

NESS2024



BOOK OF ABSTRACTS

Co-producing knowledge for sustainability
The 16th NESS – Nordic Environmental
Social Science Conference | 4-6 June
2024, Turku, Finland

The 16th Nordic Environmental Social Science Conference was hosted by Åbo Akademi University in cooperation with the University of Turku, Finland. This booklet is a collection of the main outcomes of the conference.



Foreword

Sustainability transformations are urging for complementary approaches to understand and affect the ways in which human beings know about and live with nature. In research, this implies sustained attention to interdisciplinary dialogue as a form of knowledge co-production. Such a dialogue can refer both to cooperation across academic fields and disciplinary boundaries, as well as to the engagement with different stakeholders in the processes of knowledge production.

The 16th Nordic Environmental Social Science Conference, hosted by Åbo Akademi University in cooperation with the University of Turku in June 2024, gathered over 300 engaged scholars across research fields for meeting and discussing interdisciplinary knowledge co-production and co-creation for sustainability. The conference represents over 30 years of bi-annual gatherings of researchers within the broad field of social science and humanities approaches to environmental studies among the Nordic countries and beyond (for the history of NESS, see [Eckerberg 2024](#)).

Even though workshops are the core of the conference work, we also had the privilege to host five excellent keynote lectures that gathered the participants from the workshops together, around coffee breaks. Keynotes were delivered by Josie Chambers (Utrecht), Jasper Montana (Oxford), Markku Ollikainen (Helsinki), Mikaela Vasstrøm (Agder) and Christina Voigt (Oslo), all with timely and academically interesting topics around the theme of the conference.

The 16th NESS in Turku welcomed researchers from disciplines beyond the human sciences, fostering diverse perspectives and contributions to the workshops. A total of 25 workshops, proposed and led by scholars from across the Nordic countries and beyond, were hosted in Turku. These workshops explored a wide range of topics related to co-production and co-creation, spanning themes such as storytelling, the co-production of techno-scientific promises, and research-based education for sustainability in higher education. While some workshop papers have already found new forms of expression, such as journal articles, this abstract book compiles the abstracts that their authors wished to have published at this point, six months after the conference.

Organizing a scientific conference is always a formidable challenge, and this time, we had the honor of hosting one of the largest conferences in this field within the Nordic countries. Such an accomplishment would not have been possible without the unwavering dedication and hard work of the organizing committee, the exceptional management by Aboa Events, the generous support from the City of Turku and the Federation of Finnish Learned Societies, and the invaluable assistance of the many students and staff who volunteered their time and effort. To all of you, we extend our heartfelt thanks. A special note of gratitude goes to the

A banner for the NESS2024 conference. The background shows a cityscape at sunset with a prominent church spire. Overlaid on the image are two semi-transparent boxes: a teal one at the top with the text 'Welcome to NESS2024' and a white one below it with the text '4-6 June 2024 | Turku, Finland | ness2024.fi'. On the right side, there is a stylized white logo consisting of two overlapping circles with a vertical line through them.

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workshop convenors, whose outstanding efforts in assembling and coordinating the workshops played a pivotal role in the success of this event.

See you at the 17th NESS conference in Uppsala 2026!

Nina Tynkkynen, *Chair of the 16th NESS organizing committee*

Marko Joas, *Vice-rector for international cooperation at ÅAU, member of the organizing committee*

Reference:

Eckerberg, Katarina (2024), Thirty years of NESS Conferences in perspective: The development of environmental social sciences in the Nordics. In Santaoja, Minna et al. (eds.) Yhteiskuntatieteellinen ympäristötutkimus. Monitieteisen alan muotoutuminen Suomessa 1994–2024. Yhteiskuntatieteellisen Ympäristötutkimuksen Seura ry, Tampere, pp. 216–225.



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Organizing committee



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Programme

Tuesday, June 4th; Day 1

9:00 – 10:15	Registration & Coffee (Arken, Åbo Akademi University) Address: Tehtaankatu 2, 20500 Turku
10:15 – 10:45	Welcome (Arken) Nina Tynkkynen, Chair of the org.com & Marko Joas, Vice-Rector
10:45 – 11:45	KEYNOTE 1 (Arken) Josie Chambers: " <i>A speculative co-production of the future?</i> " Session chair Nina Tynkkynen (ÅAU)
11:45 – 12:45	Lunch at restaurant Arken
13:00 – 15:00	Workshop Session I
15:00 – 15:30	Coffee (Arken, Asa, Aurum & Publicum)
15:30 – 17:30	Workshop Session II
18:00	Turku City Hall reception Address: Aurakatu 2

Wednesday, June 5th; Day 2

8:30 – 10:00	Workshop Session III
10:00 – 10:15	Coffee (Arken)
10:15 – 11:45	KEYNOTE 2: (Arken) Jasper Montana: " <i>Intersections under construction: Co-production for more sustainable worlds</i> " KEYNOTE 3: (Arken)

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Christina Voigt: "*Climate Change Litigation: The Turn to International Courts*"

Session chair Sam Grönholm (ÅAU)

11:45 – 12:45

Lunch at restaurant Arken

13:00 – 15:00

Workshop Session IV

15:00 – 15:30

Coffee (Arken)

15:30 – 17:00

Panel discussion: (Arken)

Co-creating research for sustainability

Facilitator: Anna Törnroos-Remes, Associate Professor (Åbo Akademi University)

Panelists: Associate professor Mikaela Vasstrøm (University of Agder), University lecturer Mikael Karlsson (Uppsala University), Professor Taru Peltola (University of Eastern Finland & Finnish Environment Institute) Vice rector, Professor Marko Joas (Åbo Akademi University)

18:30 –

Transportation to the conference dinner in Ruissalo

Ferry Aura leaves at 18.30, address: Kristiinankatu 1, Turku (pre-registration has been required, limited number of tickets)

Bus transportation; from Sokos hotel Kupittaa at 18.30 (leaves opposite hotel Kupittaa, yellow bus marked with the sign NESS2024), address: Joukahaisenkatu 1, Turku via Scandic hotel Hamburger Börs (at 18.40).

19:15 –

Conference dinner (Ruissalo Boatyard, address: Hevoskarintie 23)

Thursday, June 6th; Day 3

8:30 – 10:00

Workshop Session V

10:00 – 10:15

Coffee (Arken)

10:15 – 11:45

KEYNOTE 4: (Arken)

Mikaela Vasstrøm: "*The critical balancing act of co-creation in energy-society transformations*"

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KEYNOTE 5: (Arken)

Markku Ollikainen: *"Science-policy interface: a challenge and opportunity for policy sciences"*

Session chair Kirsi Sonck-Rautio (UTU)

11:45 – 12:45

Lunch at restaurant Arken

13:00 – 14:45

Panel discussion: (Arken)

Co-producing science and policy

Facilitator: Professor Mikko Jalas (Aalto University School of Business)

Panelists: Anthropologist Maria Fernanda Gebara (Yorenka Tasorentsi Institute), Research Professor Juha Hiedanpää (Natural Resources Institute Finland, Luke), Researcher Paavo Järvensivu (BIOS Research Unit), Research Professor Minna Kaljonen (Finnish Environment Institute), Associate Professor Sebastian Linke (University of Gothenburg)

14:45 – 15:00

Announcing the 17th NESS (Arken)

15:00 – 15:30

Coffee & Goodbye (Arken)

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Assistant professor

Josie Chambers

Utrecht University

Keynote I: A speculative co-production of the future?

Co-production practices have exploded in recent years, driven by the desire for research to matter more in the world. The time is ripe to take stock of the field and ask—what exactly are we co-producing? Are we fulfilling the radical potential of co-production to imagine and prefigure the kinds of transformations in society that are so urgently needed? In her book *Utopia as Method* (2013), scholar Ruth Levitas introduces the notion of a *speculative sociology of the future*. Instead of being constrained by only examining existing societal relations, this speculative orientation enables one to imagine new possible relations and subject them to extensive social critique. Yet, how does one actually do this in practice? This keynote brings together the rich methodological experimentation of co-production with radical concepts in *Utopia as Method* to explore what a *speculative co-production of the future* might look like. An approach that not only foregrounds the *imaginary* reconstitution of society, but also how this might translate into the *real* reconstitution of society. I will share concrete ways people are experimenting with radical imagination in co-production processes, and explore their potential to genuinely counter rather than reinforce the present. While my past work on *co-productive agility* sought to deepen the plural and political potential of co-production through considerations and methodologies for productively navigating tensions, this keynote outlines a new turn for co-production scholarship and practice. A turn towards unleashing the radical imaginative potential of co-production by pluralizing whose imagination matters and how it matters politically. In doing so, we can imagine together how the field of co-production might itself become otherwise.

Bio:

Dr. Josie Chambers is a transdisciplinary social scientist investigating approaches to transforming our collective imagination and political possibilities amidst widespread social and environmental injustices. She is especially interested in the role of creative multi-media and co-production methods to help people navigate tensions among divergent notions of possible or desirable futures, in ways that question power relations and facilitate transformative societal change. Her analysis of many initiatives co-producing research and action for sustainability transformations around the world identified six modes of co-production for sustainability, and introduces the notion of co-productive agility as a way to navigate emerging tensions and power dynamics.

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Dr

Jasper Montana

Australian National University, jasper.montana@anu.edu.au

Keynote II: Intersections under construction: Co-production for more sustainable worlds

Persistent environmental degradation and the pressing need to transform societies towards sustainability has challenged established attitudes about the relationship between science and society. Co-producing knowledge between scientific and non-scientific actors as part of transdisciplinary environmental research is now widely considered beneficial for enabling more actionable knowledge. Researchers have offered a wealth of evidence-based insights about good practices and principles to adopt in enacting knowledge co-production. However, there is more work to do to mainstream these approaches. This talk will focus on co-production as a problem of knowledge governance, whereby researchers must walk a line between defining rules of engagement across disciplinary/domain divides while leaving space for unplanned outcomes to emerge through collaborative interaction. Working with the analogy of an urban street scene and drawing on social theory from science and technology studies, I will argue that there are two – sometimes contradictory – value systems at play in navigating sustainability research that can both enable and constrain the potential of knowledge co-production. I will reflect on options for moving forward when research and policy systems are resistant to change, recognising that transformations can require putting in place foundations for worlds yet to be imagined.

Bio:

Dr. Jasper Montana works on the relationship between science and society in times of environmental and social change. He is an interdisciplinary social scientist working with theories and approaches from science and technology studies to understand and intervene in the systems of knowledge and governance adopted for nature conservation and biodiversity loss. He is especially interested in these dynamics across scales of meaning making, from the local to the global, and how worlds collide in negotiating the multiple boundaries between science and policy, and between science and other knowledge systems. His work has explored these tensions in global expert processes for biodiversity and sought to navigate them through convening international communities to revisit the foundations of biodiversity science and policy.

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Professor

Christina Voigt

University of Oslo

Keynote III: Climate Change Litigation: The Turn to International Courts

Bio:

Dr. Christina Voigt is Professor of Law at the University of Oslo, Norway. She is an internationally renowned expert in international environmental law and teaches, speaks and publishes widely on legal issues of climate change, environmental multilateralism and sustainability.

From 2009–2018, she worked as principal legal adviser for the Government of Norway in the UN climate negotiations and negotiated the Paris Agreement and its Rulebook.

Professor Voigt is Chair of the IUCN World Commission on Environmental Law (WCEL) and Co-chair of the Paris Agreement Implementation and Compliance Committee. She also is a mother of two young boys, Victor and Oscar.

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Associate professor

Mikaela Vasstrøm

University of Agder

Keynote IV: The critical balancing act of co-creation in energy-society transformations

There is an increasing push at all levels for increased knowledge co-creation to solve complex societal challenges. This is resonated both within the academic research frontier, as well as in Nordic and European research and development policies. The role of research is portrayed as transformative and expected to address the “grand societal challenges” in collaboration with a broad variety of actors. Societal research engagement, however, also calls for critically questioning for whom, for what and how co-creation is pursued. Co-creation-oriented research has received critique for co-option by strong stakeholders, and legitimizing and stabilizing existing discourses, structures, and power relations. Renewable energy transition research illustrates the critical balancing act of engaged social science and co-creation with developers, public authorities, and local communities. Market and policy actors increasingly request and use research findings to develop energy strategies to improve social acceptance and legitimize existing development agendas. However, critical research engagement can also challenge powerful market and policy actors by generating critical analyses, identify alternative development perspectives, and collaborate with actors beyond the “usual suspects”. Engaged critical research can facilitate spaces for participation and deliberation from civil society actors, that are not otherwise included. Spaces of critical co-creation can contribute to raise conflicts and discussions of energy transitions across multiple actors and scales. Critically engaged research thus has a crucial role of reorienting existing discourses and strengthening just energy-society transformations.

Bio:

Dr. Mikaela Vasstrøm is Associate Professor at the Department of Global development and Planning, University of Agder, Norway. Since the PhD from Copenhagen University in 2012 she has worked with different perspectives on nature-society relations and emerging conflicts and controversies of green transitions. During 2018-2023 she led the research project WINDPLAN exploring challenges and opportunities for wind power development in Norway, Denmark and Scotland, and questions of (lack of) social acceptance and emerging contestations of energy justice. Currently she is WP leader in two research projects related to offshore wind and



regional energy justice (WINDREG) and Co-production of peatland knowledge (REPEAT). She has worked extensively with participatory action research across levels of governments and beyond the “usual suspects” to address critical utopian future orientations in contexts of nature conservation, renewable energy, and sustainable development.

Latest papers:

Vasstrøm, M. Lysgård, H. K. (2024) *Energy justifications - Legitimizing Norwegian wind power development in critical moments*, *Energy Research and Social Science*, 110, 103442, <https://www.sciencedirect.com/science/article/pii/S2214629624000331?dgcid=author>

Vasstrøm, M., & Lysgård, H. K. (2021). What shapes Norwegian wind power policy? Analysing the constructing forces of policymaking and emerging questions of energy justice. *Energy Research & Social Science*, 77, 102089. <https://doi.org/10.1016/j.erss.2021.102089>

Vasstrøm, M., & Paaby, K. (2021). Hvordan skapes rom for «omvendt deltakelse» i bærekraftig lokal samfunnsutvikling—aksjonsforskningens roller og bevegelser. *Forskning og forandring*, 4(2), 106-127. <https://doi.org/10.23865/fof.v4.3311>

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Professor

Markku Ollikainen

University of Helsinki

Keynote V: Science-policy interface: a challenge and opportunity for policy sciences

Bio:

Professor Markku Ollikainen is Professor Emeritus of Environmental Economics and Research Director at the University of Helsinki. He has extensive scientific experience on designing economic instruments and mechanisms to improve the state of the environment. He has studied a wide range of environmentally related market mechanisms such as emissions trading, water quality trading, offsetting, and environmental auctioning. Thematically, he has focused on climate change mitigation and adaptation, biodiversity conservation and water protection issues. Ollikainen has published more than 300 research reports, two international textbooks and more than 100 original research articles in peer reviewed journals. His H-index is 37 with more than 5700 citations to his work (Google scholar). He was the Chair of *the Finnish Climate Change Panel* 2014-2023, and a member since 2012. He has been deeply involved in the policy advice for the Finnish Government on climate issues.



Workshop 1: Co-Producing Knowledge for Sustainability: Risks and New Avenues

Convenors: **Albrecht, Eerika** (*Finnish Environment Institute*), **Haapasaari, Päivi** (*Finnish Environment Institute*), and **Lyytimäki, Jari** (*Finnish Environment Institute*)

The pursuit of sustainability in the face of increasingly complex environmental problems necessitates a fundamental shift in the way we generate and apply knowledge. Traditional scientific approaches to knowledge production and use have proven insufficient in tackling problems including environmental, social, and economic dimensions. In response, co-production of knowledge in collaboration with stakeholders is gaining popularity in environmental research.

Co-production of knowledge is considered to benefit environmental management in many ways. It can facilitate researchers to address societally relevant issues and provide more holistic understanding of complex problems. It may support social learning, trust-building, and democracy. It can increase stakeholders' sense of ownership of the research results. Further, using co-produced knowledge in policy making can enhance the legitimacy of decisions and allow efficient implementation.

However, co-production of knowledge is not always a success. It has limitations and challenges and can involve serious risks. Difficulties can emerge in different phases of the collaborative process and for different reasons. Imbalanced power relations, conflicted relationships, poorly working elicitation or integration methods, lack of resources, different interpretations of data or results, or other issues can dilute the collaborative process or lead to biased results and undesired outcomes. Better understanding of the challenges would facilitate researchers to proactively prepare for and successfully navigate through co-production processes that offer a promising pathway to addressing pressing environmental problems.

This workshop calls for empirical and theoretical papers focusing on the difficulties of the co-production of knowledge including suggestions for overcoming the difficulties. Also methodologically oriented papers are welcome.



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Co-producing knowledge for effective and just policies to mitigate agricultural nutrient emissions in the Baltic Sea basin

Albrecht, E., Lähteenmäki-Uutela, A., Rankinen K., Skarbovik, E., Lyche Solheim, A., Kyllmar, K., Piniewski, M., and Kronvang, B.

Nitrogen (N) and phosphorus (P) emissions from agricultural lands cause eutrophication and deterioration of surface waters resulting to harmful algal blooms and to depletion of oxygen in the bottom of the sea. Various governance arrangements on multiple levels aim at protection of freshwater and marine ecosystems and regulating the nutrient emissions to the Baltic Sea. The environmental condition of the Baltic Sea has not improved despite the extensive regulatory framework and eutrophication continues to be the most pressing environmental problem. In this paper, we compare agricultural nutrient management policies in four Baltic Sea countries, Denmark, Sweden, Finland, and Poland, focusing on policies that mandate or support the implementation of mitigation measures and nature-based solutions. The aim of this paper is to analyse whether there exists regulations and policies to mitigate agricultural nutrient emissions that are effective in reaching the environmental outcomes and at the same time considered societally just by the governance stakeholders. We review literature and employ policy analysis and co-creation of knowledge methods, which may benefit environmental management in many ways, as co-produced knowledge in policy making can enhance the legitimacy of decisions and allow efficient implementation of them. Challenges can emerge in different phases of the collaborative process which may lead to biased results and undesired outcomes. As a result, we found that several mitigation measures have been implemented in the compared member states, but variation exist, which are the preferred measures and how the legislation has been implemented on national and regional level and how legitimate the stakeholders perceive these policies and measures.



Science-driven planning of industrial sustainability transitions: Industrial policy lessons from a pilot in Finland

Paavo Järvensivu^a, Tero Toivanen^{a,b}, Tere Vadén^a, Ville Lähde^a, Jussi Ahokas^a, and Jussi T. Eronen^{a,c}

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In our previous article (Järvensivu et al. 2023), we conceptualized and suggested a model for the science-driven planning of industrial sustainability transitions at a national level. The purpose of science-driven planning is to provide the central cross-sectoral knowledge base for industrial renewal that is aligned with a broader sustainability transformation of society. Key principles of science-driven planning include the combining of typically isolated knowledge areas (e.g. ecological limits, material resources, technological development paths, and production and consumption systems) and the balancing of different rationalities (e.g. ecological goals, anticipation of geopolitical vulnerabilities, economic competitiveness, and conditions for good life). Being science-driven means, first and foremost, that the planning raises above private interests and enables scientific and public evaluation and debate.

At the end of 2023, we piloted science-driven planning in a two-day session in Helsinki. The 15 carefully selected participants came from Finnish universities, governmental research institutions, expert organisations, two different ministries, and industry. The pilot session focused on the future domestic paths of “clean electricity” and “forest”, and their connections with each other as well as other sectors. A situational awareness emerged that is significantly different from that of the public political debate in Finland.

In this paper, we explore the lessons we learned in designing, executing, and analyzing the pilot planning. We also contrast the pilot session with a view of long-term, full-time planning in a dedicated and institutionalized science-driven planning unit.

Reference:

Järvensivu, P., Toivanen, T., Vadén, T., Lähde, V., Majava, A., Ahokas, J., Hakala E., & Eronen, J.T. (2023). Teollisen kestävyys siirtymän tiedevetoinen suunnittelu [The science-driven planning of industrial sustainability transition]. *Poliittinen talous* 11(1), 8-47. <https://doi.org/10.51810/pt.124766>



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Imagining the citizens' role in energy transitions – how citizen action and roles are envisioned in co-created transition pathways

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The transition arena is an emerging instrument for facilitating knowledge co-production in science-policy interfaces of socio-technical-ecological change. During the last seven years, the authors of this paper have participated in organising and facilitating several arenas to study various sustainability topics in Finland. The arenas have been organised as collaborations between research institutes, universities, and public authorities to inform, support and critically reflect diverse policy processes ranging from regional sustainable water governance to national biodiversity and energy policies. In this paper we focus on 4 mid-range transition arenas, where 19 transition pathways were co-created on energy transition topics, including approximately 200 pathway steps organised into change clusters. In this study, we focus on how these instruments perceive the role of citizens.

The research data consist of the public transition arena reports that define the studied pathways and the resulted ideas for action. The analysed elements include the respective pathway descriptions, endorsed actions and actors, and their interrelations and dynamics. Consequently, the analysis reveals various perceptions on citizen roles, recurring ideas on interaction between various actors, and also some notable exclusions and gaps in how these ideas are set up to promote the energy transition.

This analysis also provides a window onto how over 70 expert and frontrunner participants imagine change to happen in sustainability transitions. According to our findings, the focus of suggested actions is in financial and informational policy instruments. The role of citizens is seen as relatively passive, as an information receiver, and other actors enable the involvement of citizens. Based on the findings, we reflect on the perceived role of citizens, suggest improvements on how to address citizen actors in energy transition processes, and on the way citizens connect with the production of policy recommendations, to further develop arena work as a method for planning and facilitating transformative knowledge co-production.



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How do different traditions of participatory science address power relations and dynamics?

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Addressing complex environmental problems necessitates co-producing knowledge and solutions across scales, social agents, and knowledge systems. However, power relations and dynamics often limit the scope of knowledge co-creation. To overcome this, academics working with participatory research approaches have devised strategies to be more attentive to power. This paper undertakes a literature review to examine how different participatory research approaches, such as transdisciplinary research, citizen science, and participatory action research, navigate power dynamics in knowledge co-creation for addressing complex environmental problems. This review aims to synthesize lessons learned within these approaches and contribute to their cross-fertilization by addressing two research questions: What dimensions of power have been recognized as relevant to different participatory research approaches? What methodological or normative principles do they use to address power dynamics in their practice? The review draws on scientific literature from the Web of Science, Scopus, Google Scholar and gray literature from organizations funding extended modes of science. This review problematizes the possibilities of designing research practices that can effectively navigate power to improve knowledge co-creation processes by clarifying the unintended ways in which power differentials can be reinforced through participatory research.



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Stepping stones as metaphor for building partnerships and co-producing knowledge in coastal transitions

Janni Sørensen*, Kristen Ounanian, Rikke Becker Jacobsen, Josefin Ekstedt, Sunniva Midthaug Solnør, Katrina Rønningen, Sílvia Gómez Mestres, Maria Hadjimichael, Wesley Flannery, Kristina Svells, Anna Antonova, and Vida Maria Daae Steiro

**corresponding author*

This paper centers on the Horizon Europe project, EmpowerUS, which works with six Transition Coastal Labs (TCLs) to co-create multiple, integrated and flexible solutions to support their transitions towards more sustainable, inclusive and resilient coastal community development. The project expects to evidence the enabling and constraining conditions for socio-ecological transitions in various coastal communities across Europe. To this end, we have conceptualized a path for community-led change processes and practices using the metaphor of 'stepping stones' to represent phases of transition including: 1. Reasons to convene; 2. Governance and participation 'rules'; 3. Building knowledge together; 4. Implementing and experimenting; 5. Post-hoc reflections and assessment; 6. Transfer and reproduction of practices. Progression through these stepping stones will require certain activities, actions, or achievements to leap to the next stone; such leaps will involve contextual and common challenges, discussions, and tensions when moving through phases. In this paper we focus on the first three stepping stones which essentially form the foundation of the collaborative process, focusing on the challenges and opportunities encountered as an pilot intervention is planned. This paper elaborates the stepping stones metaphor and interrogates the early evidence across the six TCLs. We analyze the process, using a framework informed by partnership-, co-creation-, transition- and justice-literatures, for implementing two workshops in each TCL. These workshops focused on establishing the partnerships for ongoing co-creation of knowledge, building social capital/empowering actors in the local communities, and selecting options for an intervention pilot. The data consists of participant observation, post-event interviews and descriptions of governance settings, demographics, and histories of each site. Expected conclusions relate to (a) trust and pre-existing relationships, (b) how inclusion is challenged in processes with limited resources and 'hard to reach' groups, and (c) identified patterns of power, conflict and decision making in the different labs.



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Serious Gaming in Virtual Living Labs: Interdisciplinary Learning for Accelerating Sustainable Peatland Management

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Combating peatland degradation is a major challenge worldwide. Drainage of peat landscapes for agriculture and productive land use leads to, among others, soil subsidence, greenhouse gas emissions and a decline in biodiversity. In the tropics, peat fires are accelerated by dried-out peat, inducing major ecological, economic, and health problems. To tackle these problems, peat areas must be rewetted to restore the health condition of peatlands that have important roles in supporting direct and indirect agriculture purposes and food supply, water security, climate stability, and related economic development.

The strong interactions among biophysical, technological, and socio-economic domains make finding sustainable solutions complex. Lack of awareness seems to be one of the root causes of unsustainable peatland management.

Exploring options for social-ecological learning in such a complex context led to the design of a serious game-based website. The website www.peatland.eu simulates a peatland area with diverse elements of a built environment, infrastructure in a peatland landscape where livelihoods and institutions interact on peat management related issues. The website has been prototyped and outcomes indicate options to consider the website as a virtual living lab. Although the initial focus has been on the European situation regarding the challenges of peatland restoration and conservation, initiatives have recently started to develop a similar serious game and virtual living lab in Indonesia. A synchronized co-creation of



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www.peatland.eu and www.peatland.asia is becoming a promising trajectory. Results from interdisciplinary design workshops contribute to the understanding of the websites' design. Initial explorations indicate that Serious Gaming can serve as backbone of virtual Living Labs, in which a wide range of stakeholders can learn from each other positions. This paper elaborates on these international collaborative initiatives and presents a concise conceptualisation of serious game-based design and virtual living labs for a sustainability transition of peatlands.



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Workshop 2: Who's the expert? Knowledge use in policy decision making for natural resource governance and management

Convenors: **Mancheva, Irina** (*Swedish University of Agricultural Sciences, Sweden*), **Hasselquist, Eliza** (*Swedish University of Agricultural Sciences, Sweden*), and **Keskinen, Marko** (*Aalto University, Finland*)

Knowledge provides power and informing policy decision making in a democratic society means to have the power to influence the political agenda and priority setting. The knowledge used in decision making may impact the decisions' acceptance, accountability, legitimacy, and ultimately their effectiveness in achieving sustainable transformations.

Natural resource governance makes use of different types of knowledge that can be divided for example into expert (scientific, technical) bureaucratic (administrative) and experiential (lay, practical, local) knowledge. While they all are seen as legitimate and are increasingly included in planning processes through a variety of knowledge co-production processes, their actual role in and impact on decision making remains varied. Expert knowledge, typically based on quantitative computational methods or other forms of exclusive 'technical knowledge', tends to dominate over other types of knowledge. In that way the power to influence decisions may vary significantly between representatives of different types of knowledge, even in collaborative and deliberative processes that aim for equal inclusion.

At the same time, expert knowledge is being increasingly contested and challenged. Scientific evidence of human-induced climate change, biodiversity loss and water pollution is being politicised, questioned, and used for pushing forward different political agendas. To assess policy decisions and their ability to lead to sustainable transformation, we need to have a better understanding of the knowledge that forms the base for day-to-day natural resource management practices, as well as overarching political decisions and prioritisations that guide natural resource governance.

We are looking to gather scholarship from various disciplines that focuses on the changing role of knowledge in natural resource governance and related decision making. In particular, we are interested in the ways expert knowledge is being used in such processes, how other forms of knowledge complement and challenge the expert knowledge, and how the different types of knowledge link to differing interests. In the era of increasingly collaborative processes, we are also asking the question who counts as "an expert" and, thus, what kind of "expert knowledge" we ultimately use.



