques. We focus on state-level sustainable public procurement, carbon-neutral municipalities, sustainable lifestyles accelerators, and digital carbon footprint calculators (Table 1). Adopting this multi-level approach with different data sets allows us to identify the factors enhancing transformative capacity in the individual initiatives, and to analyse tentatively how these various factors affect each other. The data include mainly transcripts of semi-structured interviews with 98 different individuals.

### *Case descriptions*

Promotion of sustainable public procurement is crucial in Finland, where much welfare provisioning occurs in municipalities and at the regional level. Social and health care provisioning in a welfare mix with public, private and civil society actors requires public procurement. Given that local governments have relatively independent powers to enhance sustainability (Terama et al., 2019), and that approximately €47 billion are spent annually on public procurement in Finland (Merisalo et al., 2021), this procurement is viewed as a significant lever to reduce the environmental impact of public service provision and shape markets for innovative environmentally friendly products and services. Promotion of public procurement aiming to achieve sustainability and innovation-related goals is a policy area in which Finland has established itself in a leadership

**Table 1.** The initiatives analysed, their key attributes and the data sets used.

	Sustainable Public Procurement (SPP)	Carbon-neutral Municipalities (HINKU)	Sustainable Lifestyles Accelerator (SUSLA)	Carbon Footprint Calculators (CFC)
Aim	To ambitiously enhance the sustainability of public procurement in Finland	To spur municipalities to reach carbon neutrality	To help households achieve 1.5-degree lifestyles	To steer individuals towards reducing their carbon footprint through their consumption choices
Initiation	National public procurement strategy; 'Procurement Finland' programme, National Competence Centre for Sustainable and Innovative Public Procurement, including a broad range of expert and research organisations.	HINKU network of municipalities coordinated by the Finnish Environment Institute, involving several national intermediaries and agencies	Local experiments for households to trial low-carbon lifestyles, part of the international Sustainable Lifestyles Accelerator network of public and private organisations	Variety of actors such as NGOs, research institutes, governmental agencies, retailers, and financial institutions developing carbon footprint calculators (i.e. 'hosts')
Research data	Policy documents, participatory observation and 15 semi-structured interviews with policymakers and public procurers (2018–2022)	Semi-structured interviews with 40 municipal contact persons in HINKU municipalities (2019)	Ten semi-structured online group interviews with 19 individuals who had recently trialled the Sustainable Lifestyles Accelerators (2020)	Semi-structured interviews of 24 CFC hosts, covering all salient actors in the field: businesses, NGOs, citizen activist groups, government and municipalities (2020–2021)

position (European Commission, 2021, 2022). Two significant measures have recently been implemented. The national public procurement strategy (2020) prioritises economic, environmental and social sustainability and establishes specific goals on carbon neutrality, circular economy, biodiversity and sustainable food systems. The implementation of the strategy is supported by the nationwide 'Procurement Finland' programme, which provides public procurers with tools, methods, guides and reports and facilitates collaborative actions. The second initiative, a state-funded National Competence Centre for Sustainable and Innovative Public Procurement, was launched in 2018. It organises training programmes, promotes best practices and nominates 'change agents' to support public procurement units at the regional level.

In addition to state-level targets on climate neutrality, most Finnish municipalities have incorporated sustainable development into their strategies and have set targets for carbon neutrality. Many cities and smaller municipalities aim to be carbon neutral by 2030. In practice, the target of carbon-neutral municipalities has been promoted through active local policymakers and incumbents and a nationwide network called 'HINKU', established in 2008. The network consists of municipalities committed to achieving an 80% reduction in their greenhouse gas emissions from the 2007 level by the year 2030. This commitment in principle guides all policymaking, since municipal members agree to this target when the municipal council decides to join the network. In 2021, the network included 83 municipalities with over 2.1 million inhabitants.

