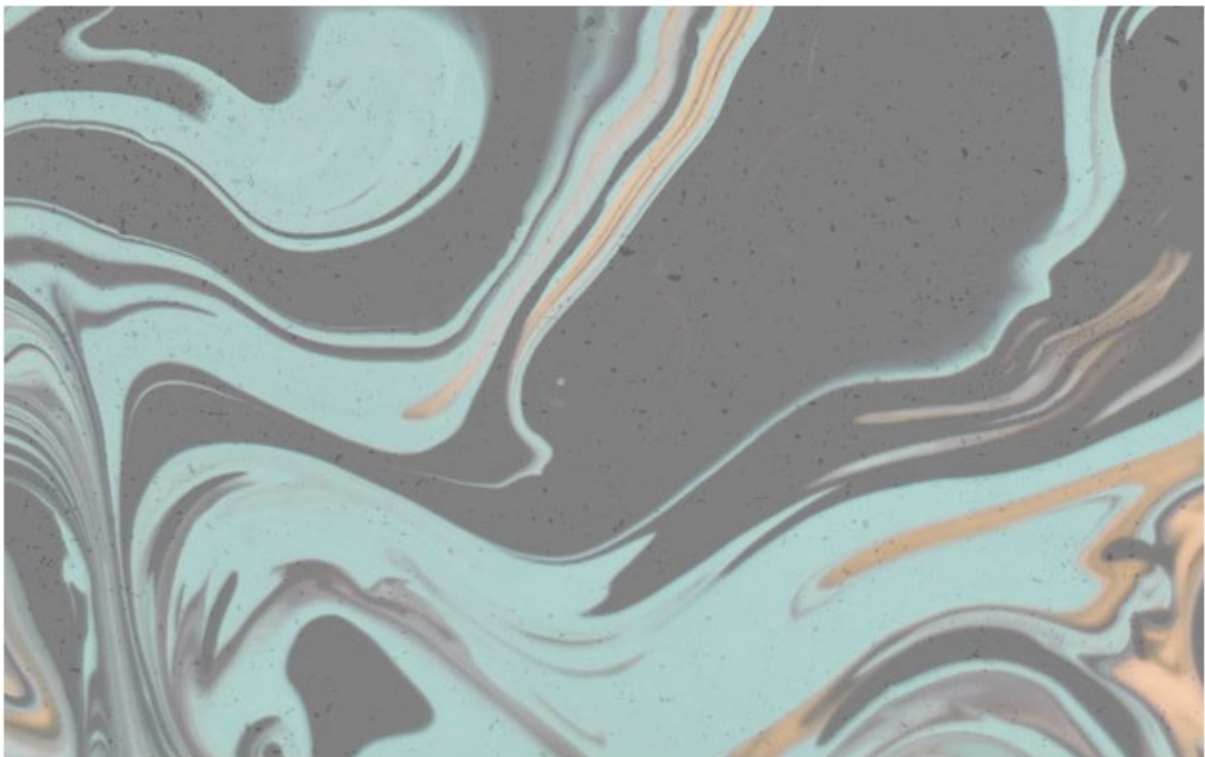


Governing sustainability transformations

Changing drivers, driving change



Book of abstracts

WCSG Conference 2024

October 16 – 18

Wageningen, NL

Link to conference website [here](#)

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About the Wageningen Centre of Sustainability Governance

The Wageningen Centre of Sustainability Governance (WCSG) is an interdisciplinary group of scholars dedicated to advancing knowledge on the design, functioning, and implications of sustainability governance. Established in 2017, the WCSG brings together expertise from four Chair groups at Wageningen University: Environmental Policy (ENP), Public Administration and Policy (PAP), Forest and Nature Conservation Policy (FNP), and Law (LAW).

At WCSG, we take a **transdisciplinary approach** to knowledge creation, fostering collaboration between diverse academic disciplines and engaging with national and international advisory bodies. Our research spans the domains of **food, nature, and the environment**, with a strong focus on real-world applications and solutions.

Our Mission

The mission of WCSG is to advance social scientific knowledge on the challenges and solutions to governing societies for **inclusive and sustainable outcomes**, particularly in the areas of **food, nature, and health**. To fulfill this mission, we draw on a cutting-edge theoretical programme that integrates **sociology, political science, legal studies, and public administration**. This unique blend of disciplines allows us to explore and theorize **transformative governance modes** that address global sustainability challenges.

Our collective work contributes to understanding how sustainability can be effectively governed and what innovative governance arrangements are necessary to drive **transformative change** in society.

For more information about the WCSG, please visit [our website](#).

You can also follow the WCSG on [Youtube](#) and [Twitter](#).

WCSG2024 Conference steering committee

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Master student Animal Sciences, WUR

Student-assistant and Conference Coordinator at Wageningen Centre of Sustainability Governance



October 15th – Hotel De Wageningsche Berg

Early registration/Conference Check-In

Time: 16:00 – 17:00

Location: Lobby Hotel De Wageningsche Berg

For conference participants staying at Hotel De Wageningsche Berg, we are pleased to offer an early registration option. You can collect your badge on October 15th between 16:00 and 17:00, giving you the convenience of checking in the day before the conference begins. This will save you time on October 16th, where regular registration is available between 08:00 and 09:00.

October 16th – Hotel De Wageningsche Berg

Registration

Time 08:00 – 09:00

Location: Lobby, Hotel De Wageningsche Berg

Plenary opening

Time 09:00 – 10:30

Location: Bosrandzaal

[Livestream](#)

Chairs

Verina Ingram, Forest and Nature Conservation Policy Group, WUR

Judith van Leeuwen, Environmental Policy Group, WUR



Opening by Prof. Joost de Laat

Prof. Joost de Laat is the newly appointed managing director of the Social Sciences Group (SSG). Joost de Laat studied and obtained his PhD in the United States, at St Lawrence University and Brown University, respectively. He then worked as a postdoc and assistant professor at Harvard and Quebec. He also worked for the World Bank for a total of almost 10 years. He was also director of Learning and Evaluation at the international philanthropic institution Porticus.



Since 2018, Joost de Laat has been Professor of Economics at Utrecht University and director of the Utrecht University Centre for Global Challenges. Joost de Laat is internationally oriented and has lived and worked in several African countries, among others. Sustainability and equal (educational) opportunities for all are important themes in his work.

WCSG Welcome speech by Prof. Simon Bush

Prof. Simon Bush is Professor and Chair of the Environmental Policy Group at Wageningen University. His main research interest focuses on the global dimensions of sustainable marine and aquatic food governance, including both aquaculture and fisheries. More broadly he is engaged in research on governing interactions between sustainable food, energy and biodiversity - linked in large part to the staff and PhD students at the Environmental Policy Group.



Interactive soundart by Remco de Kluizenaar

Remco de Kluizenaar is a Dutch sound artist who began his studies in Biotechnology at Wageningen University but soon realized his passion lay elsewhere. After feeling disappointed by the lack of focus on environmental issues, he decided to pursue art. Starting in visual arts, he gradually shifted toward creating soundscapes in site-specific theater, focusing on the perception of nature and global ecosystems.



Collaborations

with scientists and nature protection organizations followed, and since 2019, he has worked full-time as a sound artist with a focus on ecology. His recent work includes an artist residency on protein transition at Wageningen University, and ongoing projects on marine and soil ecosystems.

About Soil, Live!

Transforming society can start from bottom up. Let's get ourselves dragged into the ground and think about how non-humans are involved in transformation. Imagine music that is made in the soil by worms, nematodes, springtails and fungus..... How does a human composer or governor represent the changes that these lifeforms make as they transform elements into fertile, stable soils, and how would this sound as music? We're going to explore this soil life, and it's live: Soil, LIVE!

Keynote: The role of science for sustainability transformations: a quest for transdisciplinary approaches

Moderator

Richard Pompoes, Public Administration and Policy Group, WUR

Keynote speaker

Prof. Ortwin Renn is a distinguished social scientist specializing in risk governance. He is Professor Emeritus for Environmental Sociology and Technology Assessment at the University of Stuttgart and recently retired as Scientific Director at the International Institute for Advanced Sustainability Studies (IASS) in Potsdam. He also directs DIALOGIK, a research institute focused on communication and participation processes.

His academic affiliations include Adjunct Professor at Stavanger University, Honorary Professor at the Technical University Munich, and Affiliate Professor at Beijing Normal University. Prof. Renn's research encompasses risk governance, stakeholder involvement in environmental decision-making, and sustainable development.