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This workshop calls for both theoretical and empirical papers that focus on the tensions between knowledge use in different phases of management and governance – from planning, through decision-making, to evaluation. We welcome papers using all kinds of methodological approaches, including qualitative, quantitative and/or mixed methods.



Envisioning the urban subsurface - Knowledge transformations for sustainable futures

Alexander Craig-Thompson¹ and Magdalena Kuchler¹

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The urban subsurface is considered by some as the final frontier of urban development, with marked potential to improve urban spatial problems, resilience and sustainability. Meanwhile, literature recognises Urban Underground Space (UUS) as a finite and multi-functional resource that requires holistic and strategic management. Despite this, knowledge of the invisible urban subsurface is fragmented by discipline, layered in secrecy, and built on extractive knowledge practices. A lack of long-term planning of UUS perpetuates a first-come-first-served approach that risks jeopardising future infrastructures and urban sustainability. To address this there is an effort to gather ever more subsurface data, rendering the invisible visible for urban decision-makers. We analyse and reflect on the limits of current underground planning knowledge, responding to the socio-political gap in UUS literature. We focus on the ontological challenges facing sustainable planning of UUS, uncovering distinct epistemic cultures that maintain a separation between surface and subsurface, and which permeates conceptualisations of the subsurface. We present the need to focus on how practices of power and politics in UUS knowledge production envision subsurface futures. We present four *modes of envisioning* the urban subsurface, which negotiate its characteristics of invisibility and complexity to shape volumetric potential and possibility. We argue that governance of this invisible urban frontier requires greater reflection on how the subsurface is rendered visible and in anticipation of what. A lens is required which acknowledges the relationship between power, depth, and volume, through the intersections of plural urban subsurface imaginaries.



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Biodiversity, Epistemic Communities, and Land-use Policy in Finland: Performance or Politicization?

Anna Mustonen (presenter) and Hanna Laako

University of Eastern Finland

Natural science has been the basis and driver for biodiversity agreements and targets that have created biodiversity policy sphere dictating the terms of conservation and nature loss measures on different levels. According to Vadrot (2014), and building on Haas (1992, 2004), epistemic communities are expert networks involved in awareness-building that exercise considerably power in contemporary biodiversity politics, among others, in the rise of a complex institutional landscapes, such as the IPBES. Yet, these have also been criticized for their depoliticizing nature that eludes critical evaluation of power relations embedded in such structures, spheres and issues. They have also been challenged by local level grassroots ENGOS and Indigenous peoples' movements that have voiced knowledges otherwise.

However, a land-use policy case study from Finland suggests that such an expert sphere is used both to perform neutrality and participation, and to (re)politicize biodiversity politics. On the one hand, Finnish land-use governance and forest policy use professional neutrality to perform participation processes, characterized by scientific expert knowledge that steers the discussion and policy setting, thus creating epistemic communities that are formed in different policy sectors, administration levels and stakeholder groups. The participation in these processes appears as performative act. On the other hand, the case of ENGOS is positioned in between these epistemic communities: It can be part of the performative land-use planning and forest policy processes but also seeks to repoliticize biodiversity politics from another epistemic communal standpoint, seeking to bring in social and cultural aspects related to decision-making. Thus, this paper argues that biodiversity and land-use politics involve the building of differentiated and overlapping epistemic communities that are used both for politicking and (re)politicization.

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Haas, P. 1992. Introduction. Epistemic communities and international policy coordination. *International Organization* 46 (1): 1–35.

Haas, P. 2004. When does power listen to truth? A constructivist approach to the policy process. *Journal of European Public Policy* 11 (4): 569–592.

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Workshop 3: Co-construction of actionable knowledge for just governance of coastal and marine areas

Convenors: **Varjopuro, Riku** (*Finnish Environment Institute*), **Svels, Kristina** (*Natural Resources Institute Finland*), and **Schreiber, Milena Arias** (*University of Gothenburg*)

Coastal communities need to navigate among multiple environmental, societal and economic drivers that determine preconditions of sustainability and Blue Justice. Achieving Blue Justice implies that people who live and work in coastal communities have a strong voice in decision-making on regional environmental and economic activities, and that they enjoy a fair share of the benefits from the use of coastal space and resources (Chuenpadgee 2020, Bennett et al. 2023).

Social science has means for researching how the multiple conditions for Blue Justice are achieved or not and consequences of these decisions. Co-construction of knowledge is one approach to generate actionable knowledge that, on the one hand, empowers people to take action and, on the other hand, generates contextualized knowledge for the decision-making. A challenge that we face with empirical research on and co-creation of knowledge with coastal communities is that many of the environmental, societal and economic drivers that determine preconditions for Blue Justice are beyond the immediate agency of coastal communities. As examples: the push for rapid deployment of renewable energy is driven by high level industries and policy makers at national and international levels; the policies that steer, set restrictions and provide incentives for coastal and marine livelihoods are designed at national and international levels; and value-chain dynamics creating challenges between large- and small-scale fisheries.

Social science scholars have set directions for how to make case studies politically relevant, which guides the session to show how empirical, local-level knowledge and studies can help policy-makers and just implementation of policies. The session aims to further conceptual and practical developments on how to make locally co-created knowledge usable and actionable within multi-layered coastal and marine governance, and how to address understanding of limitations of co-creation of knowledge for sustainable coastal and marine governance.

This workshop calls for papers:

- Use of social and cultural knowledge in marine decision-making
- Fisher's knowledge on changing conditions and necessary adaptations and/or transformations
- Gendered knowledge in, on and by the fisheries sectors and coastal communities



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- Citizen science and coastal knowledge
- Deeper understanding of decision making by ICES advice on Baltic Sea fisheries quota setting (e.g. Salmon and Baltic herring).



Expertise and Legitimacy in the Governance of Fisheries and Marine Environments

Sebastian Linke

School of Global Studies, University of Gothenburg

How to produce and utilise knowledge in the best way for sustainable environmental governance is a pressing question of our time. It involves assembling credible expertise from different actors (scientists and other experts) in processes that are regarded democratically legitimate by stakeholders and society at large. However, these two governance components (expertise and legitimacy) can be in conflict, when science steered expert advice informs the governance of the commons. EU fisheries management, which serves as empirical case here, provides a chief example of this tension. This study asks the following main question: *How does the ascription of relevant expertise to specific actors and their legitimacy impact on their role for the sustainable management of fisheries and marine resources?* Addressing this question demands adhering to the political issues of power, representation and knowledge – and their interrelations. I explore these issues by focusing on the role and type of knowledge applied in the EU's *Common Fisheries Policy* system regarding.

The study is divided into a conceptual part, introducing theoretical research developments about expertise and legitimacy in environmental governance, and an empirical part, which explores these issues in the practice of EU fisheries governance. The study aims to fill a research gap between existing critical social science perspectives and the practical performances and mutual dependencies of expertise and legitimacy in relation to different actors and their agency. It thereby contributes to ongoing debates for building long-term sustainable resource management systems, that also include the social aspects of sustainability (equity, social justice, distribution of power and participation), which also provides lessons for environmental governance and sustainably science generally.



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Workshop 4: Articulating the politics of nature: giving voices to animals, plants, forests, waters, places, and atmospheres

Convenors: Vinnari, Eija (*University of Tampere*) and Vollmer, Hendrik (*University of Warwick*)

We wish to invite scholars investigating the articulation of more-than-human interests in the public debate, political process, and policy-making. Who speaks for animals, plants, forests, waters, and places, and how are the interests of non-human entities being articulated? What techniques are being used to substantiate the articulation of non-human interests? What evidence is being used to document non-human suffering or flourishing? Where does this evidence come from? Is it produced by scientists and professionals, or by activists, by organisations or by local communities? What forms, styles, and genres of articulations, documentation, and accounting are being used by the various parties involved – from measures to models, photographs, narrative, public performances or demonstrations?

We hope for contributions that explore the range of articulations involved and how these articulations combine and contest one another in the political process: How do scientific and lay articulations interact and how do they complement one another? Is there a co-production of knowledge for sustainability which involves multiple parties? If so, how does cooperation take place, and how do varieties of articulations get coordinated? How do tensions play out between local and global articulations of non-human interests, between local ecologies and global dynamics of change, between the fate of different species and their human allies, say, in farming communities, regional or national territories, their impact on smaller or larger ecosystems, and which tensions exist between technoscientific facts and matters of care and affection?

Examples of potential focal points include, but are not limited to:

- the articulation of non-human suffering by animal-rights activists;
- the articulation of non-human rights by lawyers, at court, and in political debates about conservation and governance;
- the articulation of pollution by activists around places, waters, air, or soils;
- the articulation of the health, decline, or flourishing of ecosystems and the contribution of distinct species to these ecosystems;
- the articulation of value through connecting non-human entities with human economies.

This workshop calls for papers on these or any other aspects of articulating non-human and more-than-human voices, interests, concerns, lives and livelihoods.



Raising the status of nature in the law – how and why?

Caroline Gardelli

Luleå University of Technology

Law can be used to protect nature, and different approaches has been used in several jurisdictions to achieve this. Nature, or parts of it, has e.g. been ascribed intrinsic value, legal rights, and legal personhood. The aim of this text is to clarify the meaning of different expressions concerning value (“intrinsic value”, “ultimate value”, “extrinsic value”, “final value”, “instrumental value”, and “inherent value”) as well as the relationships between concepts such as intrinsic value, legal rights, and legal personhood, and also to discuss the extent to which such approaches to protecting nature in law are useful. The conclusion is that no matter which approach is used, it will need to generate other concrete instruments, such as legal representation for nature itself, for the objective to be achieved.



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How do we articulate non-human organisms and how does this influence our relations with them?

Jolanda Linsén and Anna Törnroos

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Along the lines of Nagel (1974), we accept that we cannot know what it is like to be a bat and that our relationship with a bat is colored by our human experience of the world. We do however, have an understanding of what makes a bat 'a bat' in biological and ecological terms. But do we understand how this influences how we humans relate to and acknowledge bats? Moore & Oughton (2006) further inspire, by highlighting the influence of language in interdisciplinary research, such as human relations to nonhuman organisms. The investigation of how articulations of species vary, regardless of the fact that the ecology and biology of nonhuman species stay the same, calls for further insight in an effort to acknowledge the influence and power of articulations (Kortesoja 2023) and to take the nonhuman seriously (Cord 2022).

At the workshop we presented an ongoing meta-analysis of previous research on human-nonhuman relations. The aim is to understand how various organisms, i.e. plants and animals, have been portrayed and how human relations to these organisms have been studied. Our sample consists of research articles representing a wide array of disciplines, spanning anthropology, criminology, plant sciences, public administration and zoology, to name a few.

Our approach seeks to uncover the articulations of species and how or if, our relations capture the intrinsic (biological and ecological) nature of the species themselves. In practice we look at what vernaculars are used to name species, if and how the species have been described and what characteristics of species have been included in these descriptions. Initial results show what is already known; that research on human-nonhuman relations is unevenly distributed (e.g. Moore & Wilkie 2019), favoring charismatic species and animals over other taxonomic groups (fig. 1).

Workshop participants were invited to discuss the merits of our approach. We hope to elicit reflections on how different articulations of an organism can give rise to tensions or even intense conflicts between humans. It is worth noting that such tensions are often projected back to the organisms themselves, who have no voices of their own. We also wish to trigger deeper reflection on biodiversity as a fundamental entanglement (Naeem et al. 2016), where humans are but one among many (Cord 2022).

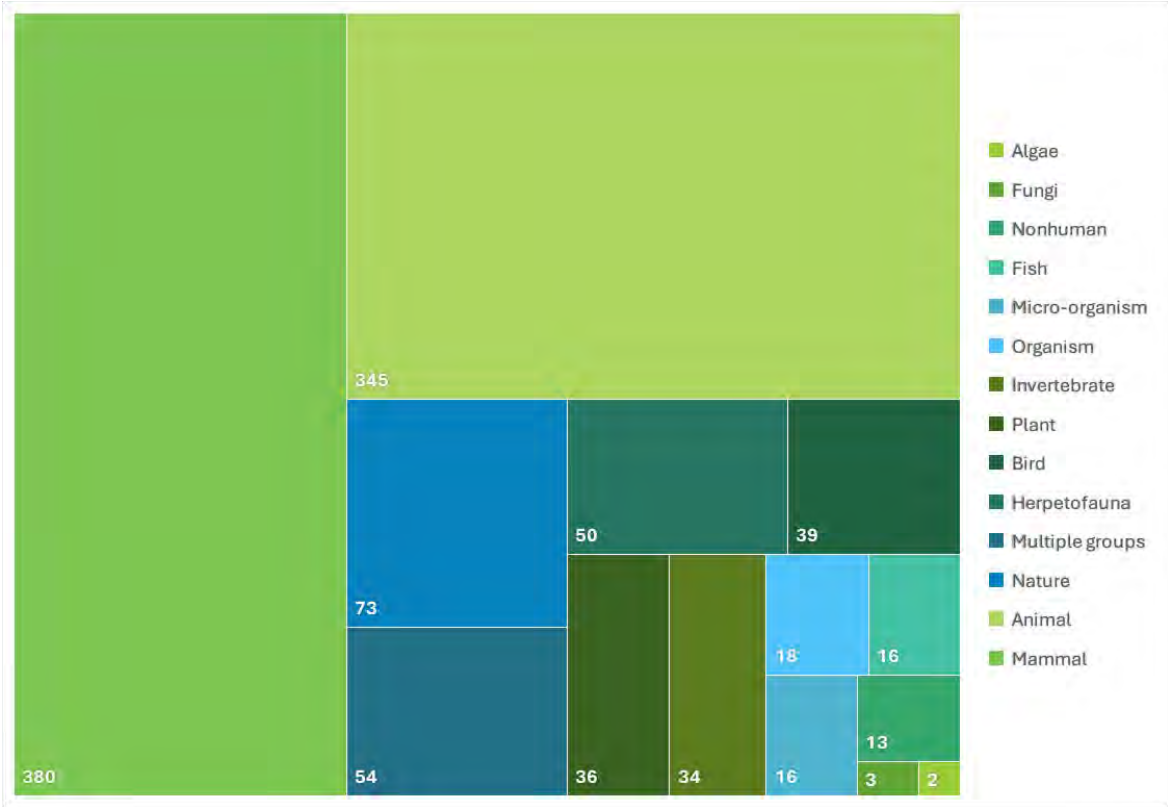


Figure 1. Tree-map of included research articles based on preliminary species groups identified in selected research articles. The legend is in ascending order, starting from the group with the lowest amount of research articles.

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Who cares about fungal diversity? Exploring the voice of mushrooms among individual private forest owners in Sweden

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- 1) Ectomycorrhizal fungi (EMF) play a vital role in the boreal forest ecosystem, where they store carbon in soils and support the growth and resilience of trees. In Sweden, the majority of productive forest land is owned and managed under the “freedom with responsibility” principle by non-industrial private forest owners. Clear cut forestry is common practice, but has detrimental effects on EMF communities. Currently, there are no regulations protecting EMF diversity that are therefore at the mercy of each individual forest owner's decisions, which in their turn are influenced by the owner's values, objectives, exterior circumstances and knowledge. There is a need to understand the knowledge about EMF among forest owners, if and how EMF are taken into account in management decisions and what incitements could be benefitting EMF conservation to insure forest resilience on long-term in a changing climate.
- 2) Semi-structured interviews were conducted with private Swedish forest owners either using clear cut logging, or forms of continuous cover forestry. Through the interviews, data was collected on forest owners' knowledge about fungi in general and EMF in particular, values and objectives, used forest practices and suggestions for informational, regulatory or economic incitements for EMF consideration.
- 3) Forest owners of the clear cut logging group had frequently economic objectives, most had large holdings and they used more intense management methods than owners of the continuous cover forestry group that had more frequently environmental objectives for owning the forest, had smaller holdings and used fewer or more gentle management methods.
- 4) Practitioners of continuous cover forestry had an overall greater awareness of EMF and considered them consciously whereas clear-cut logging practitioners may make fewer and unconscious decisions that benefit EMF.
- 5) Among all owners there was a general interest to learn more about EMF benefits. A majority of interviewees considered informational incitements, or a combination of information and regulatory or economic incitements, to increase consideration of EMF in forest management practices.



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- 6) Policy implications: Information dissemination on EMF, their benefits and the consequences of intensive forest management on EMF communities alongside with their consideration in regulations has the potential to give EMF a stronger voice in forestry practices.



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Workshop 5: Exploring "humanatures": methodological workshop on studying and representing more-than-human ways of knowing

Convenors: Kallio, Galina (*University of Helsinki*) **and Koskinen-Koivisto, Eerika** (*University of Jyväskylä*)

Most academic research happens within the capitalized world, and therefore follows its logic (Stengers 2018). In this context, knowledge is human-centered, and used to enhance the goals of humankind. Starting from an understanding that knowing is situated in and reproduced through sociomaterial practices (c.f. 'knowledge' as something residing in the minds of humans, in social structures, or as something that can be possessed, see e.g. Gherardi 2012, Kallio & LaFleur 2023, Knorr Cetina et al. 2001) this methodological workshop sets out to explore alternative ways of studying and representing more-than-human ways of knowing.

While Western-based posthumanist approaches have equipped researchers with conceptual tools and opened up a space to critically reflect on the role of more-than-human agencies in processes of knowledge production (e.g. STS, posthumanistic philosophies, practice-based and ecofeminist approaches, ecophilosophy) there is little discussion on alternative methodology of (re-)producing and (re-)presenting the interactions of 'humans' and 'nature' — entwined relationalities that we term as 'humanatures'.

In this workshop we call for reflection on alternative methodologies and means to study and represent 'humanatures' and that which becomes considered as 'knowledge' within humanature entanglements. We are particularly interested in alternative approaches to knowledge, such as relational onto-epistemologies and indigenous knowledge practices that challenge the dominant ways in which academic ways of knowing are produced (Ingold 2000, Kimmerer 2013, Salmon 2012, Virtanen et al. 2021). We wish to encourage alternative conceptualizations and representations of knowing, including, but not limited to knowing as multispecies accomplishment, as a form of relating, or as something that is 'alive' and continuously unfolding through movement. Our aim is to start a methodological network of humanature experiments.

We explore questions such as:

- How do we position humans in relation to other species and their ways of knowing? How do different 'bodies' reconfigure ways of knowing?
- How to conduct research beyond the human-made category of data? How data is produced, and what is left out in the category of data? (see e.g. Puig de la Bellacasa 2014)

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- How can we expand the forms of discussing and representing more-than-human knowledge?
- How do we know that which can not be articulated? How to study and represent more-than-representational knowledge or knowledge that is not already manifested in representations?
- How can we create and enhance hands-on situations and alternative ways of sharing and producing knowledge on humanatures?

This workshop calls for presentations that can be art-based compositions, posters, films, soundscapes, writings, oral stories, or drawings — or some other creative format of (re-)presentation.

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Collecting, curating, sensing, making: more-than-human methods with boreal things

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What is the boreal forest, and how is it known? How can methods which focus on the nonhuman and more-than-human expand our understanding of phenomena and places, such as the boreal forest, beyond dominant framings? My current work is a study of the material and discursive bringing-into-being of the boreal forest, via engagement with, among others, the mushroom foraging community, the museum, and conservation groups. In this session, I encourage participants to dip into a research method focused on prompting questions, stories and creative responses by engaging with certain things and beings. The main aim is to explore a method of enquiry which is not constrained by expectations of the 'correct' or 'most academic' approaches, but which is spontaneous, sensory and imaginative, and which starts with the prompt in front of us. We will try to avoid falling into reductionist, colonising and/or anthropogenic assumptions about what knowledge counts, and how knowledge should be produced and [re]presented. The method is about being open to the properties and stories of the thing which you are interested in, whilst acknowledging that we cannot know everything. At the same time, because it can be tricky to think in this way, this process might also reveal some of the assumptions which shape how we understand a phenomenon. I hope that this session will encourage multiple types of written, drawn and spoken response, which may do a better job than an interview transcript or a traditional manuscript of expressing the ways of knowing and shaping a place such as the boreal forest.

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Applied drama methods to embody the voices of nature in research and beyond

Viola Hakkarainen (*University of Helsinki*) and **Anna Lehtonen** (*University of Jyväskylä*)

The current crises can be seen to stem from the dualistic disconnections, from self, others and nature, which we as researchers often amplify through our scientific methodologies and practices. Research on just transformations towards sustainability calls for a more relational approach to the materialdiscursive entanglements and to situate researchers into systems they are studying. This necessitates the need for personal growth and transformations among (sustainability) researchers including a greater understanding of our own and others' reconfigurations within the world(s) in making.

Drama practices can provide an interconnecting space for creative collaboration (Lehtonen 2021). This space allows for performative inquiries around psycho-social and embodied aspects of sustainability crises. In drama, embodied, emotional, imaginative and cognitive knowing become intertwined and manifested. The dialogical and embodied encounters invite open-ended processes of performative inquiry that allows participants to use their imagination, emotions and reflection and to engage in the collective creation of fictive drama worlds, where anything can happen without the restrictions of reality. This encourages free imagination and the testing of alternative realities, futures and imaginary roles.

In this session, we explore more-than-human perspectives in an embodied way using methods that were tested with doctoral candidates in interdisciplinary environmental sciences. We found that the used applied drama exercises, including for example more-than-human forum play (Boal & Jackson 2021, Österlind 2011), catalyzed for greater senses of empathy and connectedness with self (emotions and body) and other species bringing different perspectives together. They made complexity of sustainability problems visible through embodied experiences and concretized abstract sustainability issues by allowing creative and free thinking beyond the cognitive mind. We invite participants to test applied drama exercises, (re)connect to their bodies and emotions and hope to open for new perspectives and relations in research. This session provides a chance to expand and move beyond the scientifically trained mind to consider ourselves as situated in the multi-species world.

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Towards a Praxis of Human-Nature Becoming: How To Interview a Plant, Lichen, or Fungus

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As a transdisciplinary approach to flora, the field of human-plant studies (HPS) aims to overcome entrenched epistemological biases towards the botanical world as the insentient, unresponsive, and immobile backdrop against which human activities transpire. Concerned with botanical agency, ethics, and language, HPS offers a framework for reevaluating plant life, critiquing the dominant narratives of plants, revivifying human-flora connections, and restoring attention to the often marginalized significance of flora in everyday life (Ryan 2023).

If a plant is an intelligent agent, then, is it possible to interview herbs, shrubs, bushes, trees, orchids, forests, wetlands, and meadows? How can we become receptive to the enunciations of plants? In *Care of the Species* (2017), anthropologist John Hartigan investigates the possibility of plants as ethnographic subjects. He argues that multispecies ethnography should aim to “narrate life—that is, describe and analyze life forms in their social relations” (253). More specifically, he considers the strengths and limitations of Craig Holdrege’s (2005) Goethean method of “exact sensorial imagination” augmented by Hartigan’s emphasis on a plant-interviewee’s ecological relations.

In contrast, to produce her poetic text *Tree Talks* (2016), Wendy Burk conducted “unstructured interviews with 8 Southern Arizona trees,” including pines and willows, who acted as participants in the poet’s field-based study of flora, ethics, and communication. Questions posed to the arboreal interviewees attempted to elicit insights into their experiences of time, place, ecology, each other, and the poet herself within their habitat. In an interview with a one-seed juniper, the poet-ethnographer asks, “I was last here a little more than a year go. What’s been happening around here since then?” to which the tree replies,

“BrrrrrNNNNNNNNNNNNNNN.”

This interactive workshop explored various methods of interviewing plants including Thoreau’s olfactory dialogue with flora, Holdrege’s principle of exact sensorial imagining, Burk’s imaginative question-answer interviewing, and my own embodied, ambulatory practice of *floraesthesia*, or multisensorial gesturing (Ryan 2012). The workshop was held outside, allowing participants to practice interviewing a plant, lichen, or fungus near the conference venue in urban Turku, Finland.

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Interview Guidelines

- Choose a plant, lichen, or fungus near the venue (*your interviewee or subject*)
- Ask your subject permission to conduct an interview
- Observe your interviewee carefully from one point of view (*fixed attention*)
- Hone in on one small feature of your subject (*fixed attention*)
- Sketch what you observe; write down any words or phrases that come to mind
- Shift your attention from *focused* (fixed) to *open* (unfixed)
- Move around your interviewee to observe variations in form, colour, and light
- Listen to your interviewee and the environment (*wind, birds, insects, people, machines*)
- Note any odours (fragrant or pungent) emitted by your subject or the environment
- If possible, touch your plant or lichen
- Continue sketching what you observe; continue writing down key phrases
- Take photographs and/or video of your subject and the environment

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Workshop 6: Governance of Critical Maritime Infrastructure

Convenors: Ringbom, Henrik (*Åbo Akademi University*) and Argüello, Gabriela (*University of Gothenburg*)

The ocean has become the last frontier for achieving ambitious societal goals, making maritime infrastructure increasingly important. Critical maritime infrastructure is part of interconnected networks and maintains essential services such as communication, energy supply, and global trade facilitation. Submarine cables are a crucial part of this infrastructure as they are used for energy transmission, data storage, telecommunications, and financial transactions. Subsea pipelines are also vital for transporting natural gas across several states. As the world strives to mitigate climate change, the ocean plays a key role in energy transition, with large-scale offshore infrastructure being planned and deployed globally to supply renewable energy, not least in the form of large off-shore wind parks. The developments also have key implications for tomorrow's maritime transport, ports and energy hubs.

As the deployment of critical infrastructure intensifies at sea, important questions arise concerning the risks to the marine environment, emerging conflicts due to space competition, and the vulnerability of the critical infrastructure. Such vulnerability may be the result of accidental or deliberate damage and operational disruptions. The recent attack on the Nord Stream natural gas pipelines highlights the importance of prioritizing the physical and cybersecurity of critical infrastructure. Furthermore, this infrastructure is subject to complex governance frameworks as their deployment at sea has transboundary effects and the ownership is mostly private. This means that multiple stakeholders are involved in their operation and that societies at large are affected by potential service disruptions. Co-producing knowledge between these diverse stakeholders is fundamental for driving resilient governance structures and fostering sustainability.

This workshop calls for social science (including legal) papers that explore critical maritime infrastructure through original research papers, case studies, comparative studies, theoretical and methodological contributions. We encourage submissions on various topics related to this theme, including but not limited to:

- Conceptualization of critical maritime infrastructure.
- The role of co-production of knowledge in fostering sustainable governance of critical maritime infrastructure.
- Security of critical maritime infrastructure.
- Social, cultural, environmental, economic and geopolitical impacts of critical maritime infrastructure.
- Implications of critical maritime infrastructure on local communities.



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- Legal and institutional arrangements of critical maritime infrastructure.
- Comparative analysis of national, regional and international regulatory approaches of critical maritime infrastructure.
- Conservation and management of marine ecosystems in the context of infrastructure development.
- Current legal challenges linked to critical maritime infrastructures
- Emerging technologies (e.g., artificial intelligence and big data) and critical maritime infrastructure governance.



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Thematic approaches to Protection of Submarine Cables on the High Seas as Cyber Infrastructure

Choi, Soojeong

This paper aims to find feasible solutions from *de lege lata* to *de lege ferenda* to protect submarine cables on the high seas. The international legal framework on this issue is mainly regulated by articles 112-115 of UNCLOS. However, these rules are controlled by the primary principle of flag State jurisdiction on the high seas. This is a great challenge because there is no alternative jurisdiction in case of damage, considering the severity of the impact on a global communication network.

This paper will be analyzed in four throngs on the protection of submarine cables on the high seas. The first is the feasibility of jurisdictional extension from flag State jurisdiction to universal jurisdiction in piracy. In an analogical review of piracy and damage to submarine cables on the high seas, the requisite of “two vessels” in the definition of piracy in article 101 of UNCLOS does not exactly fit with the breaking or injury of submarine cables on the high seas.

The Second is on the compatible application between maritime terrorism and cyber terrorism in terms of *de lege ferenda*. Regarding “attack on cyber infrastructure on the high seas,” this is related to cyber terrorism as well as maritime terrorism. Where maritime terrorism and cyber terrorism would be bridged in an attack on cyber infrastructure on the high seas, SUA legal framework for maritime terrorism should address this attack or terrorism at sea. Given that SUA is not enough clue to take any measure against such an attack, Tallinn’s Manual 2.0 on “Cyber operation at sea” and the attack on “computer network” in Budapest Convention would be considered as alternatives to intervening in the damage to submarine cables on the high seas.