Finland cannot achieve climate neutrality without extensive changes in consumption patterns and lifestyles. Presently, Finnish households account for about 60% of the country's consumption-based carbon emissions, while the public sector's share is five times smaller (Nissinen and Savolainen, 2019). Recent studies (Akenji et al., 2021: 63; Heinonen et al., 2022) indicate that the most significant reductions in Finnish consumption-based carbon footprints could be achieved through adopting a vegan or vegetarian diet, using renewable electricity and opting for public transport. To shrink household consumption towards the 1.5-degree lifestyle carbon footprint, local experiments recruiting households to participate in trials have been implemented in municipalities of different sizes as part of the international Sustainable Lifestyles Accelerator (SUSLA) project. From 2019 to 2021, around 250 volunteering Finnish households participated in SUSLA: they used carbon footprint calculators to assess their current carbon footprint, learned about actions that could reduce their footprints and implemented these actions during a one-month test period. Ultimately, the experiment results were presented in future workshops, allowing participants to learn and reflect on their experiences with others.

Carbon footprint calculators (CFCs) are seen as a promising digital technology to promote the transformation towards a carbon-neutral society. An increasing number of Finnish organisations (e.g. government bodies, municipalities, NGOs, consumer activist groups and business institutions) have come up with various online calculators for consumers to measure the carbon emissions of consumption activities. CFCs are the basis for setting carbon reduction targets for production and consumption and allocating carbon budgets to citizens to reduce footprints, both within a single country and globally. CFCs work by calculating the carbon emissions caused by consumption activities, based on data about the specific practices of the users (e.g. Pandey et al., 2011). CFCs are socially inclusive and can enhance citizens' abilities to participate in the transition by teaching them about their carbon footprints and the impacts of consumption choices. This way, citizens are also empowered to take part in the public discussion about how Finland's carbon budget should be spent: what should be reduced and how. However, the use of CFCs alone does not often lead to any significant or long-lasting reduction in carbon footprints; consumers either do not trust the calculations, perceive prescriptions as unjust and unfair, or they feel they are incapable of doing or sustaining the envisioned



changes in the absence of enabling public infrastructure (Tiilikainen et al., 2021). Therefore, a new understanding of CFCs is needed, as an integral and enabling part of institutional changes to transform welfare states.

### *Qualitative analysis*

The first step in our analysis was to examine four different data sets from the perspective of their transformative capacity. Because the initiatives had already previously been recognised as quite successful in achieving their goals (e.g. Karhinen et al., 2021; Lettenmeier et al., 2020; Pihlajamaa et al., 2021; Valovirta et al., 2022), we focused on factors enabling transformative change rather than barriers impeding it.

We followed an integrated analysis process (Moran-Ellis et al., 2006), choosing data sources and methods that were best suited to understanding a particular case while addressing a shared research question. After analysing the cases individually, we first tried to identify the salient factors connected to their transformative capacity. We then developed higher-level categories based on the findings, raising the level of abstraction. In doing so, we used abductive reasoning (Timmermans and Tavory, 2012), comparing our data-driven insights with existing conceptualisations and categories of transformative capacity. Consequently, we considered four enabling factors of transformative capacity that we use to analyse transformative initiatives in the welfare state context: 1) social networks, collaboration and participation; 2) knowledge, learning and monitoring; 3) shared policy frameworks and visions; and 4) financial resources. In the last phase of the analysis, we collected data quotes on a large sheet, to analyse in more detail how these four factors enabled the transformation towards an eco-welfare state and how they were interlinked.

### **Four factors enabling transformative capacity**

Next, we present our findings on how four factors of transformative capacity enable the eco-social policy initiatives to transform the Finnish welfare state towards an eco-welfare state. Table 2 summarises our observations on the individual cases, while in the rest of the chapter, we combine the observations and discuss the interaction between different factors.

#### *Social networks, collaboration and participation*

In addition to having a strong focus on reducing environmental impacts, all these initiatives share the aim of supporting social inclusion. They enable broader participation and inclusion of new stakeholders, either deliberately by organizing networking events or more informally, as when individuals meet, share the CFC tools and invite others to join. We found that the initiatives have established a more active collaboration and have improved networks at many levels: within public sector actors representing state, municipal, and regional authorities, between public and private sectors, between business actors, and between households. Network organisations such as HINKU and the National Competence Centre for Sustainable and Innovative Public Procurement enable interaction between stakeholders and help single organisations to establish themselves in an organisational network. This illustrates how new kinds of intermediaries with a stable organisational basis can orchestrate the transformation and act as ‘boundary spanners’ (Wolfram, 2016: 127).