Abstract

In spite of the many convincing scientific insights about the need for humanity to engage in an ambitious transformation towards sustainability, political and economic policymakers and ordinary citizens have been reluctant to initiate the necessary changes. This sobering result begs the question if the traditional practice of scientific research and policy advice is still adequate for facilitating the necessary transformations. The paper will introduce a plea for more transdisciplinary approaches that include traditional curiosity driven research with goal-oriented, strategic research and catalytic formats of including stakeholders and citizens in the research design. The goal is to have scientists, policymakers and citizens co-design strategies for sustainable development paths. This requires a well structured approach that can best be described as an analytic-deliberative discourse. The paper will describe the main features of such a discourse, its merits, prospects and limitations and provide a few case studies on how to implement this concept.

Parallel session round 1

Time 11:00 – 12:30

1.1 Risk governance in Sustainability Transformations

Innovative session

Location: Bosrandzaal

Organizers

Dr Johanna Koehler (Wageningen University and Research, NL),
Swathi Veeravalli (National Security Council, The White House, USA),
Professor Ortwin Renn (Research Institute for Sustainability, Potsdam, Germany),
Professor Marco Verweij (Constructor University, Bremen, Germany),
Dr Anne van Loon (Vrije Universiteit Amsterdam, NL),
Mikael Dupuis (Uduma Mali),
Rebekah Hinton (University of Strathclyde, UK),
Professor Katrina Charles (University of Oxford, UK)

Abstract

In this panel we explore the tenet that sustainability transformations require investigation of the core risks as perceived by the actors involved in these potentially transformative processes, including how risks shape the institutions around them to increase their risk-managing capability. To achieve this, the substance and core principles of governance have to be translated into the context of risk-related decision-making. Actors, however, respond to risks according to their own risk perceptions and constructs. This can lead to a variety of relevant and legitimate interpretations of risk assessment outcomes. As a consequence, whether risks are acceptable or not can be intensely debated. Climate and water security pose an extreme challenge that in order to be advanced requires both sustained practical and theoretical efforts as well as close transdisciplinary collaboration. Focusing on SDG 6 (Clean Water and Sanitation) and SDG 13 (Climate Action), the session will discuss whether and how governance arrangements can be designed that address risks to sustainable water services under increasing hydroclimatic impacts through climate change.

Outline of the session

Setting the scene – Dr Johanna Koehler, Wageningen University and Research (10 minutes) on riskpooling and institutional innovation in sustainable service transformations

- Poll with audience on risks in sustainability transformations

Panel: Taps running dry and dirty: The governance and practice of water risks

5-minute presentations by each panelist (can include max. 5 slides)

- Dr Anne van Loon, Associate Professor of Drought Risk, VU Amsterdam, NL
 - Governing the risks of hydroclimatic extreme events
- Marcela Laguzzi, Ministry of Infrastructure and Water Management, NL
 - The future freshwater availability strategy for the Netherlands
- Dr Rebekah Hinton, Wageningen University and Research, NL
 - Synergies and tradeoffs in the water SDG – what does it mean for water policy?
- Georges Mikhael, Uduma (innovative water service provider in West Africa)
 - The evolution of government involvement in rural water services in Mali: from implementers to regulators for sustainable governance
- Dr Dona Geagea, Wageningen University and Research, NL
 - Risks & values: Risk governance and recommoning water

Theoretic reflections: The role of risk governance in transformational change

5-minute interventions by each panelist

- Professor Ortwin Renn, former director of the Research Institute for Sustainability in Potsdam, Germany
 - The role of risk governance in sustainability transformations
- Professor Marco Verweij, Professor of Political Science, Constructor University, Germany
 - Taking clumsiness seriously: how to develop/uncover/facilitate clumsy solutions in real-life organisations

Followed by a 20-minute discussion with guided questions and Q&A with the audience:

- o How can the risks around hydroclimatic extreme events be governed?
- o What are innovative governance arrangements to deal with the risk of taps running dry and dirty?
- o What is the role of risk regulation in dealing with increasing water-related risks?
- o Followed by Q&A with the audience

Synthesis and concluding remarks (5 minutes)

1.2 Conceptualizing transformative sustainability change in food systems

Paper-based session

Location: Boomgaardzaal

Organizers

Clarence Bluntz, Maastricht Sustainability Institute, Maastricht University

Louise Longton, Maastricht Sustainability Institute, Maastricht University

Filippo Oncini, Maastricht Sustainability Institute, Maastricht University

Ceren Pekdemir, Maastricht Sustainability Institute, Maastricht University

Christian Scholl, Maastricht Sustainability Institute, Maastricht University

Joana Wensing, Maastricht Sustainability Institute, Maastricht University

Abstract

In the past years, more and more academic fields have started to engage with transformative sustainability change. This increased interest has also resulted into a diversity of conceptualisations across (and crossing) disciplines, to name a few: systems dynamics, degrowth, participatory modelling, and hybrid governance. In this paper-based session, a set of conceptual and empirical papers each explore a different conceptual angle and reflects on what the respective conceptualisation of transformative sustainability change means for reach and practice. In this way, the session will foster an informed discussion on conceptual differences and overlaps, as well as contradictions and possible synergies to be further explored. The aim is to further the common understanding and joint and reflexive theory-building on transformative sustainability change.

Filippo Oncini and Ceren Pekdemir. How Win-Win is a Losing Game: Thinking in Systems and Fields to Transform Charitable Food Provision

In recent years, charitable food provision has become a central element in the food systems of affluent nations. Positioned at the crossroads of welfare, civil society, corporate social responsibility, and sustainability transitions, charitable food provision is often framed as a win-win solution: it addresses food waste and its associated greenhouse gas emissions by reallocating surplus food, while also serving as a crucial support for individuals facing poverty. However, a growing number of critiques highlight the shortcomings of this perspective, arguing that it

fails to address the root causes of both excessive food production and poverty. Hence, charitable food provision should be seen as a lock-in mechanism that averts the identification of alternative pathways to address both food security and waste as distinct societal issues.

In this paper, we build upon, refine, and extend the system dynamics conceptual model for food waste reduction and alleviating food poverty, as proposed by Galli et al. (2019). Our theoretical framework combines systems thinking with field theory, specifically strategic action field theory, to offer a more comprehensive understanding of the social mechanisms affecting the behaviour of the system. In particular, we argue that strategic action field theory provides a theory of social action, which can better illuminate social mechanisms at the basis of charitable food provision inertia towards reproduction, as well as the competitive and cooperative dynamics at play within this domain. Empirically, our analysis draws upon case studies from Manchester and Kyoto to explore how actors from the state, civil society, and the market can play roles in sustaining environmental and social sustainability, either by maintaining the existing system or by facilitating its transition.

We envision that participants attending this paper presentation are prepared for a forthcoming workshop session in this conference, providing them with a framework to identify actionable leverage points across the state, civil society, and market sectors to drive systemic change in charitable food provision.

Louise Longton and Christian Scholl. Conceptualizing sustainability transitions in the hybrid sector

In the array of conceptualizations surrounding transformative sustainability change, Transformative Social Innovations analyses the process of changes in social relations, involving the challenging, altering and/or replacing of dominant institutions and structures. We conceptualize sustainability transitions within the framework of the hybrid sector, a dynamic sector at the intersection of the public, market, and community sectors. Within this context, governance tensions inherent to the social orders of the different sectors emerge as critical challenges for transition initiatives, stemming from disparities between public/private, for-profit/non-profit, and formal/informal institutions.

Drawing upon the empirical example of alternative food networks as an example of transition initiative, we use this framework to understand how coping with the governance tensions can facilitate the scaling of such initiatives, thereby amplifying their influence on the broader sustainability transition. We hypothesize that

overcoming the hybrid sector challenges has the potential to catalyse the development of the initiatives and enable a scaling process, fostering sustainability transitions. Through the application of this framework to case studies of Alternative Food Networks in Wallonia (Belgium), we identify the coping mechanisms that have fostered their scaling process, thus shedding light on pathways toward sustainable transition within the hybrid sector.

This exploration not only contributes to advancing theoretical understanding but also underscores the practical implications for transformative sustainability change, thereby opening a discussion on conceptual nuances, potential synergies, and avenues for further studies. As we navigate the complexities of the hybrid sector, this research aims to foster a deeper collective comprehension and reflexive theory-building, around transformative sustainability change.

Clarence Bluntz. Degrowth pathways in the French dairy industry

A paradigm shift is needed in food production-consumption systems to relocate production, bring producers and consumers closer together, and close material loops. This necessary sustainability transition is however at risk of derailment, as environmental and social crises stimulate the rise of populist and far-right policies in Europe, which would increase social inequality and reduce international cooperation.