The third is on self-help by injured States in the legal context of “State responsibility.” In particular, considering the difficulties of attribution of “a directly injured State,” the injured States should be extended to non-target States with substantial loss of interest in economic or political aspects. This is not based on reciprocal interests but rather on the collective interests of the international community as a whole.

The fourth is on the “consent regime” by the flag State for intervention in the “attack on submarine cables” on the high seas. The most gradual transfer of jurisdictions from a flag State to other capable States depends on “prior consent” or “conventional consent” by a flag State. As common interests in the management on the high seas are frequently raised for the protection of the international community as a whole, the pressure of third party’s intervention on “freedom of high seas” has been mounted, for example, in sustainable fisheries on the high seas, global security with PSI, and protection of marine ecosystem beyond national jurisdiction (ABNJ).



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What is important at the moment is to establish a practicable legal regime to activate with any jurisdiction regardless of whether a flag State, a port State, or a coastal State, and without any hesitation by private ends or non-private ends for the sake of this critical infrastructure in terms of global cyber security.



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Coexist, cooperate or compete? A study of legal prerequisites for activities to coexist in the ocean

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In recent years, the utilization of the ocean and its resources has undergone significant changes, with the addition of new activities such as offshore wind power. Beyond the impact on marine ecosystems, these activities can alter the conditions for existing operations in the same maritime areas, such as fishing, shipping, and tourism. The coexistence of new and existing human activities within the same maritime zone, thereby avoiding conflicts of interest, is governed by regulations at international, EU, and national levels and within a range of different legal areas. There is international regulation defining the rights to utilize ocean areas and their resources complemented by EU and national legislation outlining conditions under which this can occur. EU policies actively promotes a fast expansion of new renewable energy production in the ocean, while at the same time demanding protection and restoration of the marine biodiversity. The coherence between legal levels and areas is of direct relevance for the possibilities to establish new activities, like offshore wind power, within reasonable timeframes.

Marine spatial planning (MSP) is intended to provide a means to prevent and counteract conflicts arising from increased human use of the ocean, by prioritizing and, to the extent possible, coordinate diverse uses of the ocean without exceeding ecological limits or compromising the ecosystem services the marine environment provides. In Sweden there is however an overlap between national and municipal plans in a significant portion of the territorial sea, and no legal obligation to coordinate these plans, making it challenging to avoid conflicts and promote coexistence.

In this paper we present an analysis of the legal preconditions for coexistence in maritime areas. The study focuses on Swedish conditions but is also relevant within a Nordic context.



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Infrastructural harm: Rethinking ocean governance and justice amidst challenges of the Anthropocene

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In recent decades, intensified human activities—overfishing, marine pollution, and offshore energy exploitation—have drastically altered marine ecosystems, inducing complex environmental and social challenges. The latter disproportionately impacts developing nations and vulnerable communities. While the law of the sea was originally designed to ensure peace, security, and legal order for the ocean, its facilitation of industrialized ocean exploitation has inadvertently contributed to widening inequality gaps. This paper leverages infrastructure studies to discuss the "infrastructural work of law" and explore how law's distributional effects perpetuate injustices in ocean governance. By analyzing case studies such as marine resource conservation and shipping regulations, the study illustrates how thinking of law through an infrastructural lens reveals its agency and its potential for harm in the global ocean polity. This perspective advances an understanding of ocean justice that accounts for the complex and multi-scalar dynamics required to address the unequal burdens of the Anthropocene.



Workshop 7: Justice in transitions: A critical discussion on politics and governance across cases and countries

Convenors: **Kaljonen, Minna** (*Finnish Environment Institute*), **Huttunen, Suvi** (*Finnish Environment Institute*), **Fischer, Anke** (*Swedish University of Agricultural Sciences*), and **Westin, Martin** (*Swedish University of Agricultural Sciences*)

Justice in transitions is gaining increasing scholarly and political interest that has arisen from the need to consider social and environmental justice as intertwined components in sustainability transitions. First introduced by labor unions out of concern on impacts of environmental policies on jobs and employment in the 1970s, just transition is now at the center of debate on climate and sustainability policies at various levels. The meaning of just transitions has, consequently, become subject to political contestation. Meanwhile, academic perspectives to justice have proliferated and broadened the understanding of just transition to wider scope of issues, such as recognition of vulnerability and procedural justice.

To further governance of just transitions, critical and reflexive research on the political contestation and practical interpretations of justice in transitions is much needed. We need a better understanding of different ways to include justice related perspectives in governance processes and the kinds of just transition they manage to promote. We also need to understand better the role of opposition and resistance as possible reactions to transition governance that are seen as unjust. In this workshop we aim to foster a more thorough comparative understanding on how justice in transitions is being translated and pursued across the Nordic and other countries, in different regions and across the sectors. How do different contextual settings and procedures affect the translation of justice in transition? How can active and emancipatory governance of just transition be supported? Which analytical frameworks are helpful in making sense of contestations around just transition? And which practical tools and procedures can facilitate the integration of justice in the governance of sustainability transitions? We welcome both empirical and theoretical elaborations to the workshop. In the workshop, we devote time to discuss comparative learnings across the different cases, sectors and countries.



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Workers as agents in sustainability transitions

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Meeting the goals set out in the Paris Agreement will require rapid and deep reductions of greenhouse gas emissions (GHG) across all sectors of the global economy. The societal transformations required will, depending on how it comes to evolve, reallocate social and economic benefits and costs in different ways. Agenda 21 clearly recognized, more than 30 years ago, the importance of seeking “the active participation of workers and their trade unions in decisions on the design, implementation and evaluation of national and international policies and programmes on environment and development”. Yet, more than three decades after the Rio de Janeiro Earth Summit, the notion of workers and trade unions, as natural and indispensable parties in formulating and achieving sustainability transitions, remains far from settled. The recognition of the need for a ‘just transition’ in the Paris Agreement in 2015 has provided opportunities for trade unions in some regions to take part in the transition negotiations. However, this does not necessarily mean that the voices of the workers the most directly affected by the industry sustainability transition are heard. This paper reports on a research project aimed at exploring strategies for incorporating workers as change agents into transition processes. Within the framework of participative action research, three methods have been developed which support workers to create an alternative plan for their work process which will be environmentally sound and socially just: (i) Envisioning a green and just future and how to achieve it through back-casting and imagine-exercises. (ii) Research-based learning where workers investigate their workplace and its position within global value chains, and (iii) Participatory planning and design. Where workers from Spain, Wales and Sweden supported by technicians, engineers, and researchers from a range of disciplines will create a real-life plan for the green and just transitioning of their work process.

Keywords: Just transitions; Environmental labour studies; Workers Labour unions; Climate change; Participative action research



Understanding and enhancing the social acceptability of sustainability transitions: introducing the Sustainability Transition Governance framework

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Sustainability transitions are assumed to be one of the key solutions to society's grand challenges such as climate change, environmental degradation, and growing inequality. This assumption has led to multiple international commitments to realize sustainability transitions, including the Paris Agreement and the European Green Deal. However, attempts to implement sustainability transitions often lack social acceptability and are confronted with societal protest. Despite a rich body of literature around the dynamics of transitions, there exists a knowledge gap on how to address this lack of social acceptability. Current approaches to understand social acceptability of transitions are fragmented and often take a normative approach. Without a comprehensive framework that integrates this fragmented knowledge and that allows for the inclusion of societal perceptions rather than predefined normative criteria, policy makers lack clear guidance on how to govern transitions in a way that increases their social acceptability. The lack of attention to social acceptability perceptions forms a barrier to the implementation of sustainability transition efforts. In this presentation, I therefore introduce the Sustainability Transition Governance framework to support policy makers in their efforts to implement sustainability transitions and to provide researchers with a holistic tool around which to anchor examinations of social acceptability perceptions of sustainability transitions.

Keywords: Sustainability transitions; Social acceptability; Governance; Justice; Legitimacy



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Will the transition ever be just? Three sites of discursive struggle over justice in transition governance

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A growing interest in the justice implications of sustainability transitions among politicians and other decision-makers as well as researchers has given rise to a wealth of case studies, analyses and theorisations of justice aspects of transition governance. Many of these provide much-needed insight into the roles of (in)justice in processes of societal change, and the translation of justice into practice has emerged as a difficulty reaching much further than the distributive question of who needs to be compensated or supported.

In this discussion piece, we unpack some of these difficulties from a discursive perspective, exploring a number of sites of discursive struggle that constitute the just transition today. To do so, we reflect on the role of justice in transition governance by examining the normative and legitimising discursive strategies that we, in our own research, found to interact in the making of a 'just transition' in Scotland and Sweden, i.e., chiefly, in a European context. We identify three sites of discursive struggle that appear to be recurrent challenges for those tasked with making decisions on transition governance at local, regional and national levels, but that also highlight deeper-running challenges of transition governance, namely (i) justice for whom?, (ii) compensation and a focus on distribution instead of recognition, and (iii) justice versus (carbon) effectiveness of governance interventions. For each of these three sites, we first outline its conceptual focus, and then summarise our own findings related to this area of discursive struggle. We discuss implications for governance practice as well as future research, using our analysis to illuminate not only the challenges of governing a just transition on an everyday basis, but also how discursive manifestations of both 'justice' and 'transition' might foster exclusion and stifle constructive debate on societal change.



The role of ideational policy coherence in closing or widening the implementation gap of sustainability objectives

Sara Gottenhuber

Linköping University, Institute of thematic studies – environmental change, Centre for Climate Science and Policy Research (CSPR)

Achieving policy coherence between conflicting objectives of sustainable development has long been on the agendas of policymakers, practitioners and researchers alike. Turning the ideational analysis of policy studies to the focus of policy coherence, and particularly coherence in implementation of potentially conflicting sustainability goals, this paper addresses a conceptual and an empirical research gap. This is done through a simplified framework of analysis of how ideas of policy coherence impact perceptions of process and outcomes; and applying the framework to an empirical example of observed ideational and implementation incoherence. The study finds that formulated coherence on a higher policy level does contribute to perceived clarity of responsibility and cooperation, but that this legitimizes business as usual around ideas of growth and development. On the other hand, ideas regarding incoherence are closely linked to perceptions of justice and fairness in policy processes and ultimately an understanding of policy outcomes as illegitimate and unfit for rural realities; contributing to our understanding that despite a shared idea of the need for sustainable development certain sustainability policies may still face backlash.



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Environmental Human Rights Defenders in Colombia – Activists under Threat in their Fight for a Just Socio-Ecological Transition

Torsten Krause¹, Fariborz Zelli¹, Britta Sjöstedt¹, Juan A. Samper¹, and Ana Maria Vargas Falla²

¹ Lund University

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Human rights defenders, social leaders and environmental and indigenous activists often fight simultaneously for political, cultural, social, economic and environmental rights and often face intimidation and violence as a consequence. In this article, we provide evidence on how a specific transition process, the implementation of the peace agreement between the government of Colombia and the FARC-EP guerrilla group since 2016, led to an increase in levels of violence against Environment and Human Rights Defenders (EHRD) in Colombia. Despite the expectation of a more peaceful future after decades of civil war, EHRD have faced increased intimidation and violence, with Colombia becoming the country with the most killings of EHRD annually on a global scale.

We seek to explain and understand this counter-intuitive development through Fraser's theory of social justice that stresses the need for integrated measures to address economic, political and cultural injustices in parallel. The theory argues that a focus on correcting cultural misrecognition and political misrepresentation of vulnerable groups may, paradoxically, mask or facilitate further injustices, if that focus is not matched by sufficient efforts to address economic maldistribution.

The fate of EHRD since the Colombian peace agreement reflects such an imbalance in justice priorities in a transition process – and may provide lessons for (post-conflict) socio-ecological transitions in other countries. Drawing on data from secondary sources, ethnographic interviews, and an analysis of policies and laws, we find that, since the peace agreement was signed, new forms of maldistribution have emerged and solidified in Colombia, including land grabbing, displacement of local populations, resource extraction and illicit economies, which are strongly related to the growing influx of drug cartels. EHRD are, thus, caught in a precarious situation between cultural recognition on the one hand, and economic injustice and political abandonment by state institutions on the other.



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Co-producing knowledge and politics of the Swedish just transition with citizens and trade unions: To speak 'truth to power' when 'power' won't listen

Tatiana Sokolova

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Just green transitions necessitate democratic interfaces where knowledge and action are co-produced by researchers and societal actors. However, such interfaces have been critiqued for inattention to power dynamics and reproduction of linear models of connecting knowledge to action. This paper investigates three understandings of co-production: as a process; as sets of normative ideals and theories of change; and as a sociopolitical phenomenon. The interactions between the three dimensions are explored through the analysis of the climate citizen assembly and the training programme for trade union executives run by the Swedish policy-relevant research programme Fairtrans. The two interfaces explicate the complexity of knowledge politics aimed at democratically embedding scientific research in a political conjuncture which is not conducive to ambitious climate policy. The paper opens the black box of co-production, showing how research shapes and is shaped by norms, values and theories of change of the different actors involved in the process, and how co-production is structured and legitimised in response to its sociopolitical context. The paper argues that knowledge politics needs not be denied or eliminated, but critically documented and understood if science is to play a democratically legitimate role in sustainability transformations and transitions.

Keywords: Just transitions; Sustainability transformations; Deliberative mini-publics; Climate policy; Sustainability science; Social studies of science.



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Workshop 8: Does what happens in a deliberative citizen assembly stay in the citizen assembly? Exploring the impacts of deliberative mini-publics on environmental governance and attitudes.

Convenors: **Daw, Tim M.** (*Stockholm University, Sweden*), **Lindell, Marina** (*Åbo Akademi, Finland*), **Marquardt, Jens** (*Technical University of Darmstadt, Germany*), **Möckel, Fanny** (*Uppsala University, Sweden*), **and Rapeli, Lauri** (*Åbo Akademi, Finland*)

Much hope is placed on deliberative democratic innovations, such as deliberative mini-publics (DMPs) and climate assemblies, to reform and improve democratic environmental governance. Although they remain at the margins, experiments with such deliberative fora have proliferated over the past decade providing an empirical basis that can start to assess whether they can live up to this promise. Research shows that deliberative mini-publics can successfully foster deep, inclusive deliberation, reduce polarisation, and generate novel and sometimes radical proposals for environmental policies. Thus the internal dynamics of deliberative minipublics seem to offer hope for a new form of democratic deliberation over environmental dilemmas.

However, few examples show DMPs having direct policy influence, and the evidence of 'spillover effects' impacting the external political and public sphere remains equivocal – the risk being that 'what happens in a DMP stays in the DMP'. This workshop asks if deliberative minipublics can live up to their promised contribution to environmental governance, what challenges exist and how these can be mitigated?

We call for papers that explore the external impacts of environmentally themed deliberative democratic innovations. Impacts could be on policies, public debate or political discourse; or on the understandings, attitudes and actions of public officials, civil society, scientists or DMP participants themselves.

Relevant questions include how deliberative innovations cope with politics, polarised contexts, and established regimes of power? How and why does their design influence their impact, including how they draw on evidence and experts, how they are governed and coupled to formal decision-making processes?

We welcome empirical papers, as well as theoretical or methodological papers that explore and advance a research agenda for better understanding the potential impacts of DMPs on environmental governance and environmental attitudes.



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Entanglements in doing democracy with digital participatory platform Decidim

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This paper explores how local governments adopt digital participatory platforms into urban planning work and how such platforms interfere with the materialization of participatory spaces. Digital participatory platforms characterized by their collaborative features are gaining momentum in terms of their democratic promise for urban governance (Kleinhans et al., 2022). Decidim, which means “let’s decide” or “we decide” in Catalan, is one of the examples of such platforms built on “Free and Open Source Software (FOSS) and on transparent and inclusive ethical principles” (Cardullo et al., 2023). Through a case study on a suburban neighborhood in Oslo, Norway, this paper discusses how Decidim is made ‘democratic’ through entanglements of material-discursive practices.

Among the different digital participatory platforms, Decidim was uniquely developed through a technopolitical movement that emphasizes democratic development and control of digital technologies (Smith & Martín, 2021). As preceding studies point out, however, using Decidim as a public engagement tool could be met with tensions between managing and democratizing participatory processes (e.g. Balcells et al., 2023). By articulating the entanglements of physical and digital spaces and different actors in urban planning interventions, this paper brings empirical insights into the process of adopting Decidim into urban planning work. Inspired by the work of Karen Barad (2007), analytical focus is given not only to the roles played by actors such as public administration, developers or citizens but also how these different actors come to perform such roles, and most importantly, by recognizing Decidim as one such actors that also comes to perform in ways that matter in the making of participatory spaces. The paper brings attention to the reworkings of relationships and power dynamics already present prior to the digital participatory platform put to actual use.

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Navigating Environmental Perceptions: Exploring the Impact of Political Orientation and Climate Change Beliefs on Local Nature

Ruslan Gunko (*Åbo Akademi University/Novia University of Applied Sciences*), **Lauri Rapeli** (*Åbo Akademi University*), **Matias Scheinin** (*Pro Litore Association*), **Jenny Wikström** (*Pro Litore Association*), and **Nina Tynkkynen** (*Åbo Akademi University*)

In the midst of the climate change crisis, the societal significance of the environment is increasingly apparent worldwide. There is a growing awareness that the well-being of communities is closely tied to the adequate state of local nature. Notably, scholars emphasize that the crucial link between the environment and quality of life is more about how community members perceive it than the actual state of the local environment.

Simultaneously, the impact of climate change on different levels remains unclear for many individuals. In our study, we delved into the role of political orientation (including right, left, and center scales) among community members concerning their perspectives on the impact of climate change at individual, community, and general levels, and how this influences their perceptions of the state of the local environment. Our results illuminated a robust connection between right/left-wing political orientation and fluctuations in the evaluation of local nature.

Interestingly, the interaction between political orientation and perceptions of climate change impact exhibited a more pronounced effect on the perception of local nature at the municipality level, compared to individual and general levels. However, it is noteworthy that individual and general levels of climate change impacts also significantly influence people's views on local nature, yet these links do not exhibit a strong interaction with individuals' political preferences. This suggests that, until the evaluation extends to the community level, the political choices of people in Finland may not significantly influence how they perceive nature. However, at the community level, political orientation plays a substantial role in shaping people's views on local nature, highlighting a distinct connection between environmental assessment and right/left political preferences.

Keywords: Environmental democracy; Political preferences; People-nature relationships



The impacts of a Climate Jury in a corporatist policy-making system

Katariina Kulha

University of Turku

The number of studies on Climate Assemblies' and other deliberative mini-publics' impact on public policy is growing. Research has demonstrated that the uptake of recommendations by mini-publics and other participatory mechanisms depends on e.g. recommendations' congruence with politicians' preferences and existing administrative practices (Font et al. 2018). Yet there is still a lack of understanding of mini-publics' influence in different policy-making contexts. In a policy-making system of 'routine corporatism' such as Finland (Vesa et al. 2018), mini-publics operate in an environment where policy-making and legislative work is carried out in close cooperation with interest groups. How does this influence the uptake of mini-publics' proposals?

This paper inspects the question through a case study. In spring 2021, the Finnish Ministry of Environment was preparing a new Medium-Term Climate Change Policy Plan, a document outlining concrete policy measures to reduce greenhouse gases in the upcoming 15 years. In addition to the standard stakeholder participation processes, the Ministry incorporated a Citizens' Jury in the Plan's preparation. The Jury's task was to provide comments on draft measures targeting consumers, which it did in the form of a common statement.

The Jury's embeddedness in the plan's preparation process presents an opportunity to inspect its influence in relation to the positions of various interest groups. To do this, the paper applies the Sequential Impact Matrixes framework (Vrydagh & Caluwaerts 2020). It analyses the uptake of the Jury's recommendations in the new Medium-Term Climate Change Policy Plan, and tracks the congruency of the recommendations with the government program, the previous Medium-Term Policy Plan and stakeholder and interest group statements. The results will produce knowledge about a Climate Jury's impact in a corporatist policy-making system.

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Three 'types' of climate deliberation - a lab-in-the-field experiment

Mikko Leino, Katariina Kulha, Maija Setälä, and Silja Porkkala

University of Turku

The recommendations by Climate Assemblies and other deliberative mini-publics on climate policies have shown variation, e.g. in their level of ambition. This could be due to a number of factors, including the norms guiding the deliberative process. This study analyzes the effects of different 'normative types' of deliberation in a population-based and randomized lab-in-the-field experiment organized in Finland in October 2023. We distinguish three types of deliberation: 'Habermasian' deliberation emphasizing the quality of justification, integrative deliberation emphasizing mutual understanding, and inclusive deliberation emphasizing consideration of affected interests. We induce these 'types' through a) different exercises taken in the beginning of deliberation, and b) different norms of deliberation. The experiment consists of three treatment groups (N= 3 x 80), which were divided into small groups deliberating online. The study reports the impacts of the different 'types' of deliberation on climate attitudes, polarization, and knowledge. Overall, we find little support for our hypotheses and, when it comes to climate attitudes, our findings are actually against our expectations. As a conclusion, we discuss possible explanations and implications of our findings.



Historical Trajectories of Democratic Innovations in Finland

Marina Lindell (*Åbo Akademi University*), **Maija Jäske** (*University of Turku*), and **Katariina Kulha** (*University of Turku*)

Democratic innovations have gained popularity in Finland especially during the last fifteen years, both at the national and sub-national level. However, research on Finnish democratic innovations is still fragmented, focusing on isolated methods, case studies and experiments. Our article aims to provide a first comprehensive outlook of the developments that accompanied the proliferation of new participatory methods. From the 1980's onwards, we identify five legislative milestones, which illustrate the gradual institutionalisation of various innovations. Further, we trace the historical roots of three sets of innovations - direct democratic instruments, participatory budgeting, and deliberative mini-publics - and describe their scope and patterns of dissemination. Our inspection shows that democratic innovations have created truly novel channels for citizen influence, but their impact varies greatly. While policymakers still have doubts of citizens' competences, our analysis suggests a growing role for democratic innovations in Finnish politics, supported by their institutionalisation as well as pragmatic adaptation.



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Workshop 9: Environmental ethics and political theory: recent developments

Convenors: Kortetmäki, Teea (*University of Jyväskylä*) **and Casi, Corinna** (*University of Helsinki and University of Lapland*)

Theoretical and conceptual studies related to the ethical and political aspects of environmental problems constitute an indispensable element of rigorous scientific work around the challenges of our time. The long-standing tradition of environmental ethics, alongside more recent strands of environmental political theory, have made great contributions to understanding, characterizing, and researching environmental issues and policy responses to climate change, biodiversity loss, and sustainable resource use.

We invite contributions from environmental ethics and environmental political theory to create and co-create shared understanding of the current developments in these realms and their relationship to other environmental social scientific endeavors. We welcome works that represent ethics and political theory, understood broadly and including multidisciplinary approaches. This session aims at developing a dynamic understanding of the topical issues, methodologies, recent insights about long-standing and emerging themes, and nurturing increased collaboration between Nordic.

This workshop calls for philosophical and otherwise theoretical or theoretical-empirical (multidisciplinary) papers related to environmental ethics or environmental political theory. Contributions can be diverse from case-specific examinations to classic elaborations on the ethics of human-nonhuman relations, climate ethics, and environmental justice, to name but some examples.



Abstract by Casi, C

Corinna Casi

University of Jyväskylä

My presentation at NESS 2024 revolves around the *lectio praecursoria*, meaning the introductory lecture I had during my Doctoral defense to present the content of my Doctoral thesis to the audience.

My doctoral thesis is a study of environmental values, also addressed as values of nature, or natural values. The point of departure of my research is situated within the philosophical field of environmental ethics, which is a branch of applied ethics that emerged in the 1970s. Nonetheless, it also includes other disciplines, such as environmental aesthetics, Indigenous studies, and decolonial theory, as well as various interdisciplinary collaborations, which broadly revolve around the theme of environmental values.

One of the premises of this doctoral dissertation is that some Western cultures are understood as 'colonial' since they reproduce colonial discourses and practices. This means that they endorse binary power structures—subject (active)/object (passive), superior/inferior...—and they focus strongly on economic profit to increase wealth. They also refer persistently to the validity of Western sciences as the only truth upon which they validate Western criteria for academic performances, interpreting non-Western cultures, traditions, and knowledges through Western metrics. In this context, the process of decolonization concerns environmental academic debates and theoretical environmental discourses, and it develops in various steps.

The first of the two arguments upon which this doctoral dissertation is based is the pluralistic argument, in which I criticize the value monism, exemplified by the mainstream neoclassical economic valuation of nature. I offer a critical analysis of the privileged position of economic environmental valuation.

I instead propose supporting a value pluralism framework, as a more balanced theoretical structure, where I display other types of values, which I call 'non-economic' values (NEV) of nature. Those are a set of values, different than the economic one, through which it is possible to value nature from several angles. Many environmental NEV exist, but I address the moral, the aesthetic and the ecological environmental value.

The discussion on NEV remains anyhow in the Western realm. Only the introduction of Indigenous traditional ecological knowledge (TEK)—and especially Sami Indigenous people TEK—allows a decolonial step to properly decolonize environmental ethics. This is the foundation of the second argument, which I call the 'decolonial argument'. It advances the



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introduction of Indigenous TEK and their environmental views, next to NEV, to offer alternative angles to the Western dominant economic environmental assessment and valuation. Indigenous TEK is a type of situated knowledge system, broadly concerning the interrelation with nature. It is ontologically and epistemologically different from the Western knowledge system. These diversities make it an optimal point of departure for initiating the decolonization process of Western environmental discourses, through which we can deconstruct Western colonial structures of powers.

In conclusion, decolonizing theoretical environmental discourses within environmental ethics means analyzing the hegemonic focus on Western standards and deconstructing Western power structures. This process helps to tackle the social injustices that colonial patterns perpetrate. My decolonial critique of environmental discourses aims at dismantling colonial power structures and it seeks to create alternative and more inclusive 'counter-discourses' on nature.



Relational Sustainability Ethics. Backgrounds and preliminary notions

Suvielise Nurmi

University of Helsinki and Tampere University

The recent interdisciplinary research on sustainability transformation emphasises the necessity of implementing deep leverage point interventions in order to facilitate systemic transformation. In accordance with the deep leverage point theory (Meadows 1999; Abson et al. 2017), the most efficacious changes for systemic sustainability transformation occur at the level of mindsets, deep values and paradigms. The relational turn of thought is widely regarded as a promising avenue for a deep leverage shift that can enhance systemic sustainability transformation. For example, relational value has been put forth as a third domain of values, alongside intrinsic and instrumental values, to comprehend the intricacy and diversity of the values associated with nature (Chan et al. 2016; Himes & Muraca 2018; West et al. 2020).

But what are the implications of this relational shift for environmental ethics? I argue that in order to fully comprehend the epistemological and ethical implications of relationality, it must be approached as a fundamental aspect of epistemic and moral agency (Nurmi 2023). In my research project *Relational Sustainability Ethics*, I develop a theory of relational ethics to assist in dealing with environmental and sustainability issues, and formulate the basic principles based on the agential and ontological relationality. In this presentation I will outline the principal tenets of the agentially relational framework for sustainability ethics, introduce the main discussions from the perspective of an ethical theory thus far, and present some of my preliminary outcomes concerning the prospects for relational ethics in guiding sustainability transformation. In alignment with the theme of the conference, my special focus is on the co-creation of moral knowledge and intentional actions in the more-than-human context. I argue that an ethics based on the relational concept of agency is capable of resisting the threats of undermined autonomy and reductionism about moral concepts, which are commonly mentioned in critiques against relational ethics.

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Do environmental concern and intention lead to behavior? A cross-national study

Anton Schalin

This international comparative study examines how levels of environmental concern and willingness to pay more for environmental causes predict pro-environmental behavior (PEB) across several domains. Drawing on data from the 2016 European Social Survey, it explores these patterns in two groups of European countries, based on their Environmental Performance Index (EPI) rating in the Western European subset. The high-ranking group includes Denmark, Finland, and Sweden, while the low-ranking group includes Norway, Spain, and Italy. Generational comparisons reveal variations in the levels of concern, willingness, and PEB. Controlling for common sociodemographic factors associated with PEB, the data for each country are assessed separately to enable more specific analysis. Linear regression results revealed that willingness to pay more for the environment accounted for most of the variance in PEB across all countries. Environmental concern was the second-strongest predictor, though in Denmark it was surpassed by education level. Notably, the regression model's explanatory power was substantially higher in Northern than in Southern countries, highlighting the importance of this regional distinction over the EPI rating. Further research is needed to identify factors driving this divergence.