**Table 2.** Summaries of transformative capacity factors concerning the eco-social initiatives.

Transformative capacity factors	Sustainable Public Procurement (SPP)	Carbon-neutral Municipalities (HINKU)	Sustainable Lifestyles Accelerators (SUSLA)	Carbon footprint calculators (CFC)
Social networks, collaboration and participation	New networks foster collaboration within the public sector and between public buyers and firms, to help plan more sustainable procurement. Provision of support to public organisations with limited resources and skills ensures the participation of all public organisations, not just large ones.	The network brings together civil servants and policymakers from different municipalities to work towards a shared goal. Peer support from other municipalities strengthens the commitment and creates momentum for change.	Neighbours and local communities help organise collective solutions (e.g. ride sharing, recycling). Positive feedback from others supports low-carbon choices. Experiences of others joining the effort of reducing emissions encourage individuals to take action. Households already aware of climate change are mostly involved.	Online and free-to-use CFCs enable inclusion and increase interaction and collaboration, with links to social media and feedback functions. These enable information sharing, feedback, and discussion between users, hosts and municipalities.
Knowledge, learning and monitoring	Provides a shared knowledge base of effective procurement practices through guidelines, handbooks, webinars and research reports. Improves methods for monitoring progress at the organisational and national level, such as self-assessment tools and a mentoring programme. Creates national indicators for the strategy.	Activities are shaped around sharing of information and finding the most effective ways to reach carbon neutrality. Municipal actors can learn best practices from other municipalities. The HINKU criteria require constant monitoring of emissions to reach the targets.	Better information on carbon footprints increases the understanding of the necessary scale of transformation and the impacts of everyday actions. Carbon footprint calculators that monitor emissions encourage the participants to reflect critically on their habits. Learning from results and other participants provides new, important insights.	CFCs translate input-output analysis of carbon emissions into accessible online tools and knowledge. With CFCs, the effects of measures taken can be evaluated and monitored based on real data from real citizen footprints. Sharing data with stakeholders enables learning and reflexivity.

(continued)

Table 2. (continued)

Transformative capacity factors	Sustainable Public Procurement (SPP)	Carbon-neutral Municipalities (HINKU)	Sustainable Lifestyles Accelerators (SUSLA)	Carbon footprint calculators (CFC)
Shared policy frameworks and visions	A national strategy for public procurement makes it possible to outline a vision and rationale for developing procurement. Already-implemented and proposed changes in the procurement legislation can remove impediments to sustainable procurement.	As a strategic and shared goal, the HINKU commitment alters established practices while also considering the legally binding economic and social welfare targets. The sharing of a goal throughout the municipal organisation influences citizens, companies and other actors within the municipality.	Awareness of the widely shared policy goal of carbon neutrality in Finnish society supports changes at the household level. Participants feel that now is the right moment to act. Regulation and binding policy frameworks are called for as individual choices are not enough to achieve a 1.5-degree lifestyle.	CFCs enable the co-creation of sustainable visions based on actual carbon emission numbers, through a public discussion between citizens, government and NGOs. They enhance impact-driven governing and would benefit from a more established policy framework around the implementation of CFCs.
Financial resources	Public funding for the competence centre is crucial to the promotion of sustainable and innovative public procurement. Grants are allocated for the preparation of innovative procurement projects.	The municipalities included in the network allocate financial resources to climate work in their annual budgets. The state finances the research institute, to facilitate the network and produce information.	The ability to finance larger investments (e.g. solar energy, electric vehicle) helps households choose low-carbon alternatives. Unambiguous and stable steering mechanisms are needed for public finances, in order to make sustainable choices affordable.	Digital solutions are seen as cost-effective ways of providing services and governing. The hosts require both private and public funds to update their carbon emission databases and calculation models.