I analyse this tension through the lens of the emerging paradigm of degrowth, which entails unprecedented changes in policy and economic activities in order to constrain production-consumption systems within planetary boundaries. This paper explores the feasibility and impacts of such changes on the French food provision system. Its aim is to improve understanding of the systemic interactions between 1. the major changes required in food supply chains, markets, individual livelihoods, and dietary habits, 2. The consequences of such changes on social inequality and conflicts, and 3. the political dynamics of populism and nationalism in European countries.

I focus on the French dairy sector, which find itself at a nexus of economic, social and environmental crises. I use the case study of the 2017 États Généraux de l'Alimentation, a political dialogue initiative spearheaded by the French government, aimed at taking stock of the situation in the French food provisioning system. This initiative was followed by the adoption of major legislation to balance market relations in the agricultural sector in 2018. These combined political events enabled a variety of actors to voice concerns, problematize specific aspects of the system, and discuss hypothetical ways out of the aforementioned crises. By using

secondary data such as parliamentary debates and a netnography of dairy producers on Twitter/X, I highlight how these framing efforts can be situated on a continuum between two opposite poles of “business as usual” and “degrowth”, and how tensions between these two poles could lead either to transformative change or derailment.

Liesbeth de Schutter, Joana Wensing, Eveline Van Leeuwen. Regenerative soil systems: A community-based approach towards soil health in city-regions

The European Union faces two critical challenges: (1) the accumulation of biowaste in cities and (2) the depletion of nutrients from agricultural soils in less dense regions. Both problem contexts have been associated with the global structure and mostly linear practices in urban food provisioning. Yet, urban waste services and related actors (food retailers, households, restaurants, farmers) tend to lack a sense of shared responsibility in governing cities and their dependence on healthy soils in food producing hinterlands. Based on the concept of “commons” and community-based governance of resource systems developed from an ontological lens of complex social-ecological systems, we propose to take a broader “regenerative soil system” perspective. Using the case of the city of Amsterdam, we we apply this concept as an epistemological tool to identify distinct biowaste communities in the city-region. Through participatory modeling workshops with these communities, we will assess how these communities conceptualize soils and their multiple functions as a commons, and explore if, and how they (can) develop and implement regenerative practices to benefit the local community and city-region. In particular, we assess whether awareness of the complexity of the biowaste problem context in city regions supports interest in, and action towards, community building processes contributing to a paradigmatic shift from individual and local level solutions to place-based (city-region level) solutions.

1.3 The city as catalyser: non-state contributions towards just and sustainable cities

Paper-based session

Location: Meidoornzaal

Organizers

Arjen Buijs (Forest and Nature Conservation Policy group),

Marthe Derkzen (Health and Society group)

Abstract

With a projected 70% of the global population residing in cities by 2050, the need for sustainable urban transformations becomes increasingly clear to address the interlinked challenges of climate change and biodiversity loss. Cities, as vibrant ecosystems of innovation, incubate a diversity of non-state or bottom-up practices that may contribute to sustainability. Central to this discourse is the concept of 'urban transformations,' which encapsulates the prevailing optimism surrounding cities as catalysts for nurturing both local and global sustainability and resilience.

Indeed, cities often present themselves as solutions towards sustainability, for example through developing and implementing innovative Nature-Based Solutions (NBS). Meanwhile, the justice implications of technology-driven and top-down interventions remain contentious. Debates on issues such as eco-gentrification and the unequal distribution of resources for NBS underscore the necessity for equitable and inclusive urban transformation strategies.

In this session, we delve into urban transformation research through a prism of diverse perspectives and disciplines, with a particular focus on the role of non-state actors including civil society organizations and social enterprises. Are non-state actors able to catalyse lived experiences and social capital for climate-proof, attractive and healthy living environments? And what do they need to realise urban transformations? We aim to explore the potential contributions of non-state actors towards more just and sustainable urban systems, while scrutinizing the governance models underpinning these efforts and their associated justice impacts. Here, our session also engages with the interconnections between environmental justice and social justice as indispensable components of urban transformations.

In this session, we examine the potential and challenges of cross-scale collaborations and the power dynamics in scaling up and mainstreaming innovative niches within urban contexts. Through the presentation of both exemplary cases and inherent challenges faced by grassroots and social enterprises, we unravel the

complexities of co-creation across sectors and scales. Central to our discourse are discussions on trust, recognition, social capital, and the persistent challenges encountered in nurturing long-term collaborations among diverse stakeholders across scales.

The session includes a round table discussion with all participants to discuss opportunities and challenges for cross-actor collaborations towards just and sustainable cities.

Introduction to the session (Marthe Derkzen and Arjen Buijs)

Papers

Marthe Derkzen. Escaping the silo: Green citizen initiatives as the informal bridges between formal sectors

Where state actors generally encounter difficulties to unite policies for climate adaptation and urban greening with interventions for social cohesion and public health, citizen initiatives naturally bridge these sectoral domains. When citizens themselves engage in greening their neighbourhood, for instance through a shared garden or rainwater capture project, they automatically strengthen social connections and improve neighbourhood liveability. Green citizen initiatives also contribute greatly to personal and community wellbeing.

In other words, what formal actors try to organize and regulate for the realisation of just and sustainable cities (public participation now being a formal box to be checked for all spatial plans), may very well be left to informal actors. But where to draw the line? What part of the urban transformation can indeed be left to informal, non-state actors? What cannot? And what types of collaboration, or governance, models emerge when these citizen initiatives become successful and wish to solidify and scale?

Building on empirical evidence from action research projects in Arnhem and Nijmegen, in which we engaged with ten green citizen initiatives during several years, I will start to answer these questions. Doing so, I expect to learn from and discover linkages to the other presentations in this session.

Arjen Buijs. Mosaic governance and environmental governance: Can civil society contribute to inclusive transformations?

Cities are an increasingly important place for experiments connecting biodiversity and climate action with other urban challenges, including food, health, energy, and social justice. The European Commission promotes nature-based solutions (NBS) as

innovative strategy for urban sustainable transformations, balancing environmental and socio-economic outcomes of climate and biodiversity actions. However, NBS have been criticised for reproducing power-imbalances and producing negative justice impacts, including gentrification and exclusion of marginalized groups.

Previous studies show that quality and structure of NBS governance processes are crucial for just transformation processes (Toxopeus et al., 2020). To enhance distributional, procedural and recognition justice, hybrid or multi-level governance processes have been suggested, aiming to balance top-down decision making with bottom-up perspectives, to foster cross-scale interactions between places and practices, recognize plural socio-cultural values of nature and use different modes of knowledge co-production to achieve outcome-oriented and process goal.

Based on case studies in three major European cities, we explore whether and how hybrid governance approaches, such as mosaic governance, may contribute to sustainable and just cities through fostering long-term collaborations between local governments, local communities, and grassroots initiatives in the co-development and co-management of NBS. Based on previous studies, we investigate six possible pathways for mosaic governance to increase the environmental justice impacts of NBS in cities: greening the neighbourhood, diversifying values and practices, empowering people, bridging across communities, linking to institutions, and scaling inclusive discourses and practices. Despite the diversity of environmental justice outcomes across our empirical cases, analysis suggests that mosaic governance particularly contributes to recognition justice through diversifying NBS practices in alignment with community values and aspirations. Moreover, especially in marginalised communities, collaborations between civil society and local governments holds much potential to advance social justice by enabling empowering, bridging, and linking pathways across diverse communities and NBS. However, contributions to distributional and procedural justice are limited, also because the wider context of NBS policies, planning and management is hardly impacted by civil society actions. To advance our understanding of justice impacts of NBS and urban transformations, we suggest to look beyond distributional, procedural and recognition justice, and develop a wider framing of justice in the development and implementation of NBS, sensitive to social, cultural, economic and political inequities.

Tamara Metze. Deliberating energy justice using visual artefacts: exploring the inclusion of citizens in the regional energy transition.

Increasingly complex decision-making on policies related to climate change requires integration of abstract and generalized knowledge as well as local experiential knowledge and values. Academics and decision-makers need to better include localized expertise to create usable knowledge for policy making. During the last decades, many mini-publics have been organized to accommodate co-production of knowledge. However, often these processes have been designed by decision-makers, where experiential knowledge of citizens got powered over by expertise. This paper aims to explore whether this 'powering over' can be prevented by using different types of visualizations. In a case of Dutch regional energy governance we aimed to compare and integrate citizens' expertise on energy justice with the conceptualizations of academics and policy makers. We studied whether visualized information would contribute to (1) increased listening and arguing between different citizen participants, and whether this (2) led to new insights on energy justice.