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Workshop 10: Promoting Collaborative Multifunctional Governance for Biodiversity

Convenors: **Gilek, Michael** (*Södertörn University, Sweden*), **Karlsson, Mikael** (*Uppsala University, Sweden*), **and Powell, Neil** (*Uppsala University, Sweden*)

Biodiversity is threatened in all types of ecosystems across the globe – from mountains and forests to agricultural land and oceans, and in fact also in urban spaces. In parallel, the ability of different ecosystems to provide humans with various services is being undermined. Pollination, provisions of habitats for fish breeding, fertile soil, shade trees and culturally important biotopes illustrate a few of the rich natural values in multifunctional ecosystems that cannot be taken for granted. Despite many good initiatives, governance arrangements – from political strategies to practitioners' actions – are often insufficient for achieving stated biodiversity targets. One among many reasons is that biodiversity is a cross-cutting issue, impacted by several sectors and providing benefits to many societal spheres, which often renders expert-dominated and compartmentalized governance systems to fail. Much speaks for that a future-oriented transformative governance approach should be integrative (across dimensions, scales, sectors and issues), inclusive and equity-based (empowering marginalized perspectives, acknowledging diverse voices and values), adaptive (enabling reflexivity and learning), and pluralistic (respecting different knowledge systems).

With this in mind the workshop aims to closer identify reasons behind failures in biodiversity governance, and to explore transformative governance pathways for overcoming these hurdles, as well as approaches and methods for co-producing and co-designing such pathways. We also hope to be able to learn from comparing various cases from different landscapes and contexts in a range of countries, and we will discuss how to best go about in research and policy in order to promote multifunctional governance for biodiversity.

This workshop calls for empirical, methodological, conceptual or theoretical papers on the potential roles of future imaginaries and scenario analysis, on approaches to broad and inclusive knowledge integration and co-production, on experiences of deliberative citizen forums and on analyses and recommendations concerning transformative and just policy development for multifunctionality and biodiversity.



Sustainable land transition through area neutrality in municipalities

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Urbanization is a major contributor to global land conversion and contributes to the global challenge of competition for land. The increased population and need for space lead to expansion into surrounding natural and agricultural areas, often neglecting the impacts on land and ecological systems leading to a reduction in the delivery capacity of ecosystems.

Although urbanization causes biodiversity loss and habitat degradation, it can serve as a refugia for plants and animals as well as support the landscape structure through positive and efficient land management strategies. The trade-offs and success are usually dependent on the governing bodies, area developers, and city inhabitants. Governing bodies such as municipalities also play a crucial role in implementing and operationalizing national and international policies related to biodiversity due to their role in area planning. In Norway, municipalities can be capable of designing sustainable landscapes as the major land planning authority and recently several municipalities have pledged to become area neutral. The main purpose of this commitment is for municipalities to reduce their negative impacts on nature and achieve zero net loss. Municipalities around are putting forth their land management plans to achieve these commitments.

In our study, we explore the area plan of Trondheim municipality. We evaluate the perception of the politicians, municipality institutions, and county administration on the new area plan and biodiversity loss. We are conducting interviews with the actors, i) To understand their perceptions of area neutrality and biodiversity loss, ii) To understand the level of contribution towards net zero action plans, and iii) To what degree the operationalization of the term 'area neutrality' is useful also for reducing the loss of biodiversity. The study also focuses on exploring the implementation of the area neutrality phenomenon and the interactions between the different governance institutions through the theoretical lens of Ellinor Ostrom's socio-ecological systems (SES) framework and institutional analysis and development (IAD) framework. Finally, this study aims to provide a holistic evaluation of the existing area plan and will contribute towards expanding the policy to make this ambitious area neutrality target achievable.

Keywords: Area neutrality; Municipality; Biodiversity; Trondheim; Land-use



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Bulbs of change? Restoring biodiversity through interactive amplification of landscape-oriented partnerships

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Rural landscapes are vital for many species by providing spatial heterogeneity and semi-natural habitats. However, modern agriculture has moved towards intensively used landscapes with high external inputs, leading to a decrease in heterogeneity, habitats and hence, biodiversity. Seeds of a Good Anthropocene is a promising body of literature to study how new initiatives ('seeds') can be (re)developed to envision and address sustainability challenges. However, this literature tends to underemphasize the discursive-institutional environment in which initiatives evolve to foster change. This paper advances the understanding of the amplification processes through which initiatives, developed via landscape-oriented partnerships, can contribute to transformative change for biodiversity restoration in rural landscapes. We draw on a comparative case study of partnerships working on more sustainable bulb farming and the restoration of landscape elements. Our case study shows that different combinations of amplification processes determine the transformative potential of the partnerships. Thus, interactive amplification, rather than specific and singular processes, is key. While value change seems to be a prerequisite for transformative impact, stabilization, growth and frame amplification can both support or inhibit this. The most important factor enabling amplification is alignment with policy goals. However, we show that deliberate alignment with policy goals can also lead to narrowing down of initiatives, as most policies, rules and regulations relevant for the farmers are very specific or single-issue oriented. To enable the amplification of initiatives with the objective of transformative change for biodiversity, transformative governance approaches such as integrative and inclusive governance need to be leading the visions, policies and legislation both at the landscape level and beyond. Additionally, based on our cases, we propose a more fluid and relational perspective on seeds to better capture processes of transformative change and amplification.

Under review in Ecology & Society.



Exploring social learning networks as collaborative agency for enhancing multi-use forestry and biodiversity management in Sweden

Jenny Friman

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Alternative forest stewardship methods have the potential to provide a wider variety of income opportunities in rural regions while also improving a range of environmental services. In this study, we focus on family forest owners in Sweden and their social learning networks as representing a potential fulcrum on which the adoption of multi-use and alternative forest management practices may hinge. The aim of the study is to investigate how networks and processes of small-scale change in forest practices collaboratively facilitate social learning for forest owners. More precisely the study pays attention to how social learning can be leveraged to accelerate the adoption of alternative forest management methods and multi-use forestry and how policy interventions can build from these insights to improve rural livelihoods and biodiversity outcomes. In this study we have made in-depth interviews with private forest owners and people involved in social networks to understand how they reason and make decisions in their forest management. This exploration addresses the possibilities and limitations of leveraging the existing social learning processes of private forest owners engaged in forestry management that includes caring for biodiversity and the organizations supporting such processes. In doing so, we can better understand how private forest owners doing multi-use forestry and their social networks can be change agents for alternative forest management that integrates biodiversity considerations. We argue that such insights have the potential to improve policy interventions that enable the processes of learning and innovation among key actors to accelerate the implementation of more sustainable forest use and management while also contributing to rural development.



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Envisioning nature positive futures for Europe: Inspiring transformative change at the biodiversity nexus

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Transformative change is required to secure a liveable future for people and nature. The Nature Futures Framework (NFF) is a heuristic tool to facilitate the creation of plural visions of nature positive futures that help build shared motivation for transformative change. Integrating nexus approaches with the NFF leverages the foundational role of biodiversity in supporting desirable outcomes across sectors and scales (i.e., the biodiversity nexus). In this paper, we bring these areas of biodiversity research together by co-creating plural visions of nature futures for Europe that make positive synergies within the biodiversity nexus explicit and consider transformative changes to the state of indirect drivers that enable them. In doing so, we aim to reflect upon methodological insights for future applications of the NFF. Nature futures for Europe were co-created with 26 participants representing diverse sectors and regions in Europe, resulting in three visions underpinned by different value perspectives: *Dòigh Nàdair*: The way of nature (Nature as Culture), *NaturAll* (Nature for Nature), and *Return to Nature* (Nature for Society). Subsequent analyses and a webinar enriched the narratives with possibilities for more synergistic nexus interactions. The findings highlight how plural visioning processes can generate distinct visions with positive nexus synergies enabled by unique indirect drivers. Yet, the resulting visions also share common features with overlapping value perspectives that evolve through the process. The methodological advances reveal how explicit consideration of the biodiversity nexus can mitigate unintended trade-offs between diverse values of biodiversity and increase the overall ambition of biodiversity outcomes

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Conservation for Nature and Wildlife's Sake: The Effects of (Non)-Anthropocentric Ethical Justifications on Policy Acceptability

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We conduct a survey experiment testing the causal link between ethical justifications and acceptability towards two environmental policies: conservation area expansion and wildlife infrastructure. In a 2×3 experiment with American participants (n=1604), we test two ethical justifications—anthropocentric justification (nature as instrumentally valuable) and a non-anthropocentric justification (nature as intrinsically valuable) compared to a control group. We find partial support that non-anthropocentric justification increases policy acceptability compared to no justification. Contrary to expectations, non-anthropocentric justification leads to higher policy acceptability than anthropocentric justification. These results are robust to individual differences in political orientation and environmental concern. Additionally, participants in the non-anthropocentric experimental condition respond that similar conservation policies generally are, and should be, passed to benefit wildlife and ecosystems compared to control group participants. Likewise, participants given the anthropocentric justification report that similar policies are, and should be, passed for humans and society compared to the control group.

Keywords: Public opinion; Conservation policy; Environment policy; Policy framing; Policy justification; Survey experiment

This paper has been accepted at the Journal of Public Policy but is not officially published yet.



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Workshop 11: Governing urban climate transformations: Towards climate neutrality and resilience

Convenors: **Kern, Kristine** (*Leibniz Institute for Research on Society and Space and Åbo Akademi University*) and **Kochskämper, Elisa** (*Leibniz Institute for Research on Society and Space and University of Potsdam*)

Cities are key actors for governing climate change and paving the way for clean energy futures. Urban areas account for a majority of the global population and anthropogenic greenhouse gas emissions. In addition, cities are more densely populated and polluted than rural areas. This leads to a greater sense of urgency for climate transformations in urban areas. Moreover, the impacts of climate change put increasing pressure on cities through a higher incidence of flooding, heat waves, etc. Scholars and practitioners have stressed that cities are drivers for local climate transformations. Although many cities have set ambitious goals for becoming climate neutral and resilient, it is not always clear whether and how they will actually reach their goals. There is an urgent need for starting and implementing initiatives to reduce greenhouse gas emissions and measures to reduce the vulnerability of cities. Although numerous pilot and demonstration projects exist, such experiments are often limited in space and time. The underlying causal mechanisms of successful scaling across space and time are still underexplored despite the fact that this knowledge would help to scale experiments within cities (locally), beyond cities (regionally) and across cities (nationally and internationally).

This panel aims to bring together both conceptual and empirical contributions from various disciplines that explore urban climate governance and climate transformations. Single and comparative case studies are as welcome as large-n quantitative studies. Contributions may focus on the following topics:

- drivers of local climate action,
- integration of climate mitigation and adaptation at local level,
- novel institutional arrangements at local level (such as climate councils),
- role of cities in multi-level climate governance arrangements (such as the EU Covenant of Mayors),
- preconditions for scaling local climate experiments,
- importance of civil society actors (such as Fridays for Future) for urban climate transformations,
- impacts of populist movements and the ongoing poly-crises on local climate action.



Green Switch: A New Frontier in Financialization of Urban Development

Özlem Celik, *University of Turku, TIAS and Department of Social Research*

Lina Olsson, *Malmö University, Department of Urban Studies*

Funding the transition towards sustainable – so-called green – urban provision poses a major challenge for local and regional authorities worldwide. Shouldering this task, Swedish regions, municipalities, and municipal companies have taken a global front-runner position to expand the volume of green urban investments by accessing capital with Green Bonds. Today, 20 municipalities and regions are engaged in Green Bond financing amounting to a total debt of SEK 134 billion (€ 1.173 billion) (Kommuninvest, 2023). Notably, over 40% of the outstanding loans from the municipal-owned bank, Kommuninvest – the holder of 59% of Sweden's total municipal debt – comprise Green Bonds. Examining the green municipal indebtedness in Sweden through secondary document analysis of selected municipalities, this paper contributes to the emerging critical scholarship on green financialisation of urban environments and infrastructures at the local level. Drawing from three theoretical frameworks: capital switching, urbanization of capital, and financialisation, it investigates the phenomenon of green municipal indebtedness in terms of:

- 1) how it furthers the penetration of finance capital into the production of urban space,
- 2) how the enabling conditions for the indebtedness are created by long-term neoliberal policy and austerity, including underinvestment in the municipal sector,
- 3) to what extent it creates new financial risks and pressures for the municipal sector, and
- 4) what are the possible sustainability outputs.

By delving into these aspects, our argument posits that the green municipal indebtedness reflects the emergence of a form of *green financialized urban entrepreneurialism*.

Keywords: Green Bonds; Municipal debt; Financialization; Green transition; Sweden



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Cities at the interface between science and politics in climate policy

Barbara Dias Carneiro, Ana María Isidoro Losada, and Miranda Schreurs

Technical University of Munich, Munich School of Politics and Public Policy

The paper explores the intricate multi-level governance structures inherent in urban climate governance, focusing on the experiences of three European cities: Paris, Munich, and Zurich. The study delves into the interactions between these cities and various stakeholders in the formulation and execution of their climate strategies, shedding light on the science-policy interface.

By employing a combination of interviews, document analysis, and event visits, the paper underscores the increasing complexity of interactions between cities and a diverse array of actors. These interactions extend beyond the traditional relationships with higher levels of government to encompass intra-city collaborations involving different city departments, as well as engagements with science, businesses and civil society. The cities under study are navigating these interactions as they strive to achieve ambitious climate goals.

The findings reveal that the cities are confronted with numerous challenges as they engage in these intricate networks. Overcoming these challenges is crucial, as it will determine whether the interactions lead to the development of collaborative solutions or result in a disjointed and non-complementary array of approaches. The paper highlights the significance of understanding and managing these interactions effectively to ensure that the complexity of multi-level governance contributes positively to the attainment of climate goals.

In conclusion, the research underscores the evolving nature of urban climate governance and the importance of effective interaction among various stakeholders.



Governing spatial scaling *within, beyond, and across* cities in climate policy

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Nottingham Trent University

Expectations that cities can manage the growing challenges of climate change have increased. However, it has become evident that local initiatives cannot compensate for a lack of national and regional support, in particular in smaller cities and towns. Therefore, we argue that the decarbonization of cities requires deliberate scaling *within, beyond, and across* cities. Scaling *within cities* means that place-based experiments need to be rolled out from one neighborhood to other neighborhoods within the same city. Scaling *beyond cities* refers to the emergence of governance arrangements between cities and the surrounding regions that support scaling beyond the borders of the city. Finally, scaling *across cities* refers to interactions between geographically distant cities, which is often facilitated by networks such as the Climate Alliance. This paper combines these three dimensions of scaling with three modes of governing climate change in cities, ranging from hard to soft instruments: (1) *regulatory instruments* (regulation, mandates, and monitoring) such as local heat plans or legislation which makes solar roofs mandatory for new buildings; (2) *economic instruments* (subsidies, taxes, and fees) ranging from local funding programs for heat pumps to national funding programs; (3) *voluntary instruments* (certification, awards, and voluntary agreements) such as agreements between local actors or between cities and the national government. Our analysis develops a conceptual framework for analyzing scaling *within, beyond, and across* cities and uses the case of the German heat transition to illustrate it.



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‘Care is our Fuel’: Exploring drivers for collaborative climate action in local public-private networks

Gustav Osberg

The International Institute for Industrial and Environmental Economics (IIIEE)

The urgent need for a fossil-free society necessitates collective action and collaboration across various sectors. This study examines Malmö Works, a private-public network in Malmö, Sweden, which includes private companies, Malmö City, the regional transit authority, and Malmö University. Initially aimed at promoting sustainable commuting among its members, Malmö Works is now seeking to expand its role to contribute more broadly to Malmö City's climate agenda. Employing an adaptive and action-oriented case study approach, including participant observation, interviews, workshops, and document analysis, this research explores the internal and external dynamics of Malmö Works as it seeks to 'ramp up' its activities. Internally, the study investigates the drivers and motivations behind the engagement of its members. Externally, it assesses the network's contribution to the city's climate goals, identifying added value, potential risks, and barriers to success. Preliminary findings highlight a number of key themes, including: the network's role as a platform for collaborative learning and experimentation for complex and orphaned issues, the importance of buy-in from both city authorities and member organisations, and the challenges of balancing development with maintaining core goals and vision. The study contributes to the literature on urban climate governance by demonstrating the importance of how internal drivers and forms of collaboration influence the ability of private-public networks to effectively drive urban sustainability transformations. It underscores the significance of collaborative approaches and networked structures in shaping sustainable urban futures and invites further inquiry into the nuanced roles networks play in urban climate governance.



Innovations in Local Climate Governance: Investigating the Diffusion of Municipal Climate Managers in the State of Hessen, Germany

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The importance of local governments in developing and implementing policies to address global climate change has been widely recognized across social science disciplines. However, scholars have also observed that many local governments and their administrations, with their traditional, siloed structures, are ill-equipped and too inflexible to deal with the unprecedented, cross-sectoral challenge posed by climate change and its impacts. One solution to strengthen the climate governance capacity of local authorities, which is increasingly popular in Germany and has been funded by the federal government since 2008, is the appointment of so-called “municipal climate managers”. These managers are municipal staff tasked with developing and implementing local climate policies and strategies, and are expected to act as entrepreneurs of new ideas and measures, integrating different sectors and local actors. However, little is known about how this institutional innovation has diffused and why some German municipalities decide to appoint climate managers while others do not. To address this gap, this paper explores a novel dataset on the appointment of climate managers in all 426 municipalities in the central German state of Hessen. The results of descriptive statistics and event history models indicate that vertical diffusion dynamics funded by the federal government are increasingly combined with horizontal dynamics, where climate managers are increasingly appointed by municipalities at their own expense, i.e. without federal funding. This novel result advances our understanding of policy diffusion processes and how such processes can be actively governed to address climate change.

Keywords: Local climate policy; Policy innovations; Policy entrepreneurs; Municipalities; Germany



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Workshop 12: Fit for purpose – towards a transformative and fair climate policy

Convenors: **Alfredsson, Eva** (*Uppsala Universitet, Sweden*), **Malmaeus, Mikael** (*IVL, Sweden*), **Karlsson, Mikael** (*Uppsala University, Sweden*)

In this workshop we explore policy instruments that are fit for purpose given the polycrisis of climate change, biodiversity loss and socio-economic inequality. We invite papers from a wide array of disciplines as we believe new perspectives on how to design policy instruments are needed given the complexity of the sustainability challenges.

According to neoclassical environmental economics climate policy should prioritise cost efficient instruments. To minimise marginal costs, this branch of economics has propagated various economic instruments such as carbon taxes and cap and trade systems. Potential negative effects such as inequalities should be handled separately in line with pareto efficiency principles. In addition, one instrument per environmental problem or market failure is recommended.

While economic instruments most certainly have their place in an effective policy package there are several reasons why we need to explore and develop additional and alternative climate policy measures and portfolios. In order to meet the climate targets the transition to a fossil free and ecologically sustainable economy need to happen fast, within years, and for that we need wide societal support and acceptance for measures taken. This may require a policy package, a deal, which contain not only measures which are perceived as limiting but also welfare reforms or other measures which provide improved quality of life. This is especially critical as the transition takes place against a backdrop of decades of dramatic increases in economic inequalities.

We need measures that go beyond fixing specific market failures but which address the system failures. We know that the climate crisis as well as biodiversity loss is caused by overconsumption of fossil fuels but also other natural resources. And that the consumption is increasingly unevenly distributed. In line with the concept of the doughnut economics the 21st century needs to address overconsumption by the wealthiest but also underconsumption by the poor.

A transformative and fair climate policy portfolio thus need sufficiency policies that meet the criteria of wide acceptance which in turn depend of perceived fairness and improved well-fare. There are a wide range of co-benefits from some climate policies which should be included in order for the socio-economic analysis to be complete.

This workshop calls for empirical, methodological or conceptual/theoretical papers on new ideas for climate policies fit for purpose.



Beyond climate policy – resource sparing policies for a fair transition to a green economy

Eva Alfredsson, *Uppsala University* and **Mikael Malmaeus**, *IVL Swedish Environmental Research Institute*

It is increasingly clear that, in addition to technical solutions for increased efficiency and switching to fossil-free energy types, measures are required that reduce the use of energy and material. This is essential for climate goals to be achieved in a way that is ecologically sustainable in the long term. But even if many people understand that reduced consumption and production volumes are necessary for achieving a sustainable development, measures that involve restrictions on consumption and production volumes are generally met with strong resistance. One reason is that macro- and micro-rationality do not overlap in the economic context the actors find themselves in, where volume growth is important for companies' competitiveness and where relative prices guide consumers towards material consumption rather than labor-intensive services.

In this study, with the help of a conceptual model, we analyze a broad spectrum of effects of a set of different "sufficiency policies".

We analyze the policies challenges and opportunities for consumers and producers, including their impact on welfare and their distribution profile (progressive/regressive). From an economic perspective, the policies effects on GDP and genuine wealth are analyzed. We also analyze them based on their potential contribution to long-term sustainability with regard to dynamic effects such as rebound effects.

Keywords: Sufficiency policy; Fair transition; Green economy



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Off the beaten path - A review of policy proposals for equitable sustainability transitions

Mikael Malmaeus, Johan Rootzén, Mirjam Särnbratt, and Clara Stjernholm Vladic

IVL Swedish Environmental Research Institute, Sweden

While there appears to be a relatively broad consensus in Swedish society around the importance of addressing the wider sustainability challenges and climate change in particular, the question of how the transition can and should be played out remains to be resolved. To expand the visions of the possible 'solution space' in the sustainability transition we have developed a theoretical framework based on two central dichotomies. The first is centered around the role of (paid) labor on the one hand and leisure on the other. The second dichotomy is related to the composition of economic output, where the focus is on reproductive services and immaterial consumption versus on material production and consumption of physical goods. This paper reports on a review study aimed at assessing and mapping policy proposals from different disciplines and actors aimed at navigating and accelerating the sustainability transitions, specifically searching for policies with potential to shift economic systems with respect to the two dichotomies. The study covers proposals both within the current green growth policy domain but also encompasses policies that more clearly break from established notions of economic organisation and systems of production and consumption. Overall, we have identified 439 goals and 415 policy instruments proposed in the compiled literature. Roughly half of the policies identified has the potential to shift production and consumption in the direction of less material composition and that around 15 percent has the potential to reduce the amount of production and work in the economy. As expected, the proposals vary between detailed descriptions to brief mentions ('policy dropping'), and it remains to be analyzed how effective and implementable various proposals are in practice. Among the proposals that combines more radical reform potential with a potential political support base are perhaps the proposals of different measures to realize work-time reduction – which potentially could gain support from a 'red' and 'green' political base.



Does anyone deserve to be on the losing side? Deservingness perceptions and compensating for regressive effects of environmental policies

Sami Mustikkamaa, *University of Turku (presenting author)*

Aya Kachi, *University of Basel*

People commonly perceive environmental taxes to be unfair and particularly costly towards people with low incomes. Yet prior studies have found that compensating for vulnerable groups is not always popular either. In this paper, we hypothesize that this could happen due to perceptions of *deservingness*. Support for compensatory actions might be reduced if policies benefit specific groups that elicit negative perceptions of deservingness, such as the unemployed – who are often seen as undeserving of help. Using novel survey experiments from European Social Survey CRONOS-2, an online panel covering 12 European countries, we assess how support for compensation policies changes whether they compensate deserving or undeserving groups. Additionally, we explore heterogeneous treatment effects across countries and individuals. Our results show that attitudes towards compensatory actions bear resemblance to traditional welfare policymaking, where perceptions of deservingness clearly matter, and suggest avenues for effective climate policy communication.



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Workshop 13: Unravelling the socio-political conditions for more inclusive Nature-Based Solutions

Convenors: **Pihlajamäki, Mia** (*Natural Resources Institute Finland (Luke)*), **Soini, Katriina** (*Natural Resources Institute Finland (Luke)*), and **Hiedanpää, Juha** (*Natural Resources Institute Finland (Luke)*)

Nature-based solutions (NBS) are promoted as a governance tool to tackle ongoing environmental and societal crises. While the importance of participatory planning, or 'co-creation', in the NBS design and implementation is already relatively well acknowledged, the underlying socio-political conditions affecting the workability of an NBS in a given context are still not sufficiently understood. Consequently, NBS are often considered as 'technological fixes' to environmental problems rather than socio-political solutions that may also support local resilience more broadly as well as efforts for sustainability transformation.

This workshop aims to explore research that unravels the socio-political conditions of NBS design and implementation. Special attention is given to the methods and practices of engaging relevant actors in these processes. This workshop calls for papers that present either theoretical insights or empirical findings with lessons learnt on three main topics:

- 1) the opportunities and capabilities of all humans, also the most vulnerable and marginalised, to participate in collective action and thereby to influence also their own wellbeing;
- 2) integration of more-than-human perspective in NBS design and implementation;
- 3) providing alternative ways to understand and define NBS.



Workshop 14: Potential and challenges of citizen science in sustainability transformations

Convenors: **Peltola, Taru** (*University of Eastern Finland and Finnish Environment Institute*) **and** **Suškevičs, Monika** (*Estonian University of Life Sciences*)

Growing number of citizen science initiatives demonstrate the potential of recruiting great masses of volunteering citizens in the production of environmental data on various issues from littering and air and water quality monitoring to biodiversity. In addition to broadening, complementing, and speeding up data production, citizen science is envisioned to restore public trust in science, enhance connectivity to nature and empower people to identify and resolve problems in their living environments. On the other hand, critics call for more nuanced understanding of the quality and outcomes of the novel interactions that these citizen science initiatives introduce between citizens, science and policy making. For example, it has been argued that despite engaging the publics, citizen science prioritises professional epistemologies, serves pre-defined policy goals and frameworks and downplays volunteers' motivations. Furthermore, social sciences have their own, often community-driven traditions of knowledge coproduction, such as action research and co-research. Yet, environmental public administration and scientific communities still appear unable to value or lack the practical capacity to implement such community-based initiatives to redesign their strategies and policies.

This workshop scrutinizes the underlying institutional, normative and epistemological challenges of citizen science and its capacity to stimulate transformative action and societal change in societies facing sustainability problems, addressing, for example, the following questions:

- How do participatory ways of doing research change the relations between civil society, science and policy making? What kind of methods and approaches strengthen communities and their voice in environmental decision making? What kind of communities have evolved around participatory science?
- What kind of inequalities or asymmetries remain or result from the expanding and intensifying use of participatory approaches in research and how these could be addressed? How can citizen science simultaneously re-distribute epistemic power while ensuring robust evidence for decision making?
- Does citizen science extend or enrich ideas about what kind of knowledge might be relevant or actionable in environmental decision making? How can participatory approaches help resolve controversies over knowledge in environmental decision making?
- Are there possibilities to bring together the different traditions of engaging the publics in natural and social sciences?



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- What benefits/constraints arise from the increasing use of digital devices in citizen science? Can digitalisation enrich citizen social science and the decisions resulting from it?

This workshop calls for papers that explore alternative forms of citizen engagement in science and discuss how they can contribute to rethinking the institutions and policies shaping sustainability transformation. The papers can be theoretically, empirically or methodologically oriented.



Towards a Methodological Framework for Citizen Observatories to Promote Inclusive Urban Governance

Julia Costa Carneiro, Milena Vuckovic, Anna Kozłowska, Nicolás Serrano, Zaheer Khan, Diego López-de-Ipiña, Jan Peters-Anders, David Ludlow, Sjors Martens, Rubén Sánchez Corcuera, Andrii Khrystodulov, Dawid Wolosiuk, and Ernst Gebetsroither-Geringer

The intersecting environmental, social, political and economic challenges that urbanised societies are facing today demand far-reaching local governance transformations. To lead such transitions democratically, authorities require ways of public engagement, that ensure meaningful contributions of local communities in identifying and responding to issues of shared concern. Citizen science experiments that go beyond data crowdsourcing but enable communities to co-design collective investigations, co-create discursive interventions and foster experiences of transdisciplinary learning, appear as promising for revitalising local democratic systems. To enhance their effectiveness for driving democratic changes of governance systems, these processes require clear yet agile structures and organised efforts to influence the formulation and implementation of public policies.