Social networks are needed to gain social support and public recognition. Intensified collaboration also provides peer support for state actors, municipalities, CFC hosts and households in their sustainability efforts, since the achievements can be compared, and the challenges shared. Active local communities and various forms of social support have resulted in concrete outcomes such as increased use of renewable energy sources, reduced material use and improved energy efficiency. Social media seems to play an important role in widening participation and nurturing social networks beyond the local level, positively enhancing transformation (see also Isaksson and Hagbert, 2020: 89).

### *Knowledge, learning and monitoring*

The initiatives all aim to spread knowledge and increase the information available to multiple actors. Both SPP and HINKU are producing shared knowledge bases for public actors. New knowledge is crucial, since integration of sustainability goals into public procurement and policymaking requires proficiency and understanding of sustainability issues in various domains (e.g. construction, energy, transportation, food and catering). Improved methods for translating environmental aims into procurement elements, such as minimum requirements, supplier selection criteria and compensation principles, are also needed. Carbon footprint calculators as mediating technologies can potentially translate the actions in every domain of life into a detailed knowledge of carbon footprints, which improves the understanding of the links between environmental impacts and wellbeing outcomes.

Learning as a critical factor of transformative capacity is seen in the data in the forms of individual learning, organisational learning and network learning (see Diduck, 2010: 202). Organisational learning is especially crucial in SPP because the smaller public organisations lack the skills and resources to move towards green public procurement. New knowledge has made the actors reflect on their practices, and concurrently, new practices have provided new knowledge. This is the case in HINKU municipalities, which use the information of their baseline emissions and evaluate the outcomes of actions based on the annual monitoring of emission reductions, as provided by the Finnish Environment Institute. The development of CFCs is also iterative when feedback from citizen experiences is used for several rounds of trials and changes. This results in data about actual footprints, which hampers speculative discussions on emission reductions. The SUSLA households reported that the information on carbon footprints helps them grasp better the scale of transformation and the impacts of different actions. They recognise the power of monitoring: knowing their CF emissions and targets, the households feel more motivated to change their consumption to reach 1.5-degree lifestyle targets. CFCs can thus work as reflective self-assessment tools providing constant monitoring of progress toward the targets, but they also point to the limits of individual actions if the public infrastructure does not enable sustainable consumption choices. In our data, the improved knowledge of carbon footprints and participation in low-carbon lifestyles are also related to the public acceptability of governmental climate actions.

### *Shared policy frameworks and visions*

Transformative capacity is directly or indirectly linked to various international and national strategies and policy commitments that guide actions. Shared policy frameworks and visions can steer different parts of the system to work towards the same goal. This is the case, for example,

in HINKU municipalities, where the common goal works as a reference point requiring no further justifications. When enshrined in the municipality strategies or government programmes, the sustainability targets have started to guide the implementation of public budgeting, public investments and public procurement, which also impact households' carbon footprints (if, for example, district heating changes from coal to renewable energy sources).

Shared policy frameworks enable the transformation because they help coordinate actions, and because citizens or civil servants can refer to these commitments. Shared visions also facilitate collaboration and improve the legitimacy of diverse actors, which can boost innovation and increase demand for new technologies, such as CFCs. Legal frameworks are used to define responsibilities, mandates and power, as also noted by Romero-Lankao et al. (2013).

Shared visions, together with regulation and deadlines, seem to work as pacesetters for collective actors. The SUSLA data show that, in principle, households welcome target deadlines, policy guidelines, and regulations which restrict their individual choices, if they perceive this a reasonable fit with everyday life. To improve their capability to achieve 1.5-degree lifestyles, the households call for improved collective solutions, such as better access to public transport and financial subsidies to reduce prices of climate-friendly foods. To improve the effectiveness of CFCs, the CFC hosts also hope for better coordination and shared guidelines on carbon footprint calculation.

### *Financial resources*

In the given context of welfare state capitalism, public and private funding are necessary resources in all four initiatives. Without secured funding, the Finnish state could not have established the National Competence Centre for Sustainable and Innovative Public Procurement or the HINKU network. Without continuing public and private funding, many innovative CFC projects would be postponed. At the household level, sufficient financial resources make sustainable investments and consumption practices possible. If public funding is allocated to support the transformation and state subsidies manage to lower the costs of sustainable alternatives, households will have better capacities to follow eco-social priorities.