We conducted a survey (maxi public N=1270) and designed deliberations in eleven mini-publics with diverse groups of citizens (N=43) in the Province of Overijssel, that we facilitated with four different visual materials: (1) selected images from newspapers and magazines (2) sketches (3) geographical maps and (4) postcards. In these mini-publics, citizens discussed what justice dilemmas they anticipate in the energy transition. The results show that when using images, sketches and post cards, citizens articulate various justice concerns from their lived experiences and practices, some of which not being part of current academic definitions and studies. Deliberating via geographical maps facilitated discussions on more abstract levels and generated fundamental and spatial justice questions. This suggests that for moving beyond the instrumental use of deliberations and for an improved integration of academic with local experiential knowledge, the use of visuals is indispensable to bridge experiential and professional knowledge and values in the energy justice debate.

Ciska Ulug. Fertile soil? Urban food governance for urban food commons in Amsterdam

Urban food commons has been championed by both theory and practice as a means for achieving a more democratic and sustainable food system. Existing research has focused on the civic initiatives behind the urban food commons, overlooking the critical role of urban food governance. This article addresses this gap by examining

how urban food governance can foster the urban food commons through an in-depth case study in the city of Amsterdam (The Netherlands) where we interviewed civic initiatives and public officials working on the urban food commons.

Our findings demonstrate that there is a mismatch between the current policy instruments and the needs of urban food commons initiatives. The municipality leans towards non-coercive capacity-building instruments, neglecting crucial strategies such as zoning, land allocation and structural financial support. This fragmented governance system creates dilemmas for both initiatives and officials. Initiatives struggle to decide between self-reliance and independence from the governance system or remaining within the system and acquiescing to its values. Officials face a similar conundrum: obstructing the commons due to growth-oriented institutional practices, or deliberately circumventing them to offer support.

Our study emphasizes the importance of informal relationships between initiatives and public officials in fostering food commons, highlighting the limitations of the current governance structure. While the potential to establish a food commons exists within the system, the current mix of instruments does not create a fertile soil for an urban food commons, keeping them at the margins of the city.

Reflections and discussion (Herman Kleinjan; Policy advisor urban agriculture and regional food, City of Arnhem)

1.4 Governing nature, environment and biodiversity law & policy

Paper-based session

Location: Lijsterbeszaal

Chair

George Iordachescu, Forest- and Nature Conservation Policy group, WUR

Abstracts

Susan de Koning. Reimagining National Parks: Partnerships and Transformative Governance for Biodiversity

As biodiversity continues to decline, conservationists recognize the importance of extending their focus beyond the borders of protected areas to address the multifaceted drivers of biodiversity loss. In the Netherlands, a pioneering initiative has emerged known as Nationaal Park Hollandse Duinen. This so-called “National Park 3.0” was initiated by a water production company, regional government, water boards, and nature organizations. Departing from conventional approaches, this innovative concept advocates for the integration of surrounding urban and rural landscapes into the national park framework. In practice, this means that a variety of actors within these surroundings are engaged as partners, and are expected to contribute to the park via specific activities and/or projects. This study, conducted in collaboration with the National Park organization, delves into the perspectives of these partners regarding the park's objectives, functions, and governance. Drawing upon transformative change literature and the transformative governance framework, we formulated statements for a q-methodology study involving 28 partners. Through q-sorts interviews, we studied the extent to which these stakeholders perceive the park as a driver of transformative change and whether they endorse transformative governance principles. Our findings reveal four distinct perspectives on the park: "nature as priority," "recreation and inclusion," "a new perspective on nature," and "spatial balance." While some stakeholders prioritize transformative goals aimed at directly combating biodiversity loss, others advocate for a more indirect approach, emphasizing the park's role in fostering human-nature connections and facilitating integrative collaborations. Notably, our analysis highlights instances where certain transformative governance principles appear incompatible or even contradictory. This research underscores the variability in operationalizing transformative governance within a National Park context, leading

to diverse strategies for advancing transformative change via partnerships for biodiversity.

Vincent Linderhof. Towards a stewardship economy for biodiversity

The IPBES report on values assessment, published in 2022, sent a strong message that “the dominance of a narrow set of (materialistic and individualistic) values in decision-making is a major obstacle toward sustainability and justice”. So far, economic approaches to conserve nature and biodiversity have focused on developing market-based solutions to fund pro-nature activities (e.g. true pricing, payments for ecosystem services etc.) or the reduction of pollution (environmental taxes, water pricing etc.). While those are critical to fund transition to more diverse nature futures, those instruments tend to crowd out or ignore other values and behaviours that are essential for conservation and improvement of nature and biodiversity, such as people’s willingness to act collectively and play a role in civic duty; people’s intolerance for inflicting harm on other-than-human life; and people’s desire for equity. Those instruments over-emphasizes fixing symptoms rather than addressing the underlying causes of nature degradation.

This paper presents the concept of stewardship economy to deal with this aspect incorporating other values and behaviours. A stewardship economy for biodiversity is typically defined as an economy in which actors take care, take responsibility and are held accountable for our biodiversity conservation and improvement. All decisions in an economy, such as economic mechanisms of supply, demand and trade, should reduce their negative impact on biodiversity as much as possible. Whenever inevitable, the reduction of specific biodiversity should be accompanied with other biodiversity improvements of more value. Based on literature review and case studies, pathways for just and sustainable transitions are suggested using the stewardship economy concept. The transitions and pathways prescribe how to combine structural economic and institutional transitions with initiatives and processes, which are based on relational and intrinsic values and principles of ‘taking care’. Fundamentally, these caring principles also need to be structurally embedded in the economic mechanism and not only as parallel engagements at grassroots level. The assumption is that society has latent values of caring, and through processes of stewardship at structural and grassroots level, these caring principles are ‘re-awakened’ to address the current status of biodiversity losses.

Shruti Majumdar. Unpacking Institutional Bricolage in Sacred Grove Conservation and Management Practices

The research paper explores the conservation practices surrounding India's Sacred Groves through the concept of institutional bricolage. Traditionally, institutions are

designed with specific goals in mind, assuming complete compliance from individuals or groups. However, this perspective overlooks the complexity of human behaviour and the contextual factors that influence it. The paper argues that local actors often interpret, reinterpret, or adapt institutional arrangements according to their own needs, values and existing practices. This phenomenon is termed "bricolage". Drawing from case studies across India, the paper demonstrates how local actors navigate institutional interventions based on their logic of practice. It suggests that the effectiveness of institutions depends not only on their design but also on their alignment with existing local practices. This process of bricolage involves creatively recombining and adapting institutional elements to fit local contexts. The paper's analysis of Institutional Bricolage in Sacred Grove conservation and management practices contributes to understanding the interplay between traditional and formal institutions in natural resource management. It emphasizes the importance of recognizing local agency and indigenous knowledge systems in conservation practices, advocating for context-sensitive approaches to conservation policy and intervention in India and beyond.

Lisette Phelan. Mission-oriented innovation policymaking for biodiversity

Mission-oriented innovation policymaking is garnering increased attention as an outcome-led approach to governing sustainability transformations that enables policymakers to be directional, demand-oriented, reflexive, and coordinated across policy domains and levels in responding to complex societal challenges. In this paper, we explore the potential impact that the development of a mission-oriented innovation policy for biodiversity could have as regards addressing biodiversity loss in the Netherlands. As the agricultural sector and, in particular, the Dutch dairy sector are major contributors-based on land cover and land use-to biodiversity loss in the Netherlands, we specifically focus on this sector in considering how a mission-oriented innovation policy for biodiversity could, by building on existing policy structures at international, national, and provincial levels, contribute to 'bending the curve on biodiversity loss' and creating a biodiversity-positive food system. We identify these policy structures through a non-systematic review of the policy landscape and the academic literature on mission-oriented innovation policy making, biodiversity loss, and the Dutch dairy sector. Our findings suggest that policy structures in three key policy domains are most relevant in the context of addressing biodiversity loss in the Netherlands –namely, (a) nature and nitrogen; (b) agriculture and food; and (c) knowledge and innovation. We posit that the development of a Dutch mission-oriented innovation policy for biodiversity could increase the likelihood of policy coherence across (a), (b), and (c). We argue that realising the transformative impact of such a policy framework-which explicitly

integrates biodiversity into the policy agenda requires adaptation in implementation to specific contexts and attention to the dynamic features of these contexts. The development of this policy framework would represent a first test of how mission-oriented policies might be applied in the arena of biodiversity and could serve as a blueprint for other countries to follow suit and adopt a similar approach to addressing biodiversity loss.