Our work within the EU-funded project GREENGAGE (2023-2025) introduces a novel conceptual and technological framework for developing Citizen Observatories in partnership with local planning agents. Referred to as GREENGAGE Observatories (GOs), they are envisioned as situated, data-based, communities¹-led intelligence for enacting the European Green Deal within a pan-European policy and governance innovation ecosystem. The conceptual dimension of this framework relies on a situated experimentation approach on innovation, fostering active intermediation between top-down and bottom-up expectations and aspirations, the situational onboarding and enabling of diverse participants² within the iterative process of developing GOs. As means of public engagement, GOs carry out citizen science experiments and facilitate ongoing activities of conceptualising (or making collective learnings meaningful to the related socio-political contexts) and sharing of insights as stories. This way, GOs are not only engaging different publics, but they are also amplifying collective agency for discursive interventions alongside the process of situated experimentation and collective learning. We also aim to grasp the socio-political context of the pilot's localities, including the identification of urgent planning issues, that extends through continuous situational onboarding (build/train communities of practice), piloting (experiment definition, technological specifications, data capture, integrity assessment, analysis), collective learning, and policy recommendations. Here, thematic topics and associated research questions are identified, setting the scope of bottom-up engagement/experimentation, followed by project objective definition and the identification/recruitment/onboarding of relevant stakeholders. The subsequent phases specify the data and technological requirements, leading to the selection of engagement tools for citizen-based data capture and handling, co-analysis and



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co-interpretation of the gathered data together with citizens. The final phase focuses on translating the resulting insights into policy recommendations for a long-term impact.

During our working session at NESS 2024, we reflected on the organization of the GREENGAGE Innovation Action, with a strong focus on building community-centred Observatories across five Pilot locations in Europe. Together with our peers, we explored our approach, which aims to facilitate collective preparation, testing, and learning while balancing top-down with grassroots, bottom-up objectives. These discussions brought forward often-overlooked elements such as power dynamics, trust, ethics, process, transparency, and accountability. The challenges associated with facilitation of a Citizen Observatory, such as the multi-dimensional framework and the risk of citizen exhaustion during the engagement process, have also been discussed. These insights are guiding us to thoughtfully integrate both strategic and community-driven priorities as we move forward with our work.

- ¹ We are referring to place based communities that are affected by policies as well as to communities of interest, that form around issues of shared concerns, ambitions or expectations.
- ² Diverse participants in GOs encompass multiple stakeholders such as civic innovators, academics, tech providers, members of communities, but also technologies and knowledges that are together shaping campaigns.



Values in citizen science projects to achieve sustainability transformations: a conceptual approach to combining participatory science and citizen science

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In the social sciences, the participation of community members looks back on a long tradition but the engagement of the public in science is also gaining traction in many (other) disciplines. Since the tradition of participatory research in the social sciences and citizen science in the natural sciences can cross-fertilise each other, the aim of this contribution is to show how a combination of emancipatory and instrumental citizen science can contribute to sustainability transformation in the field of environmental sciences.

Social transformation cannot be achieved through (the transmission of) knowledge alone. It also requires a change in attitudes and values. Therefore, a combination of both approaches (knowledge advancement and empowerment) would allow to cover the related aspects of personal values, subjective norms and attitudes in addition to external factors, such as social norms and the actual options for action to achieve societal transformation. The appreciation and respect for others, including other humans and nature depend on values that are related to sustainability, such as participation, self-determination, responsibility, cooperation (instead of competition), respect for nature as well as a good life for all. Drawing from environmental justice and value discourses, this conceptual contribution proposes to explicitly address values in citizen science projects. This can take the form of a component in the project or an entire project revolving around values to achieve sustainability transformations. Since values highly depend on the social environment, this should be accompanied by measures addressing the social surroundings of the participants and key stakeholders who personify values as well as creating (value) experiences that have an impact.

Although this concept still needs to be tested in an actual citizen science project, it still provides suggestions for addressing values in citizen science projects to achieve sustainability transformations.



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What is the perceived value of citizen science? Exploring the viewpoints of environmental civil servants with Q-methodology

Carmen Kilvits, Monika Suškevičs, Marit Napp, Ivar Ojaste, Triin Edovald, Reigo Roasto, Eike Tammekänd, and Mart Külvik

Stakeholders' attitudes towards citizen science (CS) play an important role in the successful integration of CS into environmental governance. However, only a few studies have focused on identifying the viewpoints of civil servants as one of the key stakeholders in this respect. This study explores the viewpoints of environmental civil servants on CS in environmental governance in Estonia. We conducted a Q-methodology study and identified four viewpoints about CS. The Enthusiasts see CS as an important data source that supports environmental governance. The Educators consider the main purpose of CS as raising people's awareness. The Promoters find CS as a way to make the organisation visible to the public. Finally, Cautious conservatives are sceptical about using CS for environmental governance. As in previous studies, it was found that civil servants would engage citizen scientists mainly in the data collection stage and, in some cases, in some other research stages, but not in the whole process of knowledge creation. Our study identified several external factors (e.g., scarcity of resources, convenience in accessing data) that hinder the engagement of volunteers or achieving the purposes of CS. However, a broader problem seems to be the lack of principles in Estonia for civil servants to use regarding CS for environmental governance. Thus, many civil servants feel insecure about using CS. We propose that a more strategic and institutionalised approach to CS would enable a more systematic integration of CS in the environmental public sector.



Workshop 15: The Promise and Pitfall of the Green Energy Transition

Convenors: Bjärstig, Therese (*Umeå University, Sweden*) **and Lempinen, Hanna** (*University of Lapland, Finland*)

Global agendas, national initiatives and business actors are all increasingly driving a transformation from reliance on fossil fuel to the use of renewable energy sources in efforts to reduce anthropogenic emissions of greenhouse gases and their contributions to climate change. Today, 192 countries and the EU have ratified or acceded the historic 2015 Paris Agreement, a legally binding international treaty entailing a global commitment to reach 45% emissions reduction by 2030 and net zero by 2050. Thus, there is enormous pressure to meet increasing energy demands by massively expanding the production of biomass-based, hydro, wind and solar energy. This is widely regarded as essential for achieving global sustainability ambitions and to accelerate our pathway to a zero-emission society. However, the extensive interventions involved in such initiatives have widely varying effects on human communities and individuals. This has spurred a debate on what characterizes a just or unjust transition, and the consequences for society and for different actors. Energy efficiency and renewable energy development are at the core of Europe's commitment to a clean energy transition that serves the needs of citizens, economic development, and the environment. But how is this implemented in reality?

This workshop calls for papers on a broad range of topics that critically examine the transition to green energy, from the local to the global level. We welcome papers with different theoretical, methodological, and empirical approaches, as long as they that provide insights on the potentials and/or pitfalls of the ongoing transition to sustainable energy systems. We would particularly like to see papers that propose or develop new theoretical perspectives and methods to address the green transition in a Nordic perspective.



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The role of energy maps in constructing images and realities of sustainability transitions in Finland

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Maps and digital spatial data portals are widely used to support energy infrastructure planning, impact assessments, and policy-making. Thus, energy maps contribute to the construction of images of how energy systems are organized in space, now and in the future. Because energy systems both use and produce space, making energy a political geographical issue (Avila et al., 2022), it is important to understand how energy maps address and communicate themes of power, representation, and social justice (Howell and Baylis, 2014; Castán Broto and Baker, 2018; McCarthy and Thatcher, 2019).

This study focuses on a critical analysis of maps and digital spatial data portals related to sustainable energy transition in the Finnish (or European, incl. Finland) context and available online. We explore which actors produce maps of the energy transition, what kind of maps, and for what purpose? We also ask what kind of understandings of sustainability and spatial organization of energy transition the maps convey? There are also actors who suffer from marginalization, underrepresentation, and narrow categorization in the Finnish energy transition processes (Laakso et al., 2024). Therefore, we also consider what kind of features and conflicts the energy maps show and hide within and beyond the territory they represent.

The tentative results show that various kinds of energy experts and administrative representatives, from power companies to the European Commission, produce maps, for example, to advertise energy solutions for consumers or to share information on sustainable energy production potential for decision makers. At the same time, maps, and their makers and users, spread and strengthen the imagery of energy transition as a technical linear expert problem. The maps also show that sustainable energy projects focus more in Southern and Western than Northern and Eastern parts of Finland and thus also the associated social and environmental impacts are spatially unevenly distributed. Generally, the energy transition maps, however, convey a “thin” representation of the reality, failing to address relationality and issues of justice.

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Beyond green growth: exploring local perspectives on decarbonization pathways in Swedish industry transitions

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Current Swedish decarbonization strategies center around industry roadmaps to “enhance competitiveness by going fossil free” – relying on narratives of green growth. The consequences of this green transition for different geographies, citizen groups and on wider ecological and societal goals are increasingly problematized. We explore local interpretations of decarbonization pathways for two key industries: the chemical industry in Western Sweden, and iron ore and steel industry in Northern Sweden. Through interviews and participatory workshops with citizens, workers, civil society, and local officials in the two industrial communities, we examine how the current framing of industry climate transitions relates to and conflicts with local imaginaries of a good, sustainable life, and what notions of a sustainable local community can be found in alternative pathways, beyond green growth.

The study draws on two central dichotomies with bearing for a systemic transformation of industry (and society): the role of labor versus leisure; and materialist versus immaterial values. Complementing and contrasting the top-down industry roadmaps with local perspectives, the paper provides insights concerning the values that are seen to contribute to a good life in the two industrial communities, as well as highlights the tensions in terms of dependencies, fairness, land use, local identity and the limits to dialogue. From these insights, we discuss the need to reinterpret what shifts along the two axes might mean – problematizing the focus on productivism as well as the role of green industrial jobs in narratives of the green transition in Sweden.

Keywords: Green growth; Green energy transition; Local perspectives; Just transition; Decarbonization pathways



Adding to acceptability of wind power? Possibilities and limitations

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In Finland, the wind power capacity has grown substantially in recent years. This indicates that the acceptability of wind power has been rather high both nationally and locally (where projects need to be approved by landowners (land rental) and municipalities (zoning decisions and building permits), even though most projects are subjected to some criticism. Many industrial projects and green transition visions in Finland are based on further expansion of wind power. In line with this, the government has targeted doubled power production by 2030 and suggested a range of measures to make it happen, including many aiming at speeding up wind power licensing and increasing its acceptability.

In this paper, the content and dynamics of wind power acceptability are studied in the Finnish context. The paper is based on a large study commissioned by the Ministry of Environment, published as a report (Peltonen et al., 2024). We apply the widely used acceptability framework of Wüstenhagen et al. (2007), with three main dimensions of social acceptance (market, socio-political and community) further elaborated by Klok et al. (2023), focusing on the local level dimensions of impacts, process and local context. The paper focuses on different factors influencing local acceptability of wind power. The empirics consists of a broad interview, inquiry, and document material.

The results show that a range of challenges for wind power acceptability and development exist, with notable variety between local settings. The gap between general (socio-political) acceptance and community acceptance is evident and seems to be growing. Some of the measures proposed by the government might contribute to acceptability, while a few might lead to the opposite.

Taken together, the proposed reforms of wind power licensing and regulation are likely far from sufficient to reach the targeted acceptability and capacity goals. Other measures would be needed, further development is also dependent on the action of other actors (especially wind power companies) and the local context (in all its variety) is also an important factor. This underlines the complexity of wind power acceptability.

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Statutory environmental conditions for operating hydropower plants – what makes them "modern"?

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Hydropower is a highly effective renewable source of energy that, compared to other ways of producing electricity, leads to less greenhouse emissions and pollution. It also plays a key role in the Swedish electricity system. However, hydropower production also entails adverse environmental effects, including impacts on aquatic ecosystems and disturbance of migrating fish. To limit such negative environmental effects, according to new Swedish law and recent governmental decisions, modern environmental conditions for hydropower will be implemented through revision of practically all the licenses for hydropower plants in Sweden; a process that is expected to take about 20 years. The purpose of this paper is to determine the substantive meaning of modern environmental conditions in relation to hydropower, by answering the question: "what can 'modern environmental conditions' be taken to mean for individual hydropower operations?". The substantive rules and the legislative preparatory works are studied, and revisions of hydropower plant licenses, i.e. decided legal cases from the *Land and Environmental Court* in Sweden where modern environmental conditions have been decided, are used as empirical data. The results of the study indicate first that there are no set modern environmental conditions. The expression "modern environmental conditions" only refers to an operations' license, that can be no older than 40 years, which content is decided in line with the provisions in the Swedish Environmental Code. Secondly, the scope for setting modern environmental conditions is limited, since, according to the Swedish Government, the negative impact on the production of renewable electricity in existing power plants must be kept to a minimum. The potential for the new legislation to have an impact in practice, i.e. actually contributing to creating the greatest possible benefit for the water environment, which is the stated purpose of the revisions, can therefore be questioned.



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Workshop 16: Repower the people? The role of citizens in accelerating energy transition

Convenors: Lukkarinen, Jani (*Finnish Environment Institute*) **and Laakso, Senja** (*Tampere University*)

In Europe, the policy developments have created the phase of rapidly accelerating energy transitions (Araújo 2023). Renewable energy policies (EC 2019a; b), twin transitions connecting digitalisation to environmental policies (EC 2022a) and now the need to abandon Russian energy dependence (EC 2022b). As a result, the European energy landscape is shifting fast, but the clean energy system can come in several shapes and sizes from highly centralised to dispersed and nuanced (Rogge et al. 2020). This situation opens discussion on the agency and roles of citizens in the changing energy system. Especially the energy crises of the past years have highlighted the need for citizen energy practices and skills in improving resilience in the volatile times.

Our workshop aims to deliberate, examine and imagine the various roles of citizens and community energy developments in the current phase of the energy transitions. The Nordic and Baltic countries provide an interesting context for policy implementation with different historical and material underpinnings (e.g. Apajalahti et al. 2023). The workshop focuses on the diversity of emerging communities, the positioning of citizens in the energy policies as well as new forms of digital mediation enabling energy citizenship. Moreover, the issues of justice will be given special attention.

This workshop calls for papers with empirical and conceptual contributions that focus either on the citizen and community energy developments in the European context or on the policy developments – or both. More polemic provocations are also welcomed to spice up discussions. Depending on coherence of the contributions, a special issue (e.g. *Energy Research and Social Science*, *Energy Policy*) will be considered.

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Resident engagement and experiences with sustainability initiatives in Finnish housing companies

Julia Johansson & Eliisa Kylkilähti

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The Finnish municipalities have set ambitious climate mitigation strategies, many targeted at the housing sector. In designing new residential buildings, more attention needs to be paid to sustainability issues. Not just because of the sustainability race, but a large body of Finnish building stock from the 1960s and 1970s requires renovation. Designed to retain heat, older buildings must adapt to increasingly warm and rainy weather conditions and improve energy efficiency. Moreover, residents and homeowners are generally more aware of sustainable options. New ways to promote sustainable building practices, improve energy efficiency, and promote sustainability at a household level are needed.

The sustainability of housing is driven by local initiatives which are implemented within housing companies and associations. This study examines the types of initiatives implemented in the capital area of Finland and explores residents' experiences and their engagement in carrying them out. The empirical data consists of semi-structured interviews with housing experts and randomly selected residents across the capital region. The data was thematically analyzed. The results suggest that the driving force behind sustainability initiatives often stems from a proactive resident or property manager capable of assimilating new information and promoting ideas. The different initiatives we found were water and insulation improvements, energy repairs, using wood as a building material, urban farming and other communal projects, shared bikes, neighbourhood collaboration and adding biodiversity to the yard areas. All the initiatives acknowledged in this study contributed to either lowering the housing costs and increasing the value of the housing company while also improving resident well-being and living conditions or enhancing local biodiversity.

When it comes to residents' experiences and their engagement with these initiatives, there are some distinct factors that arise that shape their interests, preferences, and dislikes. Residents are increasingly factoring sustainability into their decision-making and expecting solutions to address practical housing-related concerns. We identified pro-sustainable behaviour especially when residents felt a sense of control over their actions and when those actions align with prevailing social norms. Residents prefer a concrete and practical approach to sustainability, and they prioritize immediate everyday housing concerns, e.g. utility fees and indoor comfort, rather than delving into broader sustainability solutions. For instance, improving energy efficiency in housing tends to be prioritized over reducing direct CO₂ emissions. Residents want convenient ways to have their voices heard. They preferred wood as a building material in their ideal housing scenarios. The responses revealed a growing desire to find innovative ways to lower living costs while adopting attributes of ecological living, such as self-



sufficiency. Active interaction encourages residents to express their ideas, needs or problems, thus engaging them in sustainability initiatives. Viewing sustainability as a practical necessity or solution generates new interest that resonates with residents' lives, makes sustainability less abstract and more connected to their lived reality.



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Reconfiguring energy practices: Households' energy saving and transition agency during the energy crisis

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The energy transition calls for more active citizen engagement in the energy systems, for example as energy prosumers or members of energy communities. In addition to participating in energy production as prosumers, citizens can take part in energy transition by reducing consumption, and hence demand for energy. However, and despite the rising attention towards sufficiency as an approach for reducing demand in the energy field (e.g. Burke 2020), the everyday life has not received much attention in energy research or policy (e.g. Raven et al. 2021).

While the energy crisis in Europe in 2022 was in many ways an unwanted event causing inequality and deprivation among households, it also caused an unprecedented acceleration in the energy transition towards renewable energy production and a significant reduction in energy demand. The crisis and household roles in mitigating the crisis were also actively discussed in media (Laakso et al. 2024). This paper takes the households' perspective to energy crisis and asks how the energy consumption in everyday life changed during the crisis and whether and how the households linked their practices and their role as consumers to the broader dynamics in the energy system and energy transition. The data consists of interviews with 39 households across Finland, conducted in early 2023.

The findings of the study show how people both reduced and time-shifted their energy-demanding practices in various ways to save energy. They also felt as having had a role in mitigating the energy crisis, for example by energy saving actions and energy efficiency improvements, as well as by belonging to a wider group of citizens doing their part. The energy crisis could hence be said to support the development of new and more active consumer roles that can also support the energy transition.

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Conditions for an inclusive energy community: The case of Röstånga Energikooperativ

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In contrast to countries like Denmark, Germany, the UK and Netherlands, energy communities do not have a very pronounced role in the Swedish energy system. This has started to change with new EU policies and directives to promote bottom-up organised heat and electricity production. Among the approximately 140 energy communities in Sweden (Magnusson & Palm 2019), few are organised to actively engage their members to not only own but also get involved and knowledgeable about their heat and electricity generating facilities.

Earlier research on energy communities has shown that long-term success for energy communities are challenged by lack of time, resources and knowledge, a high dependence on single individuals, dependence on policy support, and legal obstacles (Brummer 2018; Busch et al. 2021). The institutional and legal context in Sweden makes it even harder for energy communities to survive long term (Magnusson & Palm, 2019). In this paper we ask: how can energy communities be organised to be inclusive and empowering for their members? We focus on the case of *Röstånga Energikooperativ*, an energy community in southern Sweden. *Röstånga Energikooperativ* has since its start in 2020 actively focused on educating its members on solar power installations and engaging them in other kinds of activities such as study circles on energy efficiency and energy solutions for a collaborative housing project.

The focus on actively engaging members make *Röstånga Energikooperativ* a good case for understanding how to involve people beyond formal inclusion. Our understanding of inclusion is based in the energy democracy literature, and we focus on three layers of inclusion: formal inclusion, prerequisites for inclusion, and processes of inclusion.

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Flexibility on offer? Electricity Retailers' Tariff Offerings in and through the Energy Crises 2021–2024.

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Renewable energy sources are crucial for the low-carbon energy transition, necessitating household demand response (DR) to balance intermittent power supply with electricity production. However, despite regulatory changes and advancements like smart meters, the adoption of dynamic electricity pricing (DP) remains limited. This study examines the role of Finnish electricity retailers in promoting DR through DP. Drawing on interviews and market data from 2021 to 2024, we investigate the institutional logics, complexity, and crisis navigation affecting electricity retail. Using the socio-technical transitions framework and the concept of institutional complexity, we explore system integration and demand response opportunities. Our findings reveal that while DP adoption increased to 30% post-crisis, most retailers reverted to traditional fixed-term contracts. This reversion is influenced by retailer scepticism about consumer interest, societal concerns over pricing vulnerability, and the contrasting logics of market efficiency and public utility.

Keywords: Dynamic Pricing; Demand Response; Electricity Retail; Institutional Complexity; Socio-Technical Transitions



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Energy democracy, energy justice and energy citizenship – citizen participation in theory and practice

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The paper explores citizen involvement in the European Union's energy transition towards climate neutrality by 2050, framed within the Clean Energy Package (CEP). The study considers three interconnected concepts: *energy democracy*, which advocates for democratic control and community ownership; *energy citizenship*, which emphasizes active citizen participation and accountability; and *energy justice*, which incorporates fairness principles, focusing on recognition, procedural, and distributive justice.

Using data from three Swedish projects on energy communities, household heating, and grid tariff reforms, we analyse the extent and nature of citizen engagement in the energy sector. Findings reveal that while Swedish energy communities exhibit some level of citizen ownership, active involvement remains low, with most citizens favouring financial over administrative or operational roles. This limited engagement challenges the theoretical ideal of energy democracy, suggesting a gap between citizen motivation—mainly environmental concerns—and the need for substantive participation to actualize democratic control.

Heating practices in Sweden further illustrate passive versus active forms of energy citizenship. Centralized heating systems, especially district heating common in urban areas, foster limited interaction, reinforcing a consumer role. In contrast, rural biomass systems demand more engagement, reflecting a more empowered form of citizenship. Socioeconomic disparities are evident as well; lower-income households are often limited to older, less efficient heating options, while higher-income groups benefit from advanced technologies, raising questions of distributive justice. We argue for support structures that facilitate equitable access to efficient heating and improved energy literacy among all groups.

The analysis of Sweden's recent grid tariff reform underscores significant barriers to citizen representation and participation, particularly for marginalized groups. The technical nature of the reform process, coupled with economic prerequisites for smart home technologies, limits engagement, disproportionately affecting low-income households unable to respond to price signals. This limitation points to a need for policies ensuring fair representation and access to responsive technologies to achieve energy justice.

The study concludes that for an inclusive energy transition, citizen participation needs targeted support. Municipal-owned energy companies might bridge the engagement gap by balancing public ownership with professional management, allowing indirect but meaningful citizen involvement. Additionally, educational initiatives and financial support for economically vulnerable groups are vital to fostering a more democratic and just energy



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transition. We call for an adaptive approach to participation, recognizing when citizens prefer indirect roles but emphasizing the necessity of diverse representation, especially in policy processes like grid reforms where the long-term impact on citizen welfare is substantial.



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Workshop 17: Co-producing knowledge for research-based Education for Sustainability (EfS) in Higher Education

Convenors: **Gallagher, Silvia** (*CHARM-EU, Trinity College Dublin, the University of Dublin, Ireland*) and **Granberg, Anna** (*CHARM-EU, Åbo Akademi University*)

Education for Sustainability encourages collaboration and co-production between students, teachers, businesses, societal actors, and other stakeholders to foster sustainability competencies such as strategic competence, interpersonal competence, and systems thinking competence (Wiek, 2011). The aim of this workshop is to encourage knowledge sharing on collaborative and co-producing teaching and learning activities within the scope of Education for Sustainability. This is of relevance to the Sustainability Development Goal 4 (Quality Education) to “ensure all learners acquire knowledge and skills needed to promote sustainable development”. Focusing on how the co-production of knowledge across and between all stakeholders in the sustainability landscape is key to addressing complex, wicked, societal challenges.

In this workshop we invite contributions within the following topics to encourage knowledge sharing and collaboration between participants:

- Interdisciplinary case studies on educational activities using collaborative or co-productive approaches to sustainability teaching and learning in Higher Education.
- Research based explorations into pedagogical activities (e.g. Challenge Based Learning, Project Based Learning) where co-production with external stakeholders is actioned
- Analyses of the design and development of Education for Sustainability (EfS) activities where collaboration across disciplines, stakeholders, and/or countries is carried out.
- Submissions are welcome to explore conceptions of collaboration and co-production in a broad manner.
- Best practices or work in progress reports from European Universities Alliances are also encouraged.
- Any methodological approaches are welcome including conceptual and theoretical pieces.



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Embodied Learning in Action: Forum Play as a Tool for Transformative Sustainability Education

Eugenia Castellazzi and Sara Zaman

University of Helsinki

Despite scientific advancements on the state of global socio-ecological crises, higher education institutions fall short in their role as educators of students on transformations: "nothing short of a fundamental restructuring of social, material-economic and socio-ecological relations" (McGeown and Barry, 2023:4). Hence the need to develop transformative ways of (un)learning, (re)imagining, and contestation that challenge more traditional, linear and mechanistic "information transfer" modes of education (Sterling, 2010; Wals, 2015). Our presentation delves into the innovative use of forum play as a pedagogical method that trains students in embodied ways of relating to onto-epistemological uncertainty.

Rooted in Boal's forum theatre or Theatre of the Oppressed, forum play is a drama method that was formulated for liberation and social justice (Österlind, 2011). Drawing on experiences from two university courses (n=23) and three workshops (n=37) conducted between September 2023 and April 2024, we explore how forum play serves as a tool to engage students and researchers in embodied collaborative learning, while also examining new positionalities, and the ethical relations among human and more-than-human actors. We emphasise the transformative potential of introducing drama-based methodologies in education. We discuss the findings that come from participant observation and feedback sessions, covering the critical aspects for researchers seeking to implement similar methodologies in their educational activities. Preliminary findings from our sessions indicate that participants experienced a novel form of embodied learning, gaining a holistic understanding of sustainability challenges and their inherent power structures. Exposure to more-than-human perspectives prompted reconsideration of traditional human/nature dichotomies, fostering nuanced discussions on equitable solutions. In this presentation, we provide an open forum for discussion about embodied learning, including discussion about how other educators have used embodied practices in the past, and how interested educators can start to use them in future.

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Transatlantic Summer School for Sustainability - interdisciplinary, transatlantic and project-oriented

Andrea Heilmann, Simone Roth, Nicole Coleman, and Michael Römmich

The Transatlantic Summer School (TSS) is a joint teaching-learning program of four partnering schools, the Harz University of Applied Sciences, Ruhr West University of Applied Sciences (Germany), Iowa State University, and Wayne State University (USA), that provides international experiences and integrates project- and research-based education for sustainability in higher education. It enables students from Germany and the USA to deepen their understanding of global challenges in the context of the UN Sustainable Development Goals in different scientific fields. The TSS also contributes to the development of future skills for the students.

The program centers a different sustainability related theme each year and rotates between the four partner universities, combining digital and on-site teaching-learning elements. During the TSS, participating students from all partner universities learn new perspectives on the transformation towards a sustainable society and jointly developed new innovative solutions. A design-thinking method supports research-based education and enables the participatory development of solutions to global challenges in specific areas of sustainability from the students' perspective.

The first TSS at Harz in 2023 focused on "the future of energy" and achieved its two main objectives:

- a. to give students the opportunity to gain international and intercultural experience and
- b. to promote the development of students' future skills through the application of research-based teaching.

The evaluation shows the following results: students developed intercultural skills through the TSS, which was emphasized very positively in the evaluation. Developing these abilities both in the online and in the onsite phase has proven itself.

Most of the participating students learned new content and applied this content actively to a sustainability challenge in the field of energy. The increase in knowledge depended on prior knowledge.

App. 60% of participants feel better prepared for the transformative process towards a sustainable future (strong and very strong agreement) due to the TSS. With respect to transformative skills, 81% of the participants agreed that the TSS impacted the way they would collaborate in diverse teams in the future and more than 90% of students believed that they would work better in diverse teams after the TSS.

The use of the design thinking method to strengthen innovation and transformative skills also proved successful. Conflict management, communication and the careful use of information



and data is an integral part of the method. This increases intrinsic motivation and commitment. Considering the complexity resulting from the implementation of the SDGs, design thinking is a method that is suitable and should be used for research-based education for sustainability in higher education.

The paper will be published in the book "Introducing the UN SDGs in Higher Education Institutions", by Springer Nature.