Our findings highlight the resource requirements: financial resources are needed for major investments in environmentally sustainable solutions. In addition, redirecting actors' daily spending toward choices that acknowledge both social and environmental dimensions requires financial support for project preparation and knowledge creation. These observations suggest a significant role for the public sector in leveraging financial resources to transform the provisioning systems (cf. Mazzucato, 2013). Our initiatives indicate that the transformation process can be costly and requires external sources of financial resources for various actors. However, investing in these transformative initiatives can help boost economic viability by, for example, diminishing energy costs in the longer term or improving public procurement efficiency. The same goes for individuals and households, if paying attention to carbon footprints leads to reduced consumption.

### *Interplay between the four enabling factors*

Our analysis suggests that all capacity factors influence each other and that various provisioning elements (the state, municipalities, households and technologies) are reoriented in the same direction through the interaction between transformative capacity factors. Social networks, learning, shared visions and financial resources can reinforce each other. One concrete example of the interplay is seen in HINKU municipalities, where the shared vision as a strategic commitment ensures that

the annual budgets include resources for climate actions. All the cases suggest that improved collaboration influences other factors: it provides a platform for learning and monitoring, sharing information, formulating shared visions and legitimising the common need for financial resources. Collaboration between various stakeholders means that information about the enablers and barriers of change travels both ways: from the public sector and private sector (such as CFC designers) to the citizens and the other way around. This is essential for co-developing eco-social policies that citizens see as acceptable, fair and just.

The sense of community strengthens commitment: the different actors can feel that others are working towards the same goal. As mentioned in the data on carbon-neutral municipalities, the ambitious reputation of the HINKU network creates a positive spiral by spurring various actors to reduce their climate impacts when it is apparent that everyone in the municipality is taking responsibility for the common goal. The public sector's capacity to conduct green procurement, as well as private households' climate actions, have also been improved when SPP, SUSLA and CFC developers have successfully involved a wide range of actors, such as municipalities and firms, in sharing the same goals.

The literature on social-ecological transformations has often identified phases of transformation or delineated a sequence of events for developing new systems (e.g. Olsson et al., 2010; Schaffartzik et al., 2021). Our data illustrate that the transformation can be enhanced by facilitating any of the factors of transformative capacity, in no exact sequence. For example, existing social networks are not necessarily a precondition for change: shared policy programmes can also trigger multiple actors to work together towards a shared goal. Policies and financial incentives too can start the change: when the Finnish state decided to provide financial support for the phasing-out of oil heating in households, it encouraged households to switch to renewables, regardless of their knowledge base or participation in low-carbon social movements. We also found that the mere availability of information is not enough to foster change but, for example, the CFC results must be reliable for the citizens to trust them, and the proposed options, such as public transport or carbon-neutral district heating, must also be available and reasonably priced. The transformative initiatives can be complementary elements of cumulative change. It is not necessary to wait until close social networks, improved knowledge, new financial resources and binding legislative frameworks are all established before putting effort into any one of these transformative capacities and initiating changes in existing welfare states.

## Discussion and conclusions

We argue that the transformation of provisioning systems towards an eco-welfare state can be enhanced by building systemic transformative capacity, through various eco-social initiatives that seek to increase both environmental and social sustainability. Our findings show how current eco-social initiatives are transforming the Finnish welfare state towards an eco-welfare state by strengthening four key enabling factors. First, *social networks, collaboration and participation* enhance transformation by providing peer support and supporting coordinated actions involving various stakeholders and organisations. Second, *knowledge, learning and monitoring* make it possible to understand the scale and scope of the actions, keep track of changes, and reflect current deficiencies, thus supporting effective decision-making. Third, *shared policy frameworks and visions* help concretise the shared aims of diverse actions and motivate actors to align their goals with ongoing activities. Finally, *financial resources* are needed to cover sustainable investments and relieve potential conflicts between the mitigation of negative environmental

impacts and the ensuring of social outcomes. These factors are interrelated and can be commenced without following any particular order.