Xinran Wang. Which governance interventions lead to a sustainable land-use contributing to combating climate change and biodiversity loss: a comparative analysis of European case studies in the past 50 years

Unsustainable land use has substantial adverse effects on the environment and society, particularly concerning climate change and biodiversity loss. Various policies and management interventions across different sectors aim to mitigate these risks and achieve sustainable land use. However, existing research on intervention design remains descriptive and tends to confound rather than clarify the relationship in promoting sustainable land-use change. To better tailor the future land-use policies towards sustainability, it is essential to investigate how governance –policies and policymaking, planning and administrative decision-making – has historically impacted land use change under which conditions. This study aims to identify the factors that trigger, facilitate, or hinder the relationship between land-use change and governance interventions, and explore their patterns and dominant ones, focusing primarily on Europe since 1950. A meta-analysis was conducted to understand how specific configuration of governance interventions address particular sustainable land-use issues, and the prerequisites necessary for their success, to uncover distinct research patterns across various countries in the EU. Through coding statistics, this research analyzed planning documents from local, regional, municipality, state, national, EU or other agents, coupled with academic papers, and a model-centered meta-analysis (MCMA) approach is applied. The study produced a novel taxonomy of variables of governance intervention related to (un)sustainable land-use change based on empirical research. Secondly, it also identified functional relationships between these variables, describing governance interventions that either contributed to or mitigated unsustainable land use, particularly in terms of climate change and biodiversity conservation. Overall, this research elucidated patterns and processes of governance interventions underlying sustainable and unsustainable land use, providing context-sensitive insights into the mechanisms linking policy instruments with targeted sustainability goals. The findings contribute to a deeper

understanding of causal pathways among multiple variables, offering specific recommendations for achieving sustainable land-use decision-making patterns.

Parallel Session round 2

Time: 13:30 – 15:00

2.1 Governing societal transformation towards sustainability: Can we do it and what does it take?

Innovative session

Location: Bosrandzaal

Organizers

Jetske Bouma, Planbureau voor de Leefomgeving

Emil Evenhuis, Planbureau voor de Leefomgeving

Arlette van den Berg, Planbureau voor de Leefomgeving

Abstract

The concept of sustainability transformations underlines the comprehensiveness of changes needed in society to address the environmental challenges we are facing, such as climate change, biodiversity loss and deteriorating water quality and quantity. Transformative sustainability change implies that alongside technological innovations also profound changes are required of our current social, political and economic practices and systems. Indeed all aspects of society will have to be overhauled.

Different views exist of how such a societal transformation towards sustainability can happen (such as Mission-oriented innovation systems, Small wins, Strategic niche management, Transition management, etc.) These different perspectives also imply different viewpoints of the extent to which transformative sustainability change can be governed, and what the important levers are for doing this.

In this session we want to facilitate an exchange between different perspectives on governing societal transformations towards sustainability. (1) To what degree is the governance of transformative changes in society possible? (2) What are the main points of leverage for governing such transformative processes? (3) What does this imply for policy? (4) What are key issues of political contention? (5) How should we deal with these political conflicts? To kick off the discussion we want to invite four panelists with different viewpoints, to briefly present their view.

2.2 Sustainability transitions – incremental change or system transformation..?? “ The proof is in the pudding”

Innovative session

Location: Boomgaardzaal

Organizers

Georg Winkel, Forest and Nature Conservation Policy group-WUR,
Katrien Termeer, Public Administration and Policy group -WUR,
Bas Arts, Forest and Nature Conservation Policy group, WUR

Abstract

“The world is changing” – millions of people have escaped from poverty in the last decades; at the same time, we observe unsustainable ecological footprints worldwide, and ongoing social-economic inequalities, within and between countries and continents. Against this background, “sustainability transitions” are argued for since decades, focusing usually on environmental, but ever more on social aspects of sustainability too. Next to the substantial dimension (what is sustainable in a certain context, and specifically how to balance/govern economic development and environmental targets?), there is substantial debate about how to best achieve a more sustainable future, through what “change paradigms”. The debate crystalizes around questions of:

- the depth of change: the possibility or impossibility to achieve (environmental and social) sustainability under the conditions of the current “system” – and/or if a fundamental system change is needed;
- the speed of change: the possibility and desirability of fast major (revolutionary) vis-à-vis small step / wins (incremental change);
- The strategies to achieve change – ranging from democratic parliamentary decision making to protest, and from expertise decision making to democratized knowledge.

In this panel, we do NOT aim to engage in conceptional debates about sustainability itself – at least not as first objective. Rather, we are interested in theoretical and empirical knowledge on what different change paradigms are available, and how these have performed in practice in different contexts. In short, we are particularly interested in the “proof is in the pudding”.

Following a brief introduction, we will begin with three key note speakers arguing about different change pathways, from “incrementalism” to “transformative

change”. Speakers will shortly introduce the concepts including the underlying theoretical ideas and assumptions about societal change paradigms, and provide empirical cases and evidence on “performance”. All three have tentatively agreed.

Prof. Katrien Termeer on different pathways of change

Prof. Artur Mol on ecological modernization

Prof. Ingrid Visseren-Hamakers on transformative governance

Subsequently, we divide the audience in small groups for a walk-shop, with advocates and opponents of different “change paradigms”. The groups are invited to have a short walk outside, and discuss the topic of change at hand through propositions to be formulated by the key note speakers.

Finally, after the groups have arrived back from their walk, we hope to engage the auditory and the speakers in a debate about sustainability transitions and change paradigms. Each group will shortly report back about their discussion, after which a general debate and a concluding part will follow. During the concluding debate, we will have short Mentimeter sessions to store visions and group data.

2.3 Transformative changes through responsible business models

Paper-based session

Location: Meidoornzaal

Organizers

Dr. Nadia Bernaz (Law Group, Wageningen University)

Dr. Chiara Macchi (Law Group, Wageningen University)

Dr. Mirta Alessandrini (Law Group, Wageningen University)

Dr. Olena Uvarova (Law Group, Wageningen University)

Abstract

The world faces difficult issues such as widening disparities and poverty, the escalation of climate change and other environmental problems, the spread of infectious diseases, and the eruption of conflicts, inequality, intersectional discrimination, the digital divide, biodiversity loss, food and energy insecurity, refugees, internal displacements, and disruptive emerging technologies. All of which lead to human rights abuses. Businesses are central to contributing to and solving these challenges.

A fundamental shift must take place about the role of business in society which needs to change irresponsible business models to make a meaningful contribution to inclusive, equitable and sustainable development by companies.

In the past two decades, we have seen the development of a global framework on business, human rights, and the environment through instruments such as the UN Guiding Principles on Business and Human Rights (UNGPs), the OECD Guidelines for Multinational Enterprises, and the UN Global Compact, among others, alongside several legislative initiatives at the national level. The Paris Agreement, the 2030 Agenda for Sustainable Development and the EU Green Deal bring to the forefront private actors' roles in contributing to sustainability transitions. In particular, the Green Deal provided a roadmap for actions that will transform the EU into an efficient, sustainable and competitive economy requiring governments and

companies to pay attention to the environmental impacts of their activity. It provides an opportunity to seize the financial sector's Environmental, Social and Governance (ESG) momentum and align the S in ESG with the UNGPs performance requirements.

In parallel, the EU has adopted or is developing various instruments that all seek to strengthen corporate accountability for human rights and the environment. Among those, we can cite the Conflict Minerals Regulation, the Corporate Sustainability Reporting Directive, the Import Ban on Goods produced using forced labour, the Green Taxonomy and, arguably the most pathbreaking of all: the EU Directive on Corporate Sustainability Due Diligence adopted in March 2024 (CSDDD). The CSDDD is expected to profoundly change how companies do business in the EU and beyond. It will primarily affect large EU companies and large non-EU companies doing business in the Union market. Suppliers of such companies, whatever their size and wherever they are located, will also be impacted. Indeed, since large companies will have to conduct human rights and environmental due diligence along their value chains, their business relationships will have to adapt to these new requirements to keep and further strengthen their connections. Thus, in the next few years, we can expect the well-documented "Brussels Effect" (whereby changes in EU policy impact actors outside the EU) to apply in the area of corporate sustainability more than it already does. Several EU Member States, such as France, Germany and the Netherlands, have already adopted some form of mandatory due diligence legislation into their domestic laws.

The EU legal framework on corporate sustainability can be seen as an attempt to change irresponsible business models and shift to responsible ones that could meaningfully contribute to inclusive, equitable and sustainable development by companies. The Special Rapporteur on the right to development, Surya Deva, in his 2023 Report on the Role of business in realizing the right to development, calls for a fundamental shift in how businesses operate in society by reorienting the purpose of business, changing irresponsible business models and going beyond the "do no harm" approach.

The session's main research question is: How to design responsible business models and integrate such models in corporate practices? It will be answered by fostering dialogue between researchers in the different disciplines.