A challenge-based, transdisciplinary, and sustainability-related blended intensive programme (BIP) of CHARM-EU Master's: Action research of co-productive approach to sustainability teaching and learning in higher education

Yuanfei Huang, Valerie Borrell, Ádám Tóth, Clementine Colomer, Vanessa Vigano, Patricia Cuchhi, Roland Thaler, Karen Lambert-Cordillac, and Bianca de Souza Nagasawa *

The world faces numerous interconnected global challenges, such as climate change, inequality, energy crises, and pollution, requiring urgent sustainable solutions. The 17 Sustainable Development Goals (SDGs) set in the Agenda 2030 aim to promote global sustainable development. Higher Education Institutions (HEIs) play a crucial role in teaching and learning about sustainability to equip future generations with the necessary knowledge and skills to address these challenges (Frantzeskaki et al., 2018). However, finding sustainable solutions is complex and requires collaboration across disciplines, critical thinking, problem-solving, and the ability to connect theory with real-world challenges (Wiek et al., 2010).

The European alliance CHARM-EU has developed a pilot Master's programme in Global Challenges for Sustainability to train future talents capable of addressing these global challenges. This programme provides a transdisciplinary and challenge-based environment, incorporating active partnerships with academic experts and extra-academic actors to implement co-productive approaches in sustainability education. The Erasmus+ BIP, a short mobility programme funded by the European Union, supports this initiative by enabling students and teacher-researchers to work with external stakeholders on sustainable projects.

A collaborative action research approach was applied to simultaneously investigate and solve issues in sustainability teaching and learning. This approach involved identifying primary stakeholders, assembling teams of stakeholders, educationalists, teachers, and students, and conducting both desktop and on-site studies. The BIP programme included virtual preparation activities and two-week physical on-site activities in the Bassin de Thau, France, focusing on SDG 11: Sustainable Cities and Communities. The assessment system was based on peer assessment, self-reflection, and teacher assessment, fostering knowledge co-production and enabling students to develop essential sustainability competencies.

The BIP received highly positive feedback from students, teaching staff, and external stakeholders. However, the programme's demands in terms of human resources and financial involvement were significantly higher compared to traditional classroom settings. Challenges included timing issues, varying levels of stakeholder engagement, and students' ability to bridge theory and practice in hybrid group work. Based on these experiences and feedback, a new version of the BIP has been developed for the subsequent cohort of master's students.



The purpose of this action research is to systematically test the benefits and weaknesses of implementing a challenge-based and transdisciplinary model, deriving insights to fulfill the vision of sustainability research education. This research will result in a practical guidebook for other partner universities and facilitate the sharing of these practices with other HEIs interested in implementing the knowledge co-production approach in sustainability education.

*The authors contributed equally to this work.

The authors wish to acknowledge the work and the support of the CHARM-EU alliance.

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Workshop 18: Transformative law for sustainability transitions

Convenors: Similä, Jukka (*University of Lapland*) **and Ballardini, Rosa** (*University of Lapland*)

To cope with climate change, planetary extinction and other persistent and interlinked problems confronting contemporary societies, a radical transition is necessary from current practices towards a more sustainable way of life. While science has given sound evidence on the need for change (e.g. IPCC report, 2022), governments have only recently systematically adopted laws and policies to make the change happen. In the European context, a pertinent example is the adoption of the EU's Green Deal, a policy and legislative programme aiming to accelerate the shift towards sustainability. While the legislative programme of the Green Deal has environmental objectives, it also is a strategy for economic growth and restructuring the economy. The Green Deal means a stronger role of the state in coordinating the economy, although market mechanisms remain the core instrument for the coordination. As a result, the law affecting the renewal of the economy and functioning of markets are at the core of the transformation. The consequence is an increased need to pay attention to areas of law that affect the functioning of markets, including environmental law, but also other horizontal and cross-cutting legal fields. Inter alia, these areas include intellectual property law to incentivize sustainability innovations; competition law to promote co-operations and partnerships amongst firms and organizations which lead to enhanced sustainable effects; financial law to re-direct the use of private resources; public procurement law and state aid law to re-direct the use of public resources; and contracts, which are crucial to draw together the interests of private, public and hybrid sectors.

Despite the evident relevance of legislation as a mode of governance, there is to date only scant research focusing directly and in a holistic manner on the role of law for sustainability transitions. Thus, this workshop aims to trigger intra- and inter-disciplinary discussions on the role of law for sustainability transitions, from the perspective of all these various relevant legal streams.

This workshop calls for papers from any field of research exploring the role of law in sustainability transitions with possible topics including frames of constitutional law for legal and policy action; the ability of law to promote technological developments while addressing also the ethical challenges associated with the use of those technologies; the role of law to direct private and public investments for fostering welfare and the public good; fostering the public good through new ownership models and/or property concepts; and other roles of law promoting systemic change of production and consumption systems. Papers may be conceptual, doctrinal, methodological or empirical.

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The promise of joint large scale energy projects between Europe and Africa

Leonie Beaucamp¹, Nele Bülow², Amos Wemanya³, and Martin Welp⁴

¹ Germanwatch e.V., *Renewable Energy and Hydrogen*

² German Bundestag

³ *Power Shift Africa, Renewable Energy and Just transitions*

⁴ *Eberswalde University for Sustainable Development, Social-ecological Transformations*

Green Hydrogen has received a lot of attention in Europe in recent years. It is at the same time a highly controversial technological promise for the decarbonisation of industrial sectors that are currently heavily dependent on fossil energy sources. Such sectors include the steel and cement industries among others.

Previous large-scale renewable energy projects and promises, such as the Desertec initiative, which received a great deal of attention 1-2 decades earlier, have ultimately not been very successful for a variety of reasons. Not least because of the perceived risks associated with political instability in the project's host countries. For this reason, aspects of fairness, voice and accountability, as well as questions of economic and political dominance, deserve attention in any future cooperation of this kind.

The paper is based on two empirical studies of large-scale energy projects and green hydrogen production and trade in the African context. It seeks to assess the risks of a recurrence of the resource curse associated with green hydrogen and identify ways to avoid it. The promise of such technologies from the perspective of different stakeholders (based on semi-structured interviews) is analysed in the context of current literature.

Concepts of green colonialism and the resource curse will provide a lens for evaluation. We explore how these concepts can contribute to the assessment of the promise of a timely and equitable energy transition in Europe and Africa. The analysis focuses on the social, environmental and political dimensions of such large-scale energy cooperation between the Global North and the Global South. Given the rapid expansion of the new green hydrogen sector, particular attention should be paid to not repeating past mistakes.

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Circular economy: a powerful driver for the European ecological transition

Alessia Depietri

The circular economy has emerged as a transformative paradigm essential for advancing Europe's ecological transition. Anchored in the European Green Deal and the United Nations' 2030 Agenda, this approach shifts from a linear consumption and disposal model to a regenerative system that mimics natural processes. The core of the circular economy emphasizes resource efficiency, reducing waste, and fostering sustainable development by ensuring that products are designed to be reused, remanufactured, or recycled over multiple life cycles.

The legal and policy framework in Europe has progressively reinforced this transition, beginning with the adoption of the "Circular Economy Package" in 2015 and its subsequent enhancements through legislative measures like the "Second Circular Economy Package" in 2017. These initiatives underline not only the reduction of waste but also the potential of the circular economy to drive regenerative growth and environmental resilience. Despite these advances, recent data indicate a concerning trend: only 7.2% of the global economy is circular, a decline from 9.1% recorded five years earlier, underscoring the need for robust policy enforcement and innovation.

A crucial accelerator within this framework is the bioeconomy, which leverages biological resources to foster sustainability across industrial sectors. It embodies the principles of "People, Planet, and Profit," aligning with key objectives of the 2030 Agenda. By emphasizing the reuse of organic waste and the creation of biobased products, the bioeconomy supports soil regeneration, biodiversity, and resource conservation. This is critical given the unsustainable trajectory of global resource consumption, projected to double by 2050 compared to 2015 levels. Examples of successful applications include the production of textile fibers from fruit peels and biofuels from algae, demonstrating the feasibility of circular, bio-based solutions in reducing environmental impact.

However, challenges persist, particularly in regulatory clarity surrounding the classification and treatment of by-products versus waste. The European Court of Justice's rulings, such as the landmark *Palin Granit* case, have helped shape the distinction, emphasizing that production residues can be considered by-products if specific conditions are met. Yet, ambiguity around "normal industrial practice" continues to create barriers for industries aiming to integrate circular practices without risking legal repercussions. To address this, more precise and adaptable legislative measures are needed to foster confidence and facilitate circular production processes.

Green Public Procurement (GPP) has also emerged as a pivotal tool, integrating environmental considerations into public purchasing decisions and supporting circular

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initiatives. Despite its potential, the practical implementation of GPP faces obstacles, including insufficient training and resource limitations within public administrations. Projects like “Cirgreen” aim to bridge this gap by equipping public officials with the knowledge and skills to embed circular economy principles in procurement processes effectively.

To catalyze a comprehensive transition, targeted investments, such as those supported by the “Next Generation EU” initiative, are essential. These funds can bolster bioeconomic research and encourage scalable models aligned with long-term sustainability goals. Legislative coherence, combined with adaptive regulatory frameworks, will be crucial for overcoming current bottlenecks that impede broader adoption of circular practices.

In conclusion, the circular economy, supported by a clear legal structure and coordinated policy efforts, has the potential to drive Europe's ecological and economic renewal. Strengthening bioeconomic strategies, refining regulations on waste and by-products, and expanding GPP are strategic priorities that will lay the foundation for sustainable development.

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Mapping the role of online platforms in the twin transition in circular economy. Legal challenges and possibilities

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How possible is it that a dominant online platform will come up with a revolutionary innovation that will challenge the way all online platforms operate and lead to embracing sustainability in its digital assets? Although larger platforms may have resources, they may be e.g. reluctant to become more transparent about the products they advertise as this would require additional financial resources. Similarly, due to information asymmetries, online users may not be able to make informed sustainable decisions, and decide to buy a refurbished laptop instead of a new one.

The paper offers a literature review on the relationship between twin transition and circular economy, combined with the critical study of recent regulations aimed at online platforms. Can the green transition and digitalization embrace the circular economy as one way to deal with the climate change? What are the main obstacles when it comes to online platforms? Here, the focus is on both on behavior of online platforms. As noted by Mäkitie et al. (2022), to fully embrace sustainability, one has to combine the disruptive sustainable and digital innovations. On the other hand, small and medium-sized enterprises may be unable to take sustainability considerations into account and challenge online platforms. There is inequality between resources, small and medium-sized enterprises may fall behind. On the other hand, a number of behavioural factors on the side of online users, also make the sustainability transition challenging. This is due to information asymmetries and behavioural biases users may face while deciding whether to choose sustainable products and services.

The paper dives into exploring to which extent these challenges to embracing the twin transition in the area of circular economy are already acknowledged in existing regulations that touch upon the operations of online platforms, such as competition law, Data Act, Digital Services Act etc.)



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Planetary moments in international law and governance

Michel Rouleau-Dick and Viljam Engström

Climate change undoubtedly presents an existential threat to the current worldview and the infrastructure that supports it. A key element of this infrastructure is public international law (PIL), the law that governs how members of the international community interact. PIL is often identified as an important component of the toolkit available to fight against climate change, as highlighted by the prominent role played by the UN Framework Convention on Climate Change and the Conferences of the Parties, or the ongoing focus on strategic litigation in various international courts.

However, PIL is a product of its time and is firmly rooted in the status quo that has led us down the path of planetary climate change. PIL as it currently exists struggles to fully take in the scope of change we are experiencing as a species. To take only one example, the concept and substance of statehood are being challenged by the possibility that several small island states could lose their territory before the end of the century.

Thus, there is a pressing need to reframe what is essentially the “version 1.0” of PIL towards a version that instead fully engages with a climate-changed world. The backdrop for this analysis is provided by João Ribeiro Mendes's insightful contrast between the “global” (status quo) and the “planetary”, the latter consisting of a fundamentally new angle to approach the world we live in, in the spirit of Bruno Latour's writing. We argue that PIL needs to find new anchors to remain relevant (and resilient) in the context of the changes the planet is experiencing.

Simultaneously to the need for change, PIL is also uniquely positioned to fulfill a stabilising role and provide answers on a just transition. We argue that we are currently experiencing what has been termed to be a “planetary moment” or “Grotian moment”, similar to that of the 1648 Peace of Westphalia or the adoption of the UN Charter after the end of the Second World War, although the outcome remains largely unsettled.

From these various elements follows an unprecedented need for forward-looking scholarship. Identifying upcoming challenges and focusing on resilience should be a priority if PIL is to remain a key structural element of a climate-changed world. Here, however, international legal scholarship quickly stumbles unto methodological hurdles such as the lack of adequate analytical frameworks to even conceptualise what the future may consist of without focusing exclusively on prescriptive outcomes.

In parallel, natural sciences (and increasingly social sciences) rely on scenario-based methodologies to overcome the complexity of engaging with the future. This is best illustrated by the SSP and RCP sets of scenarios used by the Intergovernmental Panel on Climate Change. We argue for a need to bridge this divide and investigate avenues for international legal scholarship to meaningfully contribute to and benefit from existing scenario-based approaches. Connecting better with the extensive scenario-based scholarship on climate



change could help assess the resilience of current PIL in various possible futures as well as to identify regulatory needs.



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Legitimacy of the marine fish farming sector – between CSR and nature resource rent principles

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Jostein Brobakk, *Ruralis*

Ground rent or nature resource rent is an extraordinary value derived from exploiting a natural resource, based on a permit excluding other users. Its theoretical foundation lies with e.g. land rent as developed by David Ricardo (1911 – ‘land rent’) and Henry George (1886; 1982).

To ensure a just distribution of benefits locally and nationally, the ground rent principle was successfully guiding the development of regulatory institutions for the Norwegian hydropower developments from the early 19th hundred and then the petroleum economy from the 1970ies. Institutions have been developed in order to manage and share wealth creation through investments, welfare development and local compensations (Moses and Letnes 2017; Moses and Brigham, 2024; Almås & Fuglestad 2021).

It was, however, not applied on aquaculture until 2023, and its introduction has been followed by protests from the aquaculture industry.

The research project “Funding Future Welfare: Bioeconomy as the «New Oil» and the Sharing of Benefits from Natural Resources”ⁱ has compared benefit-sharing systems across the petroleum, hydropower, aquaculture, wind energy and bioprospecting sectors.

Research questions addressed in this paper:

- How has the relationship between the ground rent (nature resource rent) principle and Corporate Social Responsibility (CSR) developed in the context of large fish farming companies?
- What are considered local and regional effects of benefit-sharing in the marine sector, and what are its relations to the social legitimacy of especially aquaculture?

Data material and methods: Mixed methods and data are used, with a quantitative survey, semi-structured interviews with key actors, filming of interviews and coastal activities that were made into films, in addition to media articles. Three coastal municipalities where aquaculture is important are studied through interviews and the survey, in addition to a national sample.



Findings and conclusions

Local ownership, local involvement and high local employment in the sector was interlinked with more positive perception of aquaculture's environmental, economic and social contributions and efforts. The national sample was somewhat more critical of the aquaculture industry. The respondents display cognitive dissonance by supporting both future production growth while being critical to a lack of sustainability and pollution reduction focus in the industry.

Aquaculture is an important tax contributor in Norway, but sponsoring has grown in importance. While the amount of money being funneled to local communities might be higher through a sponsorship model, the financial priorities is being excluded from local democratic processes.

Oceans are at a critical point in terms of pollution, climate effects, and over-exploitation. We recommend application of a natural resource rent principle for most economic activities that represent a monopolised access to natural resources.

ⁱ Bioshare is funded by the Research Council of Norway, Grant no 294867.

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Workshop 19: Co-production of techno-scientific promises: communities, institutions, and materialities

Convenors: **Lehtonen, Markku** (*Universitat Pompeu Fabra*), **Kojo, Matti** (*LUT University*), **Husu, Hanna-Mari** (*LUT University*), and **Litmanen, Tapio** (*University of Jyväskylä*)

This workshop addresses the role of techno-scientific promises – broadly understood as “wishful enactments of a desired future” of a given technological innovation – in environmental policies and politics in particular, and in shaping the future trajectories of societies in general. Such promises are performative: they legitimise projects and their advocates, mobilise resources and orient activities, seeking to convince investors, decision-makers, and broader publics. In this workshop, we focus on the roles that the various communities and institutions play in shaping the construction, maintenance, reproduction, and deconstruction of these promises.

The existing literature has underlined that techno-scientific promises are co-produced, through the confrontation between the communities of “promise-constructors” and “promise-deconstructors”. The analysis has focused on the discursive battles between promise narratives and their counter-narratives, including their institutional and material embeddedness – the ways in which such battles simultaneously shape and are shaped by the prevailing institutional contexts and material realities. It has examined the layering of promises that manifest themselves at multiple overlapping scales, in broad visions of a desirable future (e.g., the promise of progress or economic growth), general technology promises (e.g., nanotechnologies, or the small modular nuclear reactors), and specific technical designs and projects (e.g., diverse applications of nanotechnology or individual SMR designs). The promise scholarship has elaborated on the specificity of promises – their relational nature and their function of building legitimacy and credibility for particular technical solutions – in relation to similar concepts such as collectively held and relatively stable imaginaries and the more specific visions promoted by actor coalitions.

We seek to fill two interrelated gaps in the literature on the construction, maintenance, reproduction, and deconstruction of techno-scientific promises. First, we call for greater clarity on the role of the diverse communities in promise-construction, whether these be communities of promise, conviction, or practice; epistemic communities, project communities, or professional communities; or again, advocacy coalitions, or discourse coalitions. Second, we draw attention to institutions as a relatively overlooked element in co-production, alongside “the technical” and “the social”.

This workshop invites both theoretical and empirical papers, from various fields of technological innovation and development. Particularly welcome are contributions that



explore the roles of communities by drawing on and clarifying the distinctions between similar yet distinct concepts and theoretical traditions, such as STS and sociological institutionalism, with its conception of the simultaneously enabling and constraining functions of institutions.



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The planetary aesthetics of nuclear techno-scientific promises; Or how to decolonize the promise of nuclear modernity.

Ele Carpenter

Curatorial research into planetary nuclear aesthetics invites us to stay with the trouble¹ of the Nuclear Anthropocene² through a decolonial unravelling of the spatial and social aesthetics of nuclear technoscientific practices. The research investigates relationships between nuclear contexts and artistic practices, undertaking studio visits, field work, radiation protection surveys, and participating in NEA/OECD expert working groups. Field work provides a grounded experience of the local sites of the nuclear Anthropocene tracing its infrastructures, environmental and ancestral catastrophes from uranium mining, energy production and weapons testing, to proposals for geologic disposal of radioactive waste. The resulting curated exhibitions define new conceptual frameworks for critical analysis and experience of the visual and material conditions of nuclear art and culture.

The promise of nuclear decommissioning and mining rehabilitation is to return to 'green fields' or a return to nature. This landscaping tends to simplify decommissioning, with the risk of instrumentalizing nature as a buffer zone for various forms of contamination and erasing nuclear histories. Instead, we need creative investigations to bring into view the more complex relationships between the incommensurability of decolonization and decontamination.³ To bring nuclear colonization into scope means that the category of radioactive waste designated for European geologic disposal⁴ needs to include colonial wastes from uranium extraction and nuclear weapons testing.⁵ Brought 'into scope' the materiality of these unearthed traces of uranium form a witness to the colonial development of nuclear technology and its planetary impact.

Nuclear promises of the 20th Century did not consult with Indigenous communities about the exploitation of their lands and resources. Today recognition of Indigenous peoples is essential for developing sustainable ways of living with the climate impacts of colonial capitalism and the military industrial complex which have destabilized ecosystems on a planetary scale. For example in Australia, Aboriginal culture plays a vital role in protecting uranium areas through ancient and living forms of storytelling connecting country and community. In this way, the relationship between decolonization and decontamination is addressed through local knowledge and actively naming nuclear legacies and current responsibilities through an acknowledgment of nuclear colonization.

Concepts of Nuclear Decoloniality provide a counterpoint to the recent nuclear promises of nuclear power as a techno-scientific solution to the climate crisis, reusing modernist dreams of



clean or even green energy, without acknowledgment of nuclear legacies or waste management strategies in place.

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Fusion valley. The International Thermonuclear Experimental Reactor (ITER) and the territories (2006-2012)

Gabriella Rago

This paper examines the socio-environmental impacts of the International Thermonuclear Experimental Reactor (ITER), the world's largest experimental nuclear fusion plant, currently under construction in the forest of Cadarache (France). Through this case study, the paper asks: how do territories involved in nuclear experiments transform from a socio-environmental perspective? Do they themselves become experiments? Drawing on sources from the archives of local institutions, the analysis will focus on the interplay among actors and institutions engaged in the local governance of ITER, closely intertwined at the national and global level; public communication and participatory strategies aimed at fostering social acceptability of megaprojects.

The interdisciplinary approach is particularly effective in weaving the complex links between global promises related to megaprojects and their territorial ramifications: from Science and Technology Studies, to explore the technopolitical use of some technology projects to implement policy objectives at the local level; to Nuclear Geography, to address the elements of acceptance or bottom-up push that make megaprojects locally integrable and that in turn integrate nuclear communities into the global techno-scientific system.

In the global energy landscape, thermonuclear fusion embodies a clear idea of the future, as a promise of energy diversification and one of the exceptional routes to a future of unlimited energy. However, at the local level it can be explored the dialectic between the underestimation of costs and risks and the overestimation of benefits; the intergenerational dilemma between long-term developmental goals and the immediate survival of communities. It is thus possible to observe how energy transition projects on a local scale translates into a real territorial transition, that is a transition of the relations between population and territory and of the territory itself.



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From intraction to extraction: Scientific knowledge and commercial practices in the Democratic Republic of Congo forests

Alizée Ville, Grace Y. Wong, Symphorien Ongolo, and Maria Brockhaus

The forests of the Democratic Republic of Congo are hailed as a “solution” to climate change, supported by scientific claims emphasizing their potential for carbon sequestration, with implications for climate finance. Throughout the 20th century, scientific knowledge has promoted Congo’s forests as a valuable source of timber, supporting the establishment of a commercial forest industry largely driven by foreign investment. As mechanisms of avoided deforestation are explored, and emerging commodities like carbon credits are attracting attention from researchers and investors alike, understanding the historical interplay between forestry knowledge and the commodification of wood products is key.

We examine the role of forestry science in the DRC since 1885, from the expansion of the commercial forest industry to the emergence of carbon markets. Informed by theories of Extractivism and New Materialism, we aim to introduce and advance the idea of intraction as a conceptual framework and investigate how science has identified and legitimized specific uses and products originating from forests. We ask what forestry knowledge; does who want; for what purpose? We draw from archival records (n=249), semi-structured interviews (n=15) and scientific articles (n=51), collected between January 2022 and April 2023, during field work in the DRC and Belgium.

Our findings reveal that forestry science has historically supported the commodification and extraction of timber products, notably construction materials for a growing European market. Even as discourses shift towards carbon offsetting and carbon credits, beyond traditional extractivism, the underlying societal goals they serve remain the same – sustaining distal societies. Further, we find a strong path dependency within the agents producing the knowledge, while those who were silenced remain silenced.

Finally, while timber has been removed from one location to another, through a process of extraction, carbon credits allow trees to be locked in situ, through a process of intraction.



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Workshop 20: Environmental social sciences and the critique of technological optimism

Convenors: **Ruuska, Toni** (*University of Helsinki*), **Roos, Andreas** (*Lund University*), and **Heikkurinen, Pasi** (*LUT University*)

Dominant narratives of green growth and sustainable development rest upon an uncritical perception of technology. As a manifestation of this, the positive role of science and technology is often taken for granted for desired social and ecological change in the environmental social sciences as well. As exemplified by the endorsement of a range of “green” technologies, such as renewable energy, electric cars, and smart cities, technological optimism is now also spreading into even previously critical schools of thought, like degrowth and political ecology.

As a reaction to this, we want to explore how various modern techno-scientific positions originate from and perpetuate the capitalist business-as-usual, and the ethos of progress, and facilitate the increasing exploitation of people, local environments, and the planet as a whole. Further, we question the incipient optimism toward new technologies and scientific discoveries and invite explorations of alternative conceptions of technology for the environmental social sciences. Therefore, we ask the participants to (co-)produce alternative knowledge and understandings of technology for sustainability.

This workshop calls for papers that critically engage with the questions of technology. The contributions can be philosophical, theoretical, and empirical.



The unjust transition in the making: the biopolitics of the electric car

Sofie Hellberg

School of Global Studies, University of Gothenburg, Sweden

The car is a biopolitical device. This paper dissects the biopolitics of the technological fetish of the private car. Previous research has engaged with the notion of automobility as a socio-technical institution occupied with the organization, acceleration, shaping and regulation of the movements and impacts of cars (Böhm et al 2006). According to automobility scholarship, the automobility has involved a restructuring of time and space relationships, is characterized by a privatized view of time and a desire for speed (Urry 2004). It is bound up with ideals of freedom and autonomy and has been seen as a major emitter of CO₂ but also other harmful particles. In biopolitical terms, automobility creates and fosters certain lifestyles, (re)distributes risks unevenly and normalizes causes of death. In the green transition, this regime is sanctioned since electrifications of vehicles is seen as key to emissions reductions. In this process, energy intensive lifestyles are allowed to continue for those who can afford to buy an electric car. Moreover, the inherent risk shifting of the car is enhanced as electric cars are heavier and quieter, posing increasing risks to vulnerable road users such as pedestrians and cyclists locally. They also shift risks as pollution is transferred to other geographical contexts globally. These areas, often situated on indigenous lands, are put at risk since mining activities risk polluting land and water because of the need for material and minerals for batteries. Through a biopolitical analysis, this paper draws attention to the unequal and differentiated effects on different populations and individuals of electric cars. Ultimately, this paper argues that the electric car is materially and symbolically the unjust transition in the making.



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Making space for multiple risks in the midst of singular hype: Hydrogen techno-optimism in maritime logistics

Nina Janasik¹, Emilia Luoma², Mikkel Knudsen³, Maija Nikkanen¹, Janne Hukkinen¹

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As part of the attempt to address the global crisis of climate change, maritime logistics is currently undergoing a shift or “transition” away from its main fossil-based energy sources. The transition is envisaged to be both “green” (involving renewables) and “digital” (involving various kinds and processes of digitalization). Much hope is placed on “the new hydrogen economy” involving the build-up of infrastructure for hydrogen-based “alternative fuels” such as, e.g., methanol and ammonia. Indeed, grand claims have been made that this new hydrogen economy will “revolutionize” maritime transport. The hope behind the hype is based on what is taken to be an insight on the performativity of hypes: making much ado that some technological phenomenon will eventually materialize in innovation and business practices. In this paper, we critically analyze the current hydrogen hype in the field of Finnish maritime logistics as a paradigmatic case of performative techno-optimism. Making use of the notion of “transition risks”, that is, risks that emerge from the attempts at mitigation of and adaptation to climate change themselves, we report on the results from ten expert interviews and two participatory and deliberative expert workshops on hydrogen-based alternative fuels explicitly attempting to address such possible, plausible, and probable transition risks. Such risks can be either potentially harmful side effects of individual climate policy measures or wider systemic disruptions stemming from decarbonization processes. In the workshops we focused primarily on the latter, making use of both verbal deliberation and on-the-spot Bayesian causal mapping. More specifically, expert stakeholders were tasked to devise pathways for a transition to the new hydrogen economy. Our preliminary results indicate that the devised transition pathways produce their own problematic transition risks, on which there is little space to deliberate amidst the hype/dominant frames of Finnish maritime logistics.



Did (post-)sustainable education forget technology?

Pasi Takkinen

Doctoral Programme in Education and Society, Tampere University

Post-sustainability is an emerging term especially in education scholarship. As this term challenges the technologically optimistic sustainable development paradigm, it might be expected that technology would be critically thematised in post-sustainable educational literature.

This paper presents a systematic literature review of post-sustainability literature in educational context. The literature will be analyzed by using a 'White – Ellul' demarcation to find out if the root cause behind the current post-sustainable predicament is seen to be flawed relation with nature (after Lynn White jr.) or flawed relation with technology (after Jacques Ellul). The preliminary screening of the data confirms the hypothesis, that the main focus is on human-nature relationship (White), while human-technology relationship (Ellul) is rarely thematised. This means that 'post-sustainability', as an emerging term, doesn't seem to raise technologically critical discourse in educational scholarship, even if one could argue that there could be potential for that.

Also, preliminary screening made visible a third root cause or diagnosis commonly thematised in the literature, namely the critique to economic/capitalist structures.