The framework we have presented, comprising four integral factors, serves as an analytical tool for assessing transformative initiatives that are shaping provisioning systems in welfare states. By synthesising prior research on transformative, institutional and organisational capacities (e.g. Romero-Lankao et al., 2013; Wang et al., 2012; Wolfram, 2016), this framework promotes the concept of transformative capacity in relation to social-ecological systems. In doing so and as a contribution to the research on sustainable welfare and eco-social policies, we highlight the importance of searching for more sustainable ways for different actors and practices to mediate the interaction between biophysical boundaries and social outcomes.

Our analysis offers valuable insights into how welfare state characteristics, in states with democratically governed public actors, can facilitate transformation. A hypothesis that social democratic welfare regimes will be better placed to integrate social and environmental policies than other welfare regimes has not been held in empirical research assessing ecological performance (García-García et al., 2022; Koch and Fritz, 2014). Yet, our findings suggest that the Nordic welfare state context, with functioning institutions, can provide an enabling institutional setting for sustainability transformation. Social networks and shared policy frameworks, for example, are significant enabling factors in welfare states with a strong general trust in public institutions (Kumlin and Haugsgjerd, 2017). The Finnish welfare state has a predominantly state-centred culture with relatively low scepticism towards the state, stemming from a tradition of national and centralised projects during the welfare state expansion (Berg et al., 2019b). Consequently, there are widely accepted standards of legitimacy, and short distances between civil society and the state (Martela et al., 2020). The political system's openness is evident in the widespread use of open-source knowledge bases, the involvement of municipalities in national decision-making, and the political engagement of households in co-creating strategies and policy goals at the local level. In this context, initiated social networks can attract and invite new stakeholders to work towards the eco-welfare state.

Even though the eco-social initiatives we have studied are incremental, they help to 'unlock' a locked-in system for social-ecological transformation, as anticipated in the research on social-ecological systems (e.g. Olsson et al., 2010). In practice, these initiatives promote changes in the conduct of public procurement, which is necessary to provide public goods and services in welfare states. They also change the ways in which energy or transport systems are organised in municipalities, promote the everyday use of new technologies for sustainability, and aim to change how household practices contribute to climate actions. Gradually, all this can lead to cumulative changes that alter many public sector institutions and households in a way that also seeks to ensure social inclusion.

However, it is fair to say that our cases of eco-social initiatives in Finland are still far from the drastic and urgent emissions reductions and more profound transformation that the scientific community is calling for (e.g. IPCC, 2023; Rockström et al., 2023). For example, evaluation of the HINKU network shows that emissions in participating municipalities fell by 36% from 2007 to 2020 (Karhinen et al., 2021). During the SUSLA project, households managed to reduce their carbon footprints by only 10–20% on average. The use of digital CFCs does not lead to any significant or long-lasting reduction in carbon footprints (Salo et al., 2019) and there is a risk that the focus on carbon footprints might exclude other planetary boundaries such as biodiversity loss. Our data also indicate concerns regarding the inclusiveness of participation and the promise of a just transition. So far, the voluntary sustainable lifestyle accelerators have not sufficiently reached those unfamiliar with the

issues, HINKU municipalities have faced serious challenges involving citizens in climate work, and the use of digital CFCs to steer towards sustainable need satisfaction may exclude citizens who lack digital skills. To truly accelerate the transformation, the eco-social initiatives should be more integrative and ambitious in building socially inclusive provisioning systems that can realise the sustainability targets envisioned in policy strategies and international treaties.

In future eco-welfare states, all goods and services purchased and produced, and all the work done, should be provisioned with reduced environmental impacts throughout their life cycle, while at the same time ensuring need satisfaction. Welfare provisioning should not violate need satisfaction and should respect the legislative responsibilities of national and local public agencies, while also protecting ecosystems. In future welfare states, social security and social and health services should be adequate but should also be provided with lower biophysical throughput. This is a significant challenge that must be better addressed in social policy research and practice (Hirvilammi et al., 2023). Future eco-social policy development at the national and EU levels should recognise and enable the transformative capacity of welfare states to be used at its full potential, and should implement alternative policies to radically transform provisioning systems.

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Our data are not accessible.



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