Mirta Alessandrini. Building Responsible Business Models through Short Food Supply Chains

Over the past two decades, a global framework for responsible business conduct (RBC) has emerged through instruments such as the UN Guiding Principles on Business and Human Rights (UNGPs) and the OECD Guidelines for Multinational Enterprises (OECD), alongside several legislative initiatives at the national level. The Paris Agreement, the 2030 Agenda for Sustainable Development and the EU Green Deal bring to the forefront private actors' roles in driving sustainability transitions.

RBC entails that businesses should, via the process of human rights and environmental due diligence (HREDD), identify and, where necessary, prevent, end or mitigate 'human rights and environmental risks'. These refer to potential or actual adverse impacts on human rights and the environment that a business may cause or contribute to through its own activities, or to which it may be directly linked through its operations, products, or services via its business relationships. The UNGPs, the OECD Guidelines and associated guidance encourage businesses to have regard for the whole of the value chain when identifying and addressing their impacts, with meaningful stakeholders' engagement. The complexity of supply chain relationships and the challenges associated with visibility and traceability beyond the first tier of suppliers are considered a key RBC challenge.

The legal and policy framework on RBC has so far relied heavily on risk management systems. However, in recent years, academics and practitioners have called for more substantial changes and are advocating for a responsible business model (RBM) approach which would allow companies to meaningfully contribute to inclusive, equitable and sustainable development. In the agri-food context, the Farm to Fork Strategy mentions the responsibilities of private actors within the food system in the form of aspirational goals and planned actions, as well as of mandatory and voluntary measures. The first relevant action is the adoption of the EU Code of Conduct for Responsible Business and Marketing Practice.

The paper will assess short food supply chains (SFSC) as possible settings to build RBMs, and will contribute to developing a more holistic concept of RBM. We assume SFSCs are promising in this regard due to their characteristics. They include a limited number of cooperating economic actors, enhance local economic

development, and are characterized by close geographic and social links between producers, processors, and consumers. SFSCs will be assessed against all three elements of RBMs, namely responsible value proposition, value chain and revenue model.

Marloes Moed. A human rights approach to differentiated degrowth for business

As the effects of the ecological crisis continue to worsen and current policy initiatives fail to deliver, pushing the goals of the Paris Agreement further and further out of sight, the question of whether sticking to the premise of economic growth (business-as-usual) is the right one becomes increasingly relevant. In the current literature, degrowth is often presented as a (necessary) alternative to Green Growth - "an approach that seeks to bring economic growth in harmony with environmental sustainability through the absolute decoupling of gross domestic product (GDP) growth from carbon emissions" and currently the most dominant response to the ongoing ecological crisis by many organisations and policymakers at different levels. Given the principles of degrowth, studying it from a human rights perspective is legitimate. And while the concept of degrowth seems to be (more) in line with human rights standards as embodied in current human rights law, this view is also subject to criticism. For instance, some degrowth models would disproportionately affect the supply chains of states in the South. Therefore, it argues for a more differentiated degrowth model. This paper will critically reflect on the differentiated degrowth model from a human rights perspective.

Maria-Therese Gustafsson. How civil society organizations from the Global South leverage supply chain regulations to enhance corporate accountability

Governments in the Global North have adopted laws that obligate companies to address human rights and environmental impacts in their supply chains. While previous research has centered on policy-making and implementation on the demand-side, here we focus on civil society organizations' (CSOs) agency for enhancing corporate accountability transnationally. We argue that such agency is highly consequential in determining whether the regime will truly impact environmental protection and the situation of rightsholders on the ground and counteract criticism that new laws are just unilaterally imposed by Europe. Our analysis draws on literatures on accountability in global supply chains, business and human rights, and transnational advocacy networks. Empirically, we focus on the cattle and soy supply chains from Brazil to Europe. These commodities have contributed to massive deforestation and human rights violations in Brazil. Civil society organizations in both Brazil and Western countries have been active in

campaigns to generate awareness of such impacts. The study is based on extensive field research in Brazil and over 120 semi-structured interviews. Our findings discuss CSOs' agency 1) to shape and localize the HREDD norm; 2) to produce knowledge to improve traceability and the monitoring of socioenvironmental impacts; and 3) to participate in accountability processes. We embed our analysis within broader legal and socio-political contexts, as the influence of CSOs' agency will also crucially depend on dynamic legal frameworks, domestic context conditions, the strength of TANs and the unfolding of accountability dynamics in countries of the Global North. Despite important structural constraints, we argue that CSOs from producing sites are key for activating the effects of new supply chain regulations and enhancing corporate accountability.

2.4 Food system transformation

Paper-based session

Location: Lijsterbeszaal

Chair

Verina Ingram, Forest and Nature Conservation Policy Group, WUR

Papers

Barbara van Mierlo. Mixing Crops and Disciplines. Diversity and the efficacy paradox in transdisciplinary, agro-ecological projects

Monocultural farming systems are devastating for biodiversity, while biodiversity in farming systems is crucial for a sustained future of arable and other forms of farming. Alternative, agro-ecological forms of production are hindered by power differences, available technologies and infrastructure, regulations and routine practices and defensive psychological mechanisms. More social diversity with regards to values, perspectives, and disciplines is regarded as an imperative for generating knowledge, options, solutions, and conditions for alternative systems (opening up). Hence, agro-ecological transdisciplinary projects, living labs and transition initiatives tend to mix different kinds of diversities, like species, crops, perspectives, values, disciplines, resources, regions, and transition pathways. However, combining such diversities leads to an exponential growth of possibilities. It is impossible to acknowledge diversity in all dimensions. A selection of relevant conditions or causes, and choices concerning ambiguous knowledge, conflicts and trade-offs are necessary for decision making and acting.

This dilemma is known as the efficacy paradox of complexity. For dealing with complex problems effectively, it is necessary to open up, while effectively working on systemic change inherently means that choices have to be made (closing down). This raises the question of how to address the efficacy paradox and make effective, responsible choices.

To answer the question, we report on the diversity choices made in CropMix: a Dutch transition-oriented project for mixed cropping systems in arable farming. It hosts academic research ranging from ecology and agronomy, to whole farm and business modelling, and action-oriented social sciences. Societal partners include farmers, agri-food companies, and nature conservation organisations. Promising theoretical concepts from diverse disciplinary backgrounds, like *Multispecies*

Interaction and Functionality of Diversity will be explored and tested in Cropmix to investigate how transdisciplinary, agro-ecological projects can make effective, responsible choices with regards to diversity.

Madhura Rao. Small wins in practice: Learnings from 16 European initiatives working towards transforming urban food systems

European cities are growing and so is the pressure on their food systems. The challenges involved in sustainably feeding an ever-surging population are tremendous, yet cities' political and economic dynamism allows for innovative approaches to address these challenges. In this study, we examine how 16 initiatives across Europe are tackling pressing food system issues by mobilising local networks and bringing about small-scale but impactful changes in urban and peri-urban spaces. The complexity and 'wickedness' of the problems these initiatives address often makes it difficult to assess their contribution to food system transformation. Since wicked problems are problems that do not have all-encompassing solutions, taking stock of progress is conceptually and practically challenging. As a way to overcome this impasse, we view the results these initiatives have produced as 'small wins' – concrete outcomes of moderate importance, representing in-depth change at a micro level and contributing to shared ambitions. We apply the Small Wins Framework proposed by Termeer and Dewulf (2019) in order to evaluate whether and how these initiatives are contributing to systems-wide transformation.

Through analysis of qualitative data gathered from 18 in-depth interviews with participants engaged in initiatives across 11 cities spanning 8 countries, our results empirically demonstrate what small wins can look like in practice. Furthermore, the study highlights how the five propelling mechanisms suggested by Termeer and Dewulf – energising, learning by doing, logic of attraction, bandwagon effect, coupling, and robustness – manifest in real life contexts. We outline how cultural nuances such as Dutch citizen's attitude towards social dining, Finnish administrators' approach to inter-personal communication, and Turkish farmers' perception of agricultural subsidies can make small wins look very different in different contexts. The impact of large-scale disruptions such as Brexit, the Russia-Ukraine war, and the Covid19 pandemic on small wins is discussed as well. Additionally, we reflect on how funding mechanisms and the projectisation of transformation efforts affects local initiatives, shaping their strategies, priorities, and ultimate outcomes. Based on these results, we propose ways in which small wins can be appraised, upscaled, and used to inform policy processes within urban food systems.

Negin Salimi. Comparing Sustainable Food Supply Chain Models: Insights from Dutch Dairy Farming

The European Union's food system is under intense scrutiny due to its recognized unsustainability across environmental, economic, and social dimensions. Researchers, farmers, companies, and policymakers increasingly focus on sustainable food systems, mainly through short-food supply chains (SFSC) and alternative food chains.