The conclusions part will aim to answer two questions:

- a) Why does post-sustainable literature, as a supposedly critical discourse, fail to thematise and criticize technologically optimistic views on sustainability?
- b) What does the clear emergence of 'economic critique' indicate? Does it link with the debate over the question, if the actual problem is capitalism rather than technology? Or does it mean that 'economic critique' is more familiar and acceptable register, while the critique of technology is felt difficult. Finally, could some of the economic critique be interpreted as critique of technology, thus following the Ellul-hypothesis?



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Workshop 23: Working with nature: embodied knowledge and the labours of (un)noticing

Convenors: **Houtbeckers, Eeva** (*University of Turku*), **Kallio, Galina** (*University of Helsinki*), **Lahikainen, Lauri** (*Tampere University*), and **Lonkila, Annika** (*Finnish Environment Institute*)

The era of increasing urbanization, alienation from the natural environment, growing digitisation and algorithmic futures is prompting some people to seek and form a stronger bond with the natural environment through their working life. Examples can be found in, for instance, back-to-the-land movement, maker and doer movements, greening of jobs, small-scale farming and community supported agriculture, and initiatives for restoring and protecting nature. All these phenomena include paid and unpaid labour, and work beyond traditional wage labour norms and institutions. These new forms of work create new ways of knowing and understanding more-than-human nature.

At the same time, working with animals and ecosystems may require willful ignorance and unnoticing. For example, certain forms of forestry depend on knowledge production that ignores the role of biodiversity for human and more-than-human flourishing, and industrial animal production is premised on not noticing that animals are conscious and capable of emotions, relationality, and suffering.

In this session we are interested in how people create relationships with the natural environment through their work and how these relations are (un)noticed. To better understand how knowing and unknowing emerge in these multispecies labouring relations, we treat work as a site for embodied knowledge. Examples of such embodied engagement in different landscapes, include but are not limited to, agriculture, forestry, as well as work in industrial settings, and blue- and white-collar jobs. These embodied ways of knowing are partial and relational, and understanding them requires skillful listening and translation, and attention to unknowing and ignorance.

Regardless of how conscious people are of the fact that their work is part of multispecies communities, their knowledge and practices are always generated in them. How could more-than-human ways of knowing be allowed to speak back to, for example, academic knowledge production?

We are interested in presentations that explore knowledge and embodiment in working with nature, nature-work relationships, and the work done to enable such studies. We invite empirical, theoretical, conceptual, methodological, and artistic proposals that may focus on multispecies work, more-than-human labour; embodied knowing and learning in multispecies



communities; knowledge production about and in multispecies communities; forms of ignorance and non-knowing regarding more-than-human labour; soil work; work beyond paid labour; ecological livelihoods; everyday work, work practices and/or methodological choices and questions.



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Rethinking peatlands: Exploring diverging care practices within Danish agricultural peatlands

Freja Marie Hegelund

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Positioned as a pivotal element in achieving up to 50% in emissions reduction from the agricultural sector, peatlands assume a paramount role in Denmark's green transition of the sector. Historically cultivated and drained by farmers, the current transformative process of restoring and rewetting peatlands is characterized by inherent controversies in knowledge, practices, and perceptions. Tensions emerge notably between national policies, public authorities, and local farmers intimately connected to these lands. This paper explores how the controversies and negotiations between public authorities and conventional farmers can be understood through a conceptual lens of disrupting and contradictory care. Understanding care both as an act of *caring with* central to the socio-ecological production and reproduction of landscapes (Tronto 1993; Harcourt 2023) and as myopic and self-preserving (Hultman and Pulé 2018) the paper advocates for a broadened perspective on care within conventional farming encompassing contradictory practices and knowledges with different scopes at various scales that both collide and merge in peatland restoration efforts. This approach illuminates the complexities inherent in restoring, maintaining, and remaking degraded agricultural landscapes, acknowledging both intentional and unintentional ignorance embedded in nature and landscape restoration efforts. The paper concludes by providing perspectives on how a focus on diverging and ambivalent care practices both within the farm and beyond open new ways to reconceptualize agricultural landscapes in times of ecosystem degradation, climate mitigation and negotiations between different forms of knowledge and care practices.

Keywords: Care; Knowledge production; Peatlands; Restoration; Agriculture

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Who intervenes for transformation? Worker agency as a deep leverage point

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In the times of polycrisis, work is gaining meagre attention as a site of ecosocial linkages, responses, and reconstruction. Despite pioneering efforts by some scholars and organisations, the everyday work of human and more-than-human actors is understood mainly as wage labour and taken for granted in many proposals focusing on sustainability transformation. To find deep leavers, I treat work as a site of transformation and elaborate the concept of worker agency (Taipale & Houtbeckers, 2017). Worker agency, including labour and employee agency, epitomises the manoeuvring space of workers as part of global production and destruction networks. How could worker agency act as a deep leverage point?

Because degrowth and postgrowth literature host discussions beyond the status quo, I have explored their proposals on work. In this presentation I analyse the intersection of degrowth / postgrowth and work and ask, "who is doing (or is proposed to do) the intervening for transformation" (Doringer et al. 2020). Moreover, I present empirical examples from the standpoint of workers from two research projects, namely "Postgrowth work and livelihoods" and "Postfossil working life". Together they include 43 interviews with professionals in private, public, and the third sector.

Based on ongoing analysis, scarce focus on work as a site of transformation is partly explained by the reluctance to identify deep levers in related discussions, partly also in the degrowth and postgrowth literature. This presentation suggests pathways for identifying deep levers in the intersection of work and sustainability transformation and, thus, aims to aid the multidisciplinary field to focus on ecosocial linkages, responses, and reconstruction.

Keywords: Worker agency; Sustainability transformation; Postgrowth; Degrowth; Standpoint; Deep leverage points

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Eco-anxiety at work – Implications for occupational safety and health policy and practice

Fanni Moilanen, Jarno Turunen, and Anna-Maria Teperi

Awareness of climate change is causing significant anxiety and uncertainty about the future. According to a survey conducted in Finland, every fifth employee is very or extremely worried of climate change. Some employees cope with their climate worry by shifting jobs, and even by transitioning outside the traditional labour market. However, not everyone has the capacity or opportunity to change occupation or workplace due to climate concern. In addition, some jobs are crucial to the proper functioning of society despite containing elements that are harmful for the climate.

There is a need for increased research attention to address and understand eco-anxiety and coping with it at work, considering its risks for employee well-being. For instance, eco-anxiety may be experienced in distinct ways in different occupations. Work perceived as environmentally harmful can cause eco-anxiety, but processing of environment-related information at work can also be a source of eco-anxiety. Even though eco-anxiety is somewhat common among employees, different occupations may have unique stressors and coping mechanisms, which have gained limited research interest. The question arises whether eco-anxiety could serve as a foundation for more sustainable human-nature relationship in working life, fostering collective and transformative responses to climate crisis.

The presentation is divided into three parts. First, it reviews previous research on eco-anxiety at work. Second, it presents survey research findings collected from both OSH specialists (n=521) and employees (n=1917) in Finland. The analysis highlights the level of climate anxiety among these groups and identifies employees who perceive their work causing environmental distress. Third, the presentation explores support mechanisms and guidance for employees to process eco-anxiety.

Due to rising eco-anxiety among workers and awareness of current unsustainable work-environment relationship, employees' eco-anxiety should become a focal point of interest among OSH officials, labour unions, policymakers, employers, and all workers.



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Healer trees and multispecies care labor

Jenni Puroila

In the Nordic region, the forests have always been culturally important in several ways. Recently, however, the interest in forest-based healing practices has grown along with the body of research that proves the therapeutic well-being and health effects of trees and forests. The growing awareness of these therapeutic well-being and health effects of natural environments, together with the nostalgic search for reconnecting with nature, has arguably led to a search for forest-based healing practices. Drawing from an ethnographic study of forest-based healing practices in Sweden and Finland, this paper explores more-than-human care work(ers) as part of healing forest imaginaries. Recognizing how forests, trees, and other beings of more-than-human nature actively co-constitute healing experiences allows us to challenge the view of nature as a mere context for these practices. This active collaboration with more-than-human nature allows us to explore the configuration of a 'healing forest' and the different forms of care work more-than-human engage with as part of healing forest imaginaries.

This paper relies on the assumption that the root causes of the ecological crisis in the era of the Anthropocene result from the problematic socio-ecological relations, the ways in which humans relate to the 'nature' around us, as well as 'nature' within ourselves. The imagined separation of human from nature has resulted in extractive and manipulative practices, but also feelings of alienation from the natural world, as the multispecies entanglements have remained unacknowledged (Neimanis et al., 2015). Feelings of alienation are also part of the reasons why people want to engage with and work with practices that allow them to (re)connect with nature. Research among these practices provides important insights to account for how organized systems are co-constituted, entangled with and dependent on other nonhuman entities. Unsurprisingly, when nature has been 'out there,' dominant theories present the organization of social and cultural practices and care simply as human endeavors (Ergene et al., 2020).

Theoretically, this study contributes to the literature on more-than-human organization research by employing the concept of laboring to explain multispecies care relations (e.g., Puig de la Bellacasa, 2017). Extending the emerging debate among more-than-human and multispecies labor processes to include plant-life and forest ecologies provides novel insights into the current literature. The results of this study are presented in the form of healing forest imaginaries. The imaginaries configure phytomorphic, anthropomorphic, and technomorphic entities engaging with varying forms of affective care work. The results allow us to discuss nature-culture entanglements and how these practices exercise the ability to respond to and notice the surrounding more-than-human work. Acknowledging the care work of other species has important ethical implications for alternative forms of organizing in the Anthropocene.



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Unfolding Sense of Water: conceptual framework to explore caring for water

Katriina Soini¹, Juha Hiedanpää¹, Riikka Latva-Somppi², Himansu Mishra¹, Maarit Mäkelä², Taru Peltola³, Mia Pihlajamäki^{1,2}, Kati Pitkänen³, Matti Salo¹, Kristina Svells¹

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The societal and environmental challenges we face due to climate change, biodiversity loss and other environmental crises call for novel ways to understand and communicate about ecological changes to mobilize actions. Diverse and inclusive ways of knowing including new narratives and concepts can capture and convey deeper meanings and emotions, and foster individual and collective care i.e. practical actions, moral responsibility and attentiveness towards all living organisms and their environments. Water is connecting humans to nature and other people both in a metaphysical and material sense and it is interwoven with humans' survival and quality of life. Various environmental changes are increasingly becoming visible, sensible and tangible for us through different manifestations of water: floods, droughts and pollution also in Finland calling for new type of agency towards water and natural environment more broadly.

Consequently, our starting point is that there is something we call the *sense of water*, a shared individual and collective space in which situated knowing, feeling, and acting with and around water takes place. In this article we explore and unfold sense of water as if it was – or could emerge as – a boundary concept to express and communicate about meanings of water and creating agency for water. We are interested in especially about the architecture of the concept, i.e. associated concepts *sense of water*. To unfold sense of water we co-created a transdisciplinary framework, which can be considered as a boundary object for unfolding different *sense(s) of water* and in that way assist in discussing water related matters and conflicts. We further co-created the concept by discussing the framework in different contexts with diverse stakeholders and informants along continuous transdisciplinary reflection.

In this paper we 1) identify the theoretical underpinnings and conceptual behind the *sense(s) of water*; and 2) describe a transdisciplinary methodology for co-creating the framework for *sense(s) of water*. Finally, based on our initial findings 3) we assess co-created the framework against the five criteria suggested by Franco (2013) that are needed for a framework to facilitate knowledge exchange and action, and thereby becoming a boundary object.

A banner for the NESS2024 conference. The background is a sunset over a cityscape with a prominent church spire. Overlaid on the left is a teal box with the text 'Welcome to NESS2024' in white. Below it is a white box with the text '4-6 June 2024 | Turku, Finland | ness2024.fi' in teal. On the right side, there is a stylized white logo consisting of two overlapping shapes, one resembling a tree and the other a person or figure.

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Workshop 24: Engaging with citizens and notions of citizenship in mobility and transport research and practice

Convenors: **Henriksson, Malin** (*The Swedish National Road and Transport Research Institute (VTI)*). **and Oldbury, Kelsey** (*The Swedish National Road and Transport Research Institute (VTI)*)

To reach sustainability goals, a transition of the transport system is necessary. Regardless of what form the transition will take, it will inevitably affect the everyday mobility of citizens. Scholars suggest that citizen engagement is a vital part of transition processes as it can strengthen the legitimacy of sustainability policy. Other research highlights that reactions against sustainability policies can also galvanise protest movements. This emphasizes the importance of understanding the manifolded aspects of sustainability policy on the public. There is therefore a need to rethink what citizenship and citizen engagement in transport and mobility research and practice is and can be.

Compared to environmental and energy research, there is an absence of literature on mobility and citizenship approaches which explores various aspects of citizenship in the transport sector (Sørensen, Hanson & Rye, 2023). When citizens are engaged in mobility project, they are often understood as passive users or market agents (Ryghaug & Skjølsvold, 2021). In fact, the citizen role is one among many, alongside other roles such as users and customers. We are interested in comparing these different roles and discussing the particularities for citizen participation in this context.

As scholars, we need to document, analyse and critically comment on current initiatives and suggest new modes of thinking related to citizenship, citizen engagement and mobility. In line with Spinney, Aldred and Brown (2015), in this workshop we understand citizenship as more than membership in a national state, but as processual and embedded in social and material relations.

We welcome papers that raise the following topics:

- Examples of citizen participation/engagement in transport planning or mobility/transport research (experimentation, living labs etc.)
- Transport policy and legitimacy
- Citizen-led initiatives to support or resist sustainable transport transitions
- The role of citizens in a future sustainable transport system
- Inclusion of excluded groups: low-income groups, ethnic minorities, children etc.
- Critical reflections of the notion of citizens, citizenship, or citizen participation, possibly in relation to other terms such as publics, users, customers etc.



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Exploring Exchange and Influence Legitimacy in Sustainable Urban Mobility Schemes: A Case Study of Kristiansund's City Package

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This study investigated the political legitimacy of sustainable urban mobility (SUM) measures within the City Package (KCP) implemented in Kristiansund, Norway. Previous mobility literature highlighted that most previous research focused on larger Norwegian cities (Tennøy, 2022) leaving smaller cities under explored. Smaller cities differ in landscapes and population density making it challenging to apply insights from larger cities directly. Using Suchman's (1995) exchange and influence legitimacy frameworks, this single-case study explored how pragmatic political legitimacy is constructed in smaller cities with unique geographic and socio-economic contexts. Hence, it sought to answer the following two research questions: What decision-making processes were employed in Kristiansund's City Package? How are exchange legitimacy and influence legitimacy expressed in these decision-making processes?

Document and media content analyses reveal that KCP's decision-making process was largely top-down, with minimal public engagement beyond non-interactive consultations, aligning with previous findings in SUM literature (Gergis, 2024). The study identified two primary challenges: an inequitable distribution of the toll burden and limited influence legitimacy due to non-interactive public participation opportunities. While tolls fund substantial infrastructure improvements, benefits remain unevenly accessible, notably disadvantaging commuters reliant on tolled routes, echoing Sørensen and Paulsson (2020) insights on distributional fairness. Despite measures to enhance public engagement, stakeholder influence was predominantly concentrated among state actors, aligning with findings on SUM governance in Norway (Tønnesen et al., 2023).

The findings underscored the necessity of tailored SUM policies that account for the distinct needs of smaller cities, where geographic and infrastructure constraints differ significantly from larger urban contexts. This study contributes to SUM literature by highlighting the importance of equitable policy designs that foster public acceptance through both material fairness and enhanced participatory mechanisms, as advocated by Banister (2008). It recommends implementing interactive engagement strategies, such as mini-publics, to improve the legitimacy and social acceptance of future mobility initiatives.

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Keywords: City Package; Kristiansund; Influence legitimacy; Exchange legitimacy; Sustainable Urban Mobility.

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Between or Beyond Bicycles and Cars? Navigating E-Cargo Bike Citizenship in the Transition to Sustainable Mobilities

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E-cargo bikes have recently gained interest in academic and policy discussions for their potential to replace cars for some trips. Like conventional bicycles, they require pedalling, produce little emissions, and can use cycling infrastructure while offering greater capacity for transporting passengers and goods, similar to cars. Yet, in addition to mode shift, a change in identities, culture and, we argue, citizenships, is needed to challenge the dominance of automobility. This article introduces the novel concept of 'e-cargo bike citizenship' to understand how e-cargo bikes challenge both automobility and vélomobility in the transition to more sustainable mobilities. We analysed 108 interviews with e-cargo bike users in the suburbs of Brighton, Leeds, and Oxford, conducted during a research project offering trial loans of e-cargo bikes. The results indicate that e-cargo bike citizenship broadens cycling identities and normalises cycling, particularly in contexts where cycling has negative cultural associations. Additionally, e-cargo bike citizenship is for many a family citizenship, contrasting with the individual nature of cycling, and contesting the norm of motorised family mobility. E-cargo cycling also enables interactions 'on the inside' between the rider and passenger(s) – reminding us of automobile citizenship – while being connected 'on the outside' to their local community – echoing cycling citizenship. Our findings contribute to existing research on cycling citizenship by considering the e-cargo bike's hybrid position, beyond cars and bicycles, and highlight the significance of citizenships and identities in the mobility transition. We specifically focused on domestic e-cargo bikes, whereas previous studies have primarily addressed their role in sustainable last-mile logistics. Our recommendations for UK policy include expanding Cycle-to-Work schemes to cover the relatively expensive e-cargo bikes and promoting utility cycling beyond commuting, such as grocery shopping and school runs.



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Inclusive (Value) Co-creation in Sustainable Urban Mobility – A Small Finnish City's Case

Suzi Kimura and Mika Hakosalo

Purpose – With the current urgency towards sustainable urbanization, mobility has gained significant attention. It is a critical component of city planning, especially in small cities where the impact of decisions can be felt more directly by the community. While the importance of co-creation as a form of public participation in city's solutions (e.g., mobility) is compelling, the reality in practice can be quite different. Despite the recognized importance of co-creation, it is not yet widely implemented in city planning (e.g., when designing new solutions), due to certain challenges. This study explores the importance of citizens participation in a co-creational context of a transportation solution. We examine the development of special service with busses in small city in Finland. The purpose of this paper is twofold: first, to understand how the three actors (the City, the service provider, and the citizens) involved in co-creation, overcame challenges to deliver a solution carrying value to all of them. Secondly, what is the value value created by and for those actors.

Design/methodology/approach – Data collection took place throughout the entire process of co-creating a mobility solution. Interviews with key stakeholders (decision-makers) provided evidence of how the five co-creational innovation phases unfolded. To understand how customers participated in the creation and testing of the service, data from public documents and social media were collected.

Findings – The quality and timeliness of interactions and ameliorative actions are important factors in a project with limited time, budget constraints, and significant risks of failure. To address the interests of all stakeholders involved in co-creation, a combination of management skills, motivation, and flexibility exhibited by decision-makers (from both private and public sectors), along with support from the organizations involved, were key elements in creating a solution that meets the expectations of citizens.

Research limitations/implications – Further research on larger transport systems could examine the same topic and potentially reveal additional elements affecting the co-creation of mobility solutions, as well as the role of co-creation in city planning and the design of sustainable solutions.

Practical implications – This study adopts a co-creation model for innovation, offering practical insights into the nature of interactions and actions during co-creation. In addition to understanding how different actors integrate their perspectives and optimize resources, this



work demonstrates that co-creational interactions, driven by a shared attitude and objective to address ongoing challenges, can lead to desired outcomes.

Originality/value – While the importance of co-creation in public services is recognized in the literature, practical experiences and its dynamics in different contexts need further exploration. This study presents a case demonstrating how value co-creation occurs by applying models and concepts from the literature to understand the intersection of co-creation in both the public sphere and business and management theory. While value creation is often discussed in terms of business and users/customers, this work highlights the value created for and by the City Administration with inclusive participation of citizens, many of whom are non-users from the service providers' viewpoint.

Keywords: Service Research; Co-Creation; Participatory Planning and Design; Mobility Solution; Interactive Value Formation; Public Service Organization (PSO); Public Value Governance; Mobility



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One Bicycle at a Time - An Autoethnography of the Communicative Potential of Spatial Practices

Annika Wappelhorst, Paola Sartoretto, and Anilla Till

“We aren't blocking traffic, we are traffic” – a popular slogan coined by organizers of Critical Mass, a mass bicycle ride that started in San Francisco in 1992, to this day organized in cities around the world. According to the organizers of this grassroots citizen initiative, cycling should not be considered a nuisance to the car-centric city or the dominant ‘automobility system’, but rather a significant alternative in its own right. We seek to find out about the applied communication strategies of Critical Mass, and how occupying space in the city can be conceptualized as a communication strategy.

According to a report by the European Parliament, over 70% of greenhouse gas emissions from the transport sector in the EU are due to road transportation. Even more than public transport, bicycling is an eco-friendly, accessible form of mobility. Critical Mass allows cyclists to feel part of a local community of cyclists and build their identity around this activity, and it has the potential to pave the way to more bike-friendly urban politics. We rely on a qualitative research design, using autoethnography based on the authors' engagement with Critical Mass and bicycle activism. Our research, therefore, focuses on initiatives that follow the model of Critical Mass to organize bike demonstrations. We investigate several European cities in the Nordic countries and elsewhere, with diverse infrastructural conditions and cultural understandings of transport.

Our expected results include elements that compel more people to participate in Critical Mass rides in certain places than others, highlighting the key best practices that lead to citizens' engagement for pro-environmental practices like bicycling.



Workshop 25: On the fringes of Nordic urban sustainability

Convenors: **Saari, Heini-Emilia** (*London School of Economics and Political Science (LSE)*) and **Meriläinen, Eija** (*Örebro University*)

What do urban sustainability transformations look like from the fringes of urban society? What kinds of places, perspectives, or relationships do city-centric climate agendas exclude or obscure? How do urban sustainability projects reshape rural imaginaries, landscapes, and livelihoods, and vice versa? From where and how might radical alternative imaginations for sustainable futures be constructed?

Rapid urbanization and urban expansion in the face of the climate crisis have recast cities globally "from a sustainability problem (...) to a sustainability solution" (Angelo & Wachsmuth, 2020). Not only are cities often particularly vulnerable to the ramifications of climate change, they are also considered the essential sites for envisioning sustainable future life. This 'eco-cityism' (Janos, 2020) coincides with a lively debate in critical urban studies that has deconstructed and defamiliarized cities as normative sites and objects of analysis. Urban scholars drawing on postcolonial (see Jazeel, 2018; Roy, 2016; Simone, 2020), feminist (see Peake, 2016; Peake & Rieker, 2013), and critical theory (see Brenner & Katsikis, 2021; Brenner & Schmid, 2015) have reconceptualized the urban and the rural as incomplete, uneven, and contested historical categories, and urbanization as continuous and multisited rearrangement rather than linear development centred on cities.

These ideas carry critical implications to the study of urban sustainability. To examine and evaluate how aspirations and projects for sustainability are remaking urban life and space, we argue that analyses must expand focus from cities towards territorial relations, politics, and imaginations. Moreover, instead of totalizing visions, climate interventions to rebuild "non-destructive and viable ways of life" (Malterre-Barthes & Dzierzawska, 2021) must be attuned to and informed by diverse everyday realities, as well as the uneven power relationships and social effects they reproduce across wider geographies. To do so, researchers need to expand focus from the icons and moonshots towards the ordinary, the in-between, and the incomplete.

This session explores and expands critical geographies of urban sustainability in the Nordic countries. Given the unique trajectories and patterns of late industrialization and urbanization in northern Europe, there is both fertile ground and a pressing need to engage with ideas and processes of urban sustainability beyond urban centres and epistemic cores. We thus invite contributions interrogating Nordic ideas, spaces, or processes of urban sustainability through the fringes (Ortega, 2020); including, but not limited to, urban or industrial margins (Anguelovski et al., 2018; Janos, 2020), constitutive outsides (Jazeel, 2018; Roy, 2016), suburban peripheries (Keil, 2020), ruins (Lowenhaupt Tsing, 2015; Paprocki, 2019), or frontiers (Knuth, 2016; Safransky, 2014; Wachsmuth et al., 2016).



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This workshop calls for empirical and theoretical papers considering any of the following aspects of urban sustainability:

- Locations, relations and circulation of raw materials, resources, and knowledge for urban (or rural) sustainability transformations
- Role of crises and emergencies
- Role of and impacts on urban space, architecture and planning
- Political polarization, spatial conflicts and mobilizations around sustainability transformations
- Contradictions and paradoxes of sustainability discourses and practices
- Geographies of 'sustainable' consumption and production
- Particularities of Nordic contexts, histories, imaginaries, or politics of urban sustainability

We welcome contributions outside of these topics as long as they respond to the overall theme of the session.



Hunting auroras: Unveiling un/sustainable urban tourism futures in the Finnish Arctic

Auni Haapala

University of Lapland

Research has documented the diverse exploitative socio-ecological effects of intensified tourism worldwide, including in the Nordic regions. Nevertheless, many northernmost cities are increasingly envisioning their futures as 'sustainable' travel destinations, appealing to international visitors drawn to the "magic" of the North. This is also evident in the city of Rovaniemi, Finland, where plans for rapid tourism growth are coupled with sustainability promises. In this paper, I discuss the extraction and commodification of northern nature under the guise of sustainable tourism by engaging in dialogue with critical tourism and urban studies, sustainability research, and feminist critique. I contextualise the dynamics of urban tourism in Rovaniemi in the continuum of historical colonial and masculine legacies, which have largely framed the (urban) developments in the north.

More precisely, I unfold the material and discursive practices through which the promises of sustainable tourism are produced and maintained within contemporary northern lights tourism. The analysis is based on my qualitative multimethod encounters with northern lights 'hunting' in Rovaniemi in the winter seasons of 2022–2024, including attendance to organised aurora hunting tours, semi-structured interviews, and observation in the city spaces. I bring the atmospheric phenomenon, and the tourism visions and promises tied to it, down to the local grounds to analyse the tangible, expanding and often unpredictable material implications it contributes to. I then identify three particular promises embedded in the contemporary aurora hunting and discuss their material arrangements: first, the promise of controlling northern lights through technoscientific rationalisation; second, the promise of Arctic exotism, and third, the promise of the city as a "wild" space without limits.

As tourism in the Arctic continues to expand, its local and global sustainability implications are constantly being debated. I argue that the feminist material engagements with northern lights tourism practice provide an interesting window to scrutinise the un/sustainable hopes tied to the future tourism visions. The paper contributes to the emerging literature on sustainability transitions in the Nordic Arctic, specifically from the understudied urban and feminist perspectives. The findings of the paper highlight the need to critically examine how claimed sustainable tourism practices—shaped in, by, and through urban spaces—perpetuate enduring colonial and techno-masculine visions of the Arctic.



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Problematizing Ideas of Urban Segregation: Tracing Spatial Justice in Swedish 'Vulnerable Areas'

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In the context of Swedish policymaking, the notion of 'vulnerable areas' has risen to prominence, shaping policies and strategies aimed at addressing social exclusion, alongside issues related to crime and immigration policy. Vulnerable areas are identified by Swedish Police Authority as residential areas with a low socio-economic status where the criminals have an impact on the local community. The term is widely employed as an alternative classification for segregated urban areas, significantly influencing policies, strategies, and practices aimed at mitigating social exclusion and spatial inequality. This paper examines how the prevailing notion of segregation as the 'problem' is reflected in Swedish public policy and how this is translated into formal planning processes in efforts to find solutions.

The study is grounded in empirical research conducted in Fittja, a vulnerable area in Botkyrka municipality, Stockholm. Drawing on problematization approach, the research employs in-depth interviews with planners and other intervention agents, to examine their pursuit of spatial justice within urban development projects. The focus is on examining how planning processes tackle inherent spatial injustices in vulnerable areas and how dominant problem representations influence the organization of urban spaces. The findings underscore the profound influence of institutionally established representation of the problem, prioritizing safety concerns in designing local public spaces.

Keywords: Area-based Policy; Planning; Spatial justice; Urban segregation; Vulnerable areas

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Building scenarios of urban sustainability for critical raw materials

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Cities are responsible for up to 75% of the current world's natural resource consumption and produce up to 50% of global solid waste (OECD 2021). So, cities play a crucial role in the circular economy efforts as approximately 55% of the global population currently resides in cities. The key question is, how could cities turn “from a sustainability problem (...) to a sustainability solution”? This is particularly noted in European countries, and thereby in Nordic cities hundreds of climate-agendas and thousands of urban sustainability projects are launched within last decade (Arnold et al., 2023).