However, comprehensively understanding the sustainability of these chains remains a challenge due to their intricate nature. Integrating production-to-consumption impacts is crucial for accurate assessment, yet achieving consensus on sustainability performance remains elusive.

This research aims to bridge these gaps by introducing a comprehensive framework and methodology to assess three distinct food supply chain models' environmental, social, and economic impacts (Conventional, Short, and Dedicated). Utilizing the Best-Worst Method, the sustainability value of each model is evaluated in the context of the Dutch dairy sector, which is known for its significant influence on sustainability.

The proposed approach involves three key steps: determining the importance of primary criteria and sub-criteria based on the Triple Bottom Line model, establishing performance scores for each model, and quantifying their sustainability value based on performance and criteria weights. The data from interviews with 18 experts from different stakeholder groups are collected to ensure we have included different insights. Our experts are from the government, financial institutions, dairy companies, NGOs related to the dairy sector, and academia.

Environmental considerations were identified as the most crucial criterion for achieving sustainability in dairy supply chains, followed by economic and social factors. Among sub-criteria, profitability emerged as the most significant, while labor was deemed the least important for sustainable performance. Based on these findings, the Short supply chain in the Netherlands demonstrated the highest sustainable value, indicating its effectiveness in meeting environmental, economic, and social sustainability criteria. The Dedicated supply chain followed closely behind, albeit with a slightly lower value. In contrast, the Conventional supply chain exhibited the lowest sustainable value, suggesting room for improvement in its sustainability performance.

These results emphasize the importance of prioritizing environmental considerations in dairy supply chain management, while also recognizing the significance of economic viability and social impacts. The prominence of profitability underscores the need for sustainable practices that also contribute to financial success.

Raissa Ulbrich. Bridging Stakeholder and Expert Knowledge in Participatory Assessment using Envisioning of a Positive Future of Agriculture in the Mediterranean

Even though a sustainable transformation of the agricultural systems in the Mediterranean region is urgently required, both target knowledge (where to go?) and transformation knowledge (how to get there?) are disputed, even at the local level. Additionally, local-scale metrics need to be defined in order to monitor the performance and thus the context-specific success of changing agricultural practices.

One shortcoming of current sustainability assessment in agriculture is that in expert judgement of indicators on sustainable agriculture, often bio-physical (environmental) indicators prevail, whilst social dimensions and the farmers' practical context are omitted. Whereas, if only stakeholders are asked, awareness gaps can dilute the concept of sustainability resulting in indicators only able to express weak sustainability. However, a sustainable agriculture needs to address social, economic and environmental requirements and represent demands of local practitioners, decision-makers and civil society alike. For the creation of meaningful, robust and assessable metrics, expertise thus needs to come from both a variety of stakeholders and experts. In order to turn stakeholder needs into measurable data for assessment, methods are required to bridge practical and scientific knowledge. Also, in order to stimulate social learning between stakeholders and researchers, different perceptions need to be discussed and reflected upon in locally appropriate formats.

In a transdisciplinary living lab approach, the React4Med project brings practitioners from agriculture, public authorities and society together with scientists in eight pilot areas in order to identify best-practice solutions to local agricultural challenges, to highlight barriers and create a pathway to transformation. For this, the creation of positive visions with stakeholders is used in order to derive goals and values (target knowledge). These are subsequently turned into appropriate socio-economic and bio-physical indicators in order to assess the performance and impact of specific agricultural practices (transformational knowledge).

In this paper we present the methodology of how locally relevant value dimensions are created from positive visions in mixed stakeholder groups and how these are subsequently converted into indicators used to measure the performance of different agricultural practices through expert judgement and stakeholder validation. We will show exemplary results and discuss learnings from the process.

Patrick Huntjens, Adrian Rinscheid, Rene Kemp, Bram van Helvoirt, Noelle Aarts, Ingrid Visseren-Hamakers, Anne van Veen, Jan Hassink. The Transformation Flower Approach for Leveraging Change towards Multiple Value Creation and Institutional Change

We introduce the Transformation Flower Approach (TFA), a Theory of Change that attends to multiple value creation and institutional change as a dual design challenge. We highlight how the TFA integrates social scientific theories and models relevant for transformative change (in particular focusing on pathways, leverage points, governance, power, and values) and demonstrate its practical value by an application to the ongoing transformation of the Dutch food system. By providing a holistic, transdisciplinary and practically relevant approach that aims to support new social contract formation, the TFA goes beyond other transformative change approaches. Based on the notion of pathways, it offers a toolbox that aids in working towards desired futures, involving both incumbents and challengers in an effort to harness untapped yet proximal potentials in a forward-looking way. By embracing an innovation approach, it not only promises to circumvent resistance to change, but also serves as a step-by-step approach to identify options for multiple value creation and effective cooperation. We demonstrate the analytical and practical value of the TFA by discussing action perspectives at various levels and scales in the context of the Dutch food system transition, including (1) area-oriented approaches, (2) acceleration agendas for specific transformation pathways, and (3) actor-specific transformation flowers. In developing these, we emphasize the importance of interdependencies between leverage points. Our approach helps to identify opportunities to link transformative options (the what), actors (the who) and levers (the how) in dynamic interaction to embark on transformative pathways.

Parallel session round 3

Time: 15:30 – 17:00

3.1 Politics of global sustainability transformation: The case of the EU Deforestation Regulation

Innovative session

Location: Bosrandzaal

Organizers

Otto Hospes;

Georg Winkel;

Jelle Behagel;

Verina Ingram;

Faris Rahmadian

Abstract

During the last five years, there has been a proliferation of EU environmental regulations and directives, driven by the ambition of the EU to become a global leader in green transitions and achieving climate neutrality by 2050. One of these regulations is the EU Deforestation Regulation (EUDR) that came into force in June 2023. The EUDR prohibits the import into the EU of global commodities (soy, beef, palm oil, wood, cocoa, coffee, rubber) when contributing to deforestation or forest degradation.

The making and contents of the EUDR have prompted controversy in both Europe and the Global South about its drivers, political legitimacy, implementation and effects. This controversy can neither be simplified to a contestation between governments, business and civil society nor between the EU and the Global South. The EUDR binds and divides governments, companies and civil society from different parts of the globe. The panel wants to unpack the EUDR as a political project and process, organizing policy and academic debate on the ambitions and ambiguities of this regulation.

For this purpose, two fishbowl discussions will be organized. The first fishbowl will be a policy debate, discussing ambitions, normative contents and legitimacy of the EUDR. The second fishbowl will be an academic debate, discussing frameworks, concepts and lenses that can help to understand, analyse and evaluate the EUDR.

The leading questions of the first fishbowl are:

- is the main driver of the EUDR to preserve forests in the Global South, or rather trade interests of the EU and its corporate business?
- is the EUDR 'leaving no one behind', or favouring large companies and big producers over smallholders?
- is the EUDR signalling the end of neo-liberal hegemonic thinking, or a new packaging?

The leading questions of the second fishbowl are:

- what theoretical concepts and methodologies can be used to answer the leading questions of the first fishbowl?
- how to unravel the complexities of the EUDR as a political project and process, involving and affecting state and non-state actors in different sectors and parts of the globe?
- how to evaluate the implementation and impact of the EUDR?

Each fishbowl will be kickstarted with 2 pitches of 10 minutes each, presenting arguments and ideas in response to the leading questions. Then the 4-5 participants inside the fish bowl will start to discuss these arguments and ideas, with a moderator facilitating their 30 minutes discussion. The inside of every fishbowl will be unique but in any case a mix of junior and senior researchers, policymakers and commodity stakeholders. There will be an empty seat to be occupied by rotating participants from outside the bowl.

At the beginning of the session, the two fish bowls will be briefly introduced by a panel chair. At the end of the session, the pitchers will be asked to share what each consider the best idea heard.

3.2 Transforming wastewater governance in the context of scarcity? Reuse and circular water innovation in unexpected places

Innovative session

Location: Boomgaardzaal

Organizers

Kirsty Holstead, Public Administration and Policy, Wageningen University and Research, Wageningen, the Netherlands,

Dave Huitema, Public Administration and Policy, Wageningen University and Research, Wageningen, the Netherlands,

Herman Kasper Gilissen, Utrecht University Centre for Water, Oceans and Sustainability Law, Utrecht, Netherlands; Delta Climate Centre, Vlissingen, the Netherlands, and

Gerald Jan Ellen, Deltares, Utrecht, the Netherlands

Papers

The Role of Context in the Transition to Circular Water Management - Nof Afghani, University of Twente

In the Anthropocene era, the pressing issue of freshwater exceeding safe limits urges us to rethink and transform our water supply and use practices. The challenge is not merely to survive within these limits but to thrive, ensuring that everyone has enough water to live a dignified life, especially in water-scarce regions. One potential avenue for such transformation is embracing circular water management—a concept that redefines waste and challenges our water views. However, realizing this vision requires not just technological advancements as many innovations in water reuse exist; their adoption and scaling depend on their compatibility with existing socio-technical configurations. Thus, adjustments and alignments of these configurations, which have directed the water sector towards a linear and unsustainable way of sourcing, using, and discharging water, are necessary.