The paper presents scenarios for increased circulation of critical raw materials (CRMs) in the context of urban sustainability transformations, using the Dator's Manoa School Four Futures framework and a participatory workshop. This strategic foresight method is based on narratives, which has been applied in urban transformation studies. The scenario narratives are developed by projecting the interrelated outcomes of driving forces of change into four predetermined archetypal images of the futures. These archetypes are: continued growth, collapse, discipline and transformation. As a result, each scenario presents unique dynamics, challenges, and roles for cities. These scenario specific strategic priorities related to the CRMs were identified as follows: 1) Continued Growth: The scarcity of CRMs is increasing the competition between cities, 2) Collapse: Each city has its own regional, small-scale development based on self-identified CRM strategies, 3) Discipline: EU mission and related regulation on CRMs is the main driver and cities are at implementation role and 4) Transformation: Global city networks are significant enabler of co-development of CRM strategies.

By exploring the configured four scenarios of continued growth, collapse, discipline, and transformation, policymakers and stakeholders can better comprehend the diverse trajectories and associated challenges and opportunities. The limitations of the scenario analysis, such as the need for further validation and action planning with relevant stakeholders, and the potential bias of the workshop participants are acknowledged. The paper contributes to the literature and understanding of urban sustainability transition and circularity of CRMs (Țăranu et al., 2020), and aims to inspire new research openings by demonstrating the interconnections and related dynamics of transition. Aligned with the current understanding of urban circularity transitions (Russel et al., 2020), the scenarios show how the critical factors of sustainability transition are highly inter-connected and may reverse their impacts in the different phases of the transition. The results indicate that at the core of the solution are elements enabling transformation at the so-called meso-level, i.e., between macro-level trends and regulations and micro-level behaviour of individuals. In that way, the scenarios may inspire new research openings, when describing the connections between the different meso-



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level development options. Thereby, the scenarios emphasize how urban sustainability bridges together multiple areas of everyday life and demonstrate the dynamic relationship of the past, present, and future.

Acknowledgements

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Workshop 26: Storytelling as, and for, Sustainability Thinking

Convenors: **Holmgren, Sara** (*Swedish University of Agricultural Sciences*) and **Wilson, Michael** (*Loughborough University, UK*)

In 2006 the sociologist and political scientist Francesca Polletta declared that “In recent years, storytelling has been promoted in surprising places” (1). In this instance she was referring to what has been called by Christian Salmon and others as “the narrative turn” (2010, 39), a widespread cultural shift towards an interest in story as a tool for communication and meaning-making. Over the past two decades those involved in sustainability communication, in particular, and those promoting learning and co-creation about, and engagement with, the unfolding climate emergency, have become increasingly interested in the role that storytelling can play in increasing levels of participation in the public discourse, especially amongst those whose voices are less commonly heard in such discussions. Storytelling is a means of capturing and communicating the experiences of those communities most vulnerable to a changing environment and that experiential knowledge can then be brought into discussion with other forms of knowledge: scientific, technological, bureaucratic, political, economic, legal, and so on.

This is storytelling as a way of knowing the world, as a knowledge system, that sits alongside other knowledge systems, albeit in a hierarchical system where it regularly sits at the bottom of the pile. Jana-Axinja Paschen and Ray Ison (2013) identify an increasing number of studies and bodies of work within sustainability science that have attempted to engage more seriously with storytelling as a tool for knowledge-sharing and resilience-building amongst communities.

Storytelling is, however, more than simply an approach for capturing and communicating knowledge. It is also a tool for co-producing knowledge. In other words, it is both a knowledge system and a thinking system, moving beyond simple knowledge creation and doing, and into the realm of future problem-solving and resilience-building. Storytelling is a process that has evolved over millennia to enable us to think about and understand the world. It allows us to test ideas of our own, interrogate the ideas of others and discriminate between truth and lies. Whilst storytelling is often equated with lies and fantasy, it is, in fact, a truth-seeking tool, one that is much needed in a post-truth world and which allows us to imagine our possible futures. The use and, indeed, abuse of storytelling in recent years is what makes it so urgent, so dangerous and so effective. As the critic and essayist John Berger wrote: “Stories are one way of sharing the belief that justice is imminent” (2016, 96).

In this workshop we invite delegates who have worked with story, wanted to work with story, or tried and failed to work with story, in relation to sustainability and knowledge co-production, to come together to share their thoughts and experiences. In other words, we invite them to



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share their stories and in doing so, we will use our stories as a way of thinking about stories, storytelling, and the rich possibilities and frustrating difficulties that such work presents for building sustainable futures.

This workshop calls for presentations and provocations on any aspect of 'story work' in relation to sustainability and knowledge co-production. Presentations may take the form of, but are not limited to, traditional academic papers, project case studies, and showcases of creative work, and may offer reflections on, for example, methodology, creative practice, community building, public engagement and policy development. We are keen to encourage contributions from a broad range of stakeholders, including researchers, practitioners, community activists, creative artists and policymakers and welcome presentations that pose pertinent and challenging questions, as much as those that suggest answers and possible solutions.

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Creative arts and public engagement for sustainability transformations

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Introduction

Whereas research argues that new narratives about sustainable societies can intervene more effectively and powerfully for system changes (e.g Fenske and Norkunas, 2017; Veland et al., 2018; Kall and Asplund, 2022), Boykoff (2019) concludes that analyses are still lacking on how creative climate and sustainability communications elicit varying levels of awareness and engagement.

To advance scholarship in the role of narratives and stories to create engagement with profound societal changes, this study focuses on how performing arts can contribute to public engagement in narratives for sustainability transformations. Following calls for more audience specific research in sustainability communication and engagement, this study focuses on the children's theater play "Esmeralda and the Dragon – The Global Sustainability Goals", and particularly asks a) how performers and young children jointly shape various sustainability narratives, and b) what cognitive and emotional frameworks the children bring in, in response to the performance experience.

The theatre play

Esmeralda and the Dragon- The Global Sustainability Goals is a story about taking action for sustainable development. The play includes the main characters Esmeralda, the Dragon Sebastian, the Flying Carpet who all come from an island far away—Terra. The story plot goes that they have come here to seek the children's help to make Terra a better place – how to end hunger, bring peace, harmony and environmental consciousness to the conflicted-affected cities Epera and Iara.

Methods

The results draws on 5 interactive performances with 82 children, in the Swedish county Östergötland, to explore how performers and audiences jointly construct meanings for the sustainability goals.

Results – engaging cognitively and emotionally with the SDGs

The empirical examples show how children's associations and experiences informed a cognitively oriented conversation, as children repeatedly gave examples of how they usually

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do at home to the question of how to access food, e.g go to the grocery store, hunting or growing vegetables. Yet, the theatre play also invited the children to engage emotionally in the Agenda 2030 SDGs. In particular, the fictional main character—Sebastian the Dragon—who lost his parents when he was a child - enabled emotional engagement among the children.

Points of discussion and conversations

The theater play “Esmeralda and the Dragon” can serve as a starting point for furthering the discussions around narratives, storytelling, and creative and performing arts for public understanding of, and engagement in, sustainability transformations. In particular, this study feeds into 3 areas of research:

- the need for new stories – between and beyond utopian vs dystopian scenarios
- the transformative power of theater – blending fact, fiction and fantasy
- What's next? Audience segmentation in creative expressions of climate and sustainability transformations

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Asplund, T., Kall, A. S., & Uhrqvist, O. (2023). Creative arts for sustainability transformations—Exploring children’s theater for the UN Sustainable Development Goals. *Elementa: Science of the Anthropocene*, 11(1).



Knowing Soils – Poetic inquiry as storytelling for diverse economies in agriculture

Sanna Barrineau

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This paper presentation works with the idea that radical solutions in agri-food systems require multiple ways of knowing soils beyond the dominant scientific practices. Using a relational lens that invites us to think with soils and taking inspiration from Gibson-Graham's (2008) performative project of diverse economies, this paper lifts our gaze to human-soil relationships and aims to bring into visibility the experiences of grassroots actors doing the work to contribute to social well-being and environmental regeneration in the agri-food context. To this end, I engage with poetic inquiry (Faulkner, 2019) as a storytelling methodology to explore connections between scientific and non-scientific ways of knowing soils through situated stories (Haraway, 1988) and to account for the agency and lived experiences of those working within this sustainability transformation.

The empirical work for this paper emerges from eight farm visits around Sweden, where farmers and landowners are engaged in a grassroots initiative piloting regenerative carbon farming methods on their land. I turn conversations from the fields and kitchens into poetic vignettes to resist the norms (van Amsterdam & van Eck, 2019) of dominant science communication I see in agri-food contexts. Poetry brings liminality; a language of creation that goes beyond the strict borders of scientific inquiry which is connected to the rhythms of human and non-human lives. In engaging with storytelling through poetic vignettes, I hope to offer a re-reading of carbon farming that evokes for readers/listeners why these participants' experiences matter politically (Burford, 2018) in imagining and enacting alternative agri-food systems. I will thus present poetic vignettes from my fieldwork which draw attention to the diversity of temporalities present in this regenerative carbon farming work. The human-soil relationships that emerge through these stories invite pause – what gets overlooked with the prioritization of urgent climate and agri-food discourses? Where can poetic inquiry lead us?

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Narratives For Change

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Since 2020, the European Environment Agency (EEA) has collaborated with the European Centre for Governance in Complexity to produce what we call "Narratives for Change" (N4C). N4C build on the insight that major sustainability transitions are systemic and complex and call for deep transformative change. Part of the challenge is to rethink what is at stake and what is possible, to identify and counteract mental and institutional lock-ins that impede change. While there is abundant academic literature that contributes to the task, the N4C series differs in the sense that it engages in institutional storytelling, aiming to change the narrative within the genre of policy briefs.

A narrative for change is something else than a narrative of change. It is not primarily a story about something changing or something that must be changed. It is a narrative that proposes the reframing of an issue to inspire and empower individual and collective agency. In a finite world, to sustain requires trade-offs; compromises, sometimes painful, on what to keep and what to let go. A successful N4C opens new dimensions of thought into new trajectories of action. It does so by combining knowledge, culture, experience and reason in a storyline that questions whether something is necessary or the only way forward (e.g., economic growth, or technical fixes, or a certain societal arrangement). In short, it proposes a reframing of values, needs or priorities.

So far, six such N4C briefs have been published, on topics of economic growth, innovation, pandemics, agriculture, biodiversity and public participation. In our paper, we will illustrate the N4C and share our experiences and reflections as they created traction (some more, some less) in the European policy landscape.

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Spirit of the Forest: An Interactive Comic Book about the Future of Sustainable Forest Management

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Interactive comic books are an innovative means of expression through which creators rely on a cross between adventure games and comic books to allow readers to decide how the story develops by choosing where the protagonists go, what they say, and what they do. These formats have the potential to appeal to multiple senses, making these productions a powerful tool to harness the power of storytelling whilst allowing space for reflection and critical debate. The interactive comic *Spirit of the Forest* tells the story of Emilin, who becomes deeply concerned about the disappearing forests in her hometown and takes drastic actions to protect them. However, her actions have unintended consequences. Emilin is visited by the

spirit of the forest, who takes her on a journey through time, leading her to reflect on the complexity of forest management and the importance of finding sustainable solutions through the eyes of different stakeholders. The story concludes by suggesting different possible career paths for Emilin. The target audience is young adults who actively and critically engage with the concept of sustainability and are looking for meaningful career paths that will allow them to shape a sustainable future. Instead of presenting ready-made solutions, the story allows readers to understand the complexity of the sustainability debate surrounding European forests. The comic book was published in October 2024 and can be found here: <https://foresteurope.org/comic/>. As we embark on communicating about the project, we are looking forward to exploring how it is received by our target audience (and beyond) in different countries. Beyond exploring avenues of further improving the

product and its impact, we are also interested in deepening our empirical assessment and theoretical understanding of how storytelling can be enhanced through new media such as interactive comic books. We are open for collaboration with colleagues from the NESS community to further develop this approach.



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Why Are Climate Stories Hard To Tell?

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Oral storytelling has always been deeply infused with an ecological sensibility. Nanson (2021) and Gersie et al (2014) explore how practitioners work with story as a mode of engaging emotionally with the natural world, animating it in over-mediated times, and exploring our interdependence with it.

Where ecological stories have a single protagonist, local human cause, and immediate ecological effect, storytelling is relatively easy. But the climate and ecological emergencies are hyperobjects (Morton 2016): infinite, global, networked, existential, over multiple timescales. We might dramatize the spirit guardians of a local forest, but how about the global finance system? The climate crisis is untellable - but if it's *not* there in your stories, you are telling of a fantasy world.

Yet perhaps we don't need stories 'about' climate change, but of lives played out amongst it. To avoid the polarities of dystopia and utopia; to find the sense of purpose that lies at the eye of the storm; to become emotionally literate, skilled operators on these shifting sands; to explore the genuine possibilities for change on both hyperlocal and global scales.

My storytelling collaborator in Adderstone, Gemma McDermott, and I found our starting point for this in our own experiences as mothers, collaborators or teachers of a particular kind of young person we called 'the sensitive children'. Young activists, school refusers, the anxious, the too-observant ones, those who feel deeply. Our performance *CHANGELINGS* (2023-), explored in depth in Heinemeyer (forthcoming, 2025), distils this experience into the crucible of Celtic mythology.

[CHANGELINGS extract 1 \(THE GIRL AND HER MOTHER\)](#)

How can stories make space for complexity, phenomena that unfold over long timescales and wide geographies? Including alarming graphs and statistics in a performance won't help audiences bridge the gap between the individual life and the iceberg. We need to start with experience, relationship.

With the crone. The old Celtic winter goddess, the Cailleach Beara, is eco-gothic enough to hold entire systems in her grasp. Her impotent grief is a vessel for what the audience already knows.

[CHANGELINGS extract 2 \(THE CAILLEACH\)](#)

There are other voices to attend to. Climate stories are also tricky because they have collective heroes, and they don't usually get a hero's journey with a satisfying conclusion.



Our additional knowledge and wisdom can come from real stories on the climate frontlines, from communities who are grappling more closely with the hyperobject - particularly from the sensitive ones in those communities...

CHANGELINGS extract 3 ([CRABFISHER AND RAINMAKER](#))

No story can offer a route out of uncertainty in this case. Kirby and Webb (2023) ask adults and youth to 'gather around the thing' of climate change, to pool our knowledge and our uncertainty.

There are no magical solutions, but nor are we doomed by deterministic fate. Other worlds and ways are possible; there are spaces with emergent properties. For us, the Cailleach's cave, a never-never convention of the sensitive children, became such a collective space of catalysis and potential.

Where might the sensitive ones lead us if we show ourselves ready to be guided by them?

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A climate change talanoa: exploring creative possibilities for a hopeful future

Simon Hollis and Winston Halapua

This article explores creative possibilities for climate action through talanoa (a form of dialogue practiced in the Pacific Islands). Built on inter-subjective empathy, the dignity of persons and reciprocal justice, engaging in a talanoa creates a relational space for reflecting on the profound questions of planetary life. While a talanoa is usually produced *face-to-face*, this article demonstrates how a talanoa can also be achieved across-space between a political scientist in Sweden and the Archbishop emeritus of Polynesia in Fiji. Together we reveal the value of talanoa as a powerful medium for empowering climate change action. The content of the talanoa is critical of a scientific worldview that maintains a gap between humans and nature. Instead, emphasis is placed on relationality-as-knowledge, the importance of integrity and actively listening to the voice of nature. Values are thus taken seriously as a form of transformation and a source of hope and justice.

The paper I presented at the NESS workshop on storytelling has been accepted for publication in AlterNative.



A narrative which pursues sustainability by combining mathematics and poetry

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How can mathematics and poetry be combined, and how could the combination pursue sustainability? Here I discuss the combination with the aid of my own work of poetry, *Just maths: Lavender of the ideal* (Kauppinen 2023), which promotes sustainability and includes both mathematical and poetic language. The paper discusses, how poems can be used to elaborate sustainability; what type of connections can there be between mathematics and poetry; and demonstrates, how to build a combining narrative to pursue sustainability.

Mathematics is employed as the principal language of technology, and therefore its instrumental use is embedded into the natural sciences (for the historical development, see e.g., Janiak & Schliesser 2012). *Just maths: Lavender of the ideal* (Kauppinen 2023) is a poetry on optional mathematics, where I am elaborating on the topic of certain liquidity in mathematics. There are different types of structures maths can expose, and one of the arguments, which the work advocates, is that these structures are much more of an ethical dilemma than traditionally conceived in natural and economic sciences. The use of poetry can ease identifying with the questions that concern these issues.

There is a need for both instances, maths and poetry, to stand their ground individually. However, the seemingly opposite elements of maths and poetry can point us to the same direction: sustainability. To understand this guidance, the different thought processes need to be combined to find their shared meaning. In both instances, the only chance of system critique is to let the reader create their own conclusions of individual idea's possibility to penetrate the system's functions.

In this paper, a narrative is analysed in which poetry and mathematics are combined to pursue sustainability. As fiction seems to be a manifestation of uncertainty, a narrative of sustainability based on poetry creates uncertainty. At the same time, mathematics is considered as the language of certainty. Combining these opposites creates new meaning, providing a prospect of synthesis, which would enable a novel pursuit of sustainability.

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Universities' Sustainability Journeys

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How are the universities contributing to a world in crisis? Presumably by creating a sustainable future through research, education, societal impact, and sustainable campuses? This paper is a study about universities' sustainability aims, organizational culture, and how staff members perceive the journey during the decades.

Advancing sustainability at universities in Finland and globally is not straightforward, priorities are scattered, and organizational cultures leave room for improvement. Sustainability talk is there, but the walk is lacking. (Un)intentional greenwashing is not about public denial but more veiled by different priorities and lack of implementation. Also, the employee's duty of loyalty plays a role in these processes.

By storytelling the journeys of several universities, we ask how the organizations with all scientific knowledge are not implementing their strategies, creating a better world, and even utilizing the win-win-win setting. What is the culture behind controversies and maintaining the status quo? What is the reasoning behind the peculiar behavior, how has the illogical managerial culture developed, and how do individuals feel in such a culture? What type of consequences does a toxic leadership culture bring?

The approach to this study is autoethnographic. Former or current staff members are sustainability actors in the higher education sector. The positioning provides an insider view of the organizational culture, with unique experiences on the eccentric and different priorities of universities. Additionally, it compares these journeys with the findings of sustainability colleagues and leadership representatives from all Finnish universities.

The stories will be told as a collaborative autoethnographic journey through increasing stakeholder demand, societal concerns, plenty of efforts, and trying to understand the genuine motivation and managerial culture of universities. These stories about controversies and priorities behind the scenes are often untold because of unknown outcomes for individual careers. Reflexivity will be applied in analyzing these stories about high-fly aims, but in organizations that are incapable, reluctant, or unwilling to make a transformational change. Is sustainability an empty word, not a serious shift towards improvement?

Keywords: Collaborative autoethnography; Storytelling; Greenwashing; Universities; Sustainability



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Co-producing Models of (Pro-)Environmental Human Behaviour with Citizens: Feedback Stories Surrounding Meat Consumption

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Existing integrated assessment models for climate impacts and policy have been criticised for techno-economic representations of human systems. For instance, human behavioural patterns (e.g., food and energy consumption) are largely driven by economic indicators like GDP per capita at the expense of social-cultural influences. Recently, modelers have looked towards behavioural theories in environmental psychology for inclusions of human behaviour in such models (e.g., Beckage et al., 2018; Eker et al., 2019). We contend that abstract, generalisable theories may not fully account for nor resonate with people's lived experiences. Instead, we begin with people and the stories they have to tell: what are the systemic factors that influence pro-environmental behaviour and how do they play out in people's lives?

To that end, we aim to engage everyday citizens to co-produce a model of human behaviour that can be mapped back to vignettes of lived experiences. We focus on a relatable manifestation of environmentally significant behaviour: meat consumption. Here, we seek to capture people's stories regarding their consumption choices to build a complementary knowledge repository. We explore the use of Systems Thinking in group settings to elicit and structure their stories within a feedback-rich causal loop diagram (for more details, see Hovmand et al. 2012).

We conducted two participatory modelling workshops with two sets of participants: 25 students from the Master programme in System Dynamics, and 13 students from the Master programme in Sustainability. We worked with master students for rapid prototyping and these two groups were useful for our purposes: the system dynamics students came from diverse disciplinary and cultural backgrounds, while the sustainability students had an interest in pro-environmental behaviour change. Participants were facilitated to identify and model the interrelationships amongst drivers of meat consumption, while relating their representations to their experiential knowledge. We analysed the transcripts from the workshop recordings using qualitative content analysis (e.g., Kuckartz, 2014; Bingham, 2023) to identify the stories that speakers narrate: i.e., what in their lived reality are they trying to represent; why is it relevant for meat consumption; how are story vignettes connected to other vignettes?

We identified 15 main feedback stories, spanning five themes: (1) economic perspectives related to availability and affordability of meat products relative to its alternative; (2)

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sociocultural perspectives on socialisation and habituation of meat consumption within the society; (3) socioeconomic perspectives related to the economic and social status attached to meat consumption in certain contexts; (3) health and nutrition perspectives, including adverse health consequences and nutritional benefits of meat consumption; and (4) environmental perspectives on climate impacts of meat production as well as animal welfare concerns. Through participatory modelling, we were not only able to explore people's stories on the drivers of meat consumption, but also the complex interactions among them, cutting across themes. Our findings could therefore facilitate our understanding of how complex feedback processes embedded within social arrangements influence people's behaviour. The interaction of these processes could serve to explain the reproduction of unsustainable social practices such as rising meat consumption over time.

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Establishing a climate responsibility norm: Visions of societal metamorphosis

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Our project examines how climate responsibility could become the cornerstone of multilateral cooperation in international politics. To develop the idea, we asked experts from various fields working on climate change to mentally time travel to year 2035. We wanted to know what would have happened for climate responsibility to become a “*grund norm*” in politics and how that would rearrange e.g. power relations and issues of climate justice.

The 12 experts, interviewed in 2023, had difficulties to let go of the “*realpolitik*” mindset and dualisms such as global north vs. south, authoritarian states vs. liberal democracies, or stick vs. carrot (policy sanctions or incentives). Still, there were sprouts of hope and discussion on value-based rearrangements, stemming from different directions.

Interestingly – and independently from each other – three interviewees brought up Kim Stanley Robinson's novel “The Ministry for the Future” (2020) as a reference for how climate change could be tackled in the near future – the story starts from 2025. The example speaks of the effect literature and fiction may have on policy – and vice versa. Robinson's book got political traction when president Obama listed it as one of his favorite books in 2020. The book has been acclaimed for being accurate on e.g. climate negotiations and geoengineering and called science non-fiction. It has been criticized for questionable morals regarding the role of ecoterrorism in its future vision, and political scientist Francis Fukuyama (2021) has called the novel totally unrealistic in its political optimism.

I use the novel as a reference for analyzing the interviews. It is not possible to pinpoint how the interviewed experts may have been inspired by fiction as this was not addressed in the interviews. However, I think it is fruitful to juxtapose the interviews with the novel to identify alternative and transformative narratives for international climate policy and action. Theoretical frame for the analysis is Ulrich Beck's (2014, 2017) discussion on climate change as an agent of metamorphosis – a foundational societal change - focusing on the potential positive side effects of the climate disaster.

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Workshop 28: Unlearning Eurocentric Modernity: undoing hegemonic scientific truths for transformative change towards just socioecological futures

Convenors: **Ehrnström-Fuentes, Maria** (*Hanken School of Economics*), **Ramcilovic-Suominen, Sabaheta** (*Natural Resources Institute Finland Luke*), and **Gebara, Maria Fernanda** (*Yorenka Tasorentsi Institute*)

The idea that there is no social justice without epistemic and ontological justice – i.e., that social injustice is intrinsically linked to the imposed colonial, patriarchal, racial, gendered, and capitalist mindsets, logics, and ways of being – is finally gaining ground in sustainability science research.

There is an increasing awareness about (and a critique of) the role the Eurocentric Modernity and universalistic Science play in defining sustainability pathways in policy and research, delegitimizing, and erasing other ways of knowing, being and relating (Ndlovu-Gatsheni 2018; Blaser 2019). In particular, Modernity perceives humans as separate from nature, denies the full humanity of some people and the existences of their ways of being and knowing (that do not separate between people and the lands), and finally it uses the European or Western economic development as a yardstick for universally desirable constructs. To this day, the dominance and hegemony of these anthropocentric, colonial, patriarchal, capitalist, and linear onto-epistemic assumptions over other ways of knowing and being continues to (re)produce epistemic, cognitive, and ontological violences, threatening place-based ancestral knowledges, and practices that are vital for sustaining healthy relations towards the natural world (Gebara et al. 2023; Ehrnström-Fuentes 2022, Ramcilovic-Suominen 2022).

The misguided assumption that the Eurocentric knowledges that legitimize these events possess some form of 'scientific neutrality' depoliticizes and further denies the onto-epistemic struggles that define how life is lived on land. As Lahsen and Turnhout (2021) argue, these onto-epistemic injustices used in the name of sustainability are one of the main barriers for transformations towards just socioecological futures. We argue for the need for forms of collective unlearning that can shake the pervasive onto-epistemic assumptions underlying Eurocentric Modernity to their core, undoing the current onto-epistemic violences towards other ways of being, knowing, and doing sustainability on the ground.

This session calls for theoretical, methodological, and empirical contributions that explore: (i) what dominant mindsets, assumed scientific truths or myths, and ontological logics require unlearning and undoing, (ii) the multiple and diverse processes of unlearning Eurocentric truth claims and/or undoing Modernity, and (iii) the methodological implications for epistemic and



ontological justice and/or for transformations towards just socioecological futures. We are particularly interested in contributions that deal with how to 'unlearn modernity' and its accompanying colonial, capitalist and extractivist practices that do not allow for, nor acknowledge, the existence of other ways of knowing and being in relation to nature/land/place.

This workshop calls for papers from Indigenous, anti-colonial, decolonial, feminist and degrowth perspectives and as well as contributions that apply, explore and advance novel methodologies tentative to the plurality of ways of being and knowing the land, citizen sciences, and embodied spaces of diverse knowledge cultivation for radical and just sustainability transformations. Papers that deal with how this unlearning process impacts or is enabled by the interface of science and policy are also welcomed.

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Knowledge co-creation with Indigenous peoples: embodied experiences and reflections from various non-Indigenous positionalities

Bartira Fortes, Tatiana Sokolova, Juliana Porsani, and Márcia Camargo

In the face of seemingly insurmountable challenges in sustainability governance across the globe, researchers turn towards Indigenous ways of knowing and living as sources of inspiration, direction and resistance to systems locking societies in unsustainable patterns. Thus, the academic impetus to co-produce knowledge with Indigenous peoples has an instrumental nature; but it equally is informed by considerations of social justice. However, this push towards knowledge co-production between academia and various groups or stakeholders, including Indigenous peoples, has been subject to concerns over the potential (if alleged) loss of academic freedom, as well as critical attention to power relations and politics inherent in co-production processes. Furthermore, the push for collaborative knowledge creation with Indigenous groups renders visible complexities associated with the diverse positionalities of researchers along the continuum between outside, in-between, and inside perspectives in their relationships with Indigenous communities. Addressing this diversity in positionalities is particularly important in the context of the increasing presence of Indigenous people within academic, traditionally colonial, settings. This shift underscores the challenges faced by academia, which has been structured to accommodate specific epistemologies. The aim of this paper is to explore the various methodologies of engaging, from various positionalities, with Indigenous peoples in the co-production of research. We find this discussion critical since, although there has been a growing body of co-production and decolonial methodologies, less attention has been devoted to complex and non-dualistic positionalities of researchers as they engage with non- (often anti-) Western-centric epistemologies. We take on the challenges of epistemic power as they play out in the context of sustainability transitions, post-colonialism and decoloniality. The paper's contribution lies in the analysis of the specificities of decolonial co-production, providing insights for new takes on action research in the context of polarised political landscapes of sustainability transitions and transformations.

This book of abstracts includes those abstracts that have a consent from the author(s) to be included in this booklet.

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