One major challenge is today's regulatory frameworks, which hinder the full potential of treated wastewater. For instance, mandates on using high-quality treated water, even if it's for flushing the toilet. Imposing such stringent quality

standards—regardless of necessity—leads to higher costs and unnecessary consumption of chemicals and energy. Furthermore, current regulations may stifle the decentralized implementation of onsite wastewater treatment solutions, adding burdens to already strained utilities. The solution lies in transforming how we govern wastewater. Real-world examples, like San Francisco's water utility, demonstrate that political support and strategic long-term commitment are critical to the success of onsite water reuse programs.

We need to acknowledge that crafting flawless regulations from scratch is hardly possible. Instead, we should adopt an iterative, self-reflective approach to refine regulatory frameworks, permitting processes, financial incentives, and performance standards. Accordingly, coordination, collaboration and "learning by doing" are essential. Moreover, integrating circular thinking into wastewater governance promises not just water production but also energy, fertilizers, chemicals, and more. This systemic innovation requires the coordination of stakeholders with varied interests, highlighting the importance of regular meetings to foster knowledge exchange, market development, legitimation, and regulatory adjustments. Ultimately, true transformation happens when we expand what's possible. Improving our understanding of circular water innovations' potential, functioning, and challenges is crucial. Doing so can pave the way toward a safe and just water future

Re-imagining decentralized water reuse: Policy sequencing and intermediaries for implementing new technologies in the case of Aquarevo - Katrin Pakizer, Zurich University of Applied sciences, Swiss Federal Institute of Aquatic Science and Technology

Decentralized water reuse technologies enable more efficient resource utilization and the diversification of water assets, which is increasingly important in light of climate change, urbanization and growing demand for water due to population growth. However, integrating decentralized water reuse technologies into conventional water infrastructures is a complex and often lengthy transition process, requiring changes in regulations, organizational structures, markets, professional and user practices. Creating this shift requires a mix of various policies and policy instruments, which address potential barriers to implementation, such as organizational lock-in or socio-cultural aversion.

As such, the potential of policies (and policy instruments) to impact the transition process depends, among other factors, on timing and scale, as policy mixes might be sequenced across time and at different levels of governance – referred to as

policy sequencing While policy sequencing has gained traction in the literature on sustainability transitions, there remains little empirical insights into how policies support the scaling-up of transformative niche solutions in multi-level governance systems. Additionally, there is a lack of understanding on how non-governmental actors at the local level might influence transition trajectories by bridging different institutions, processes, and interests.

In this paper, we thus provide empirical evidence for early-stage transition dynamics with a focus on policy sequencing and intermediary actors, using the Aquarevo land and housing development project in Victoria, Australia as an in-depth case study. Australia has long faced water scarcity and stress, driving the need for alternative water sources. In response, the Aquarevo project, which has been co-driven by the regional water utility, South East Water (SEW), and a private land developer, has integrated innovative decentralized water reuse technologies across a new neighborhood. To retrace the transition dynamics, we conducted semi-structured interviews and collected secondary data. Results show that Aquarevo was impacted by strategic policy sequencing, relying on supportive policies to generate important learnings about new technologies and facilitate the formation of supportive actor networks. The water utility SEW played an important role in this by transcending its classical role as a service provider and becoming an intermediary, facilitating collaboration between different actors and gaining sectoral understandings regarding technical aspects of decentralized water reuse technologies.

Overcoming institutional complexity in water reuse through small wins - Kirsty Holstead and Dave Huitema, Public Administration and Policy group, Wageningen University and Research

Water reuse is in an early and experimental stage in some parts of Europe, including the Netherlands. Pockets of innovation exist, but water reuse implies a transformation of infrastructure, institutions, and practices, and it is unclear how to make water reuse a common practice. An increasingly important aspect of these debates includes how experiments evolve across scales and how conditions for transformation vary across contexts, arguing that transformation depends on interactions between dynamics at different levels. A core aspect is the socio-technical system and path dependencies, often understood as institutionalised rationalities that co-evolve over time. Literature shows how they are maintained, yet we know surprisingly little about how these rationalities are constructed and diffused across scales and how they influence actors, their routines and practices. More understanding is required to examine the institutional complexity that water reuse initiatives face and how those involved implement and influence the shape of

the initiatives. This paper presents findings of a qualitative study of reuse initiatives responding to the following question: How do those involved in undertaking reuse shape the unfolding of water recycling experiments? Building on literature from experimental governance, small wins and institutional theory, we provide insights into the mechanisms that drive and shape efforts to implement reuse across diverse European contexts, particularly the ways that those involved create room for manoeuvre and employ agency in the process. We suggest that reuse initiatives are shaped by their internal dynamics, the relationship between initiatives, and the dynamics with the wider policy environment. We seek to shed light on these dynamics in more detail to offer a fine-tuned understanding of institutional complexity that shapes water reuse and how it affects actors and their activities. We contribute an understanding of how different governance contexts influence water reuse, the shifting tensions actors face as initiatives unfold and offer reflections on how these may be overcome.

Navigating Water Challenges in Rural Scotland: A Call for Integrated Policy Approaches – Elizabeth Lawson, Newcastle University Centre for Water

The evolving global climate and shifting demands on water resources have intensified water challenges worldwide. This has resulted in a dynamic outlook on which areas of the world are now considered 'water secure', and which suffer from 'water insecurity'. Across the nations and regions that now regularly experience extended periods of water insecurity, research highlights that rural and island spaces often face the most severe of challenges. This is no less clear than in the 'Hydro Nation' of Scotland, where rural and island communities frequently experience issues with both quality and quantity of water supplies and treatment and disposal of wastewater.

Research has outlined that rural Scottish communities are often more severely impacted by water challenges in comparison with their urban counterparts due to a range of complex structural issues, including a number of historic policy processes. These issues have further cascading consequences for rural communities, as a lack of access to efficient and sustainable water and wastewater systems continues to impact additional sectors including community development, housing, education, social care and wellbeing. Traditional policy approaches and responses in which water and wastewater management is viewed under a separate lense, has often led to interlinkages between critical policy areas being overlooked. This has resulted in a policy and governance environment that is difficult to navigate for those trying to implement innovative water management practices, such as water reuse and new technologies, in areas most in need.

Our research emphasises the need for a shift in approach from water and wastewater being viewed as a separate siloed national policy area, to one which integrates water and wastewater systems and services, at a rural and island policy scale. We argue that a shift in policy focus to one centred on sustainable rural communities will enable an environment in which a multitude of water challenges can be addressed across rural. Scotland.

NB: This session will continue in parallel session round 4

3.3 Co-creating value-coherent and just pathways for biodiversity and climate

Innovative session

Location: Meidoornzaal

Organizers

Christopher Wong, IIASA,

Thomas Schinko, IIASA,

Larissa Novak, Senckenberg Gesellschaft für Naturforschung,

Koen Kuipers, Radboud University,

Francesca Veronesi, Norwegian University of Science and Technology

Abstract

Climate and Biodiversity research and policy exists at a nexus of political, economic and social debates over land and resource use and the allocation of the derived benefits. In this context, there can often be contesting beliefs, or worldviews, on the causes, consequences and importance of the problems being identified. These problems are often called ‘wicked problems’ and the fundamental differences in peoples’ worldviews can lead to inter-group conflict in the policy planning phase leading to difficulties in implementation of proposed solutions. Therefore, it is important to understand stakeholder worldviews and tailor pathways and interventions so that they are consistent and coherent to the range of worldviews that exist in the policy context.

In the IPBES (2022) Assessment Report on the Diverse Values and Valuation of Nature, values and worldviews are identified as “deep leverage points” that increase the effectiveness and stability of policy interventions because they impact policy acceptability through their adherence to stakeholder worldviews and values. A key development to the utilisation of worldviews as a leverage point to improve the viability of policy pathways is the understanding of the importance of justice preferences (Lenzi et al., 2023; Schaafsma et al., 2023) because the perceived fairness of policies is key to their acceptability (Bergquist et al., 2022; Martin et al., 2020; Thaller et al., 2023). In response to these understandings of the viability of transformational pathways as part of the Horizon Europe research project, Rainforest, we have produced a set of draft value-coherent and just pathways that identify key valuations of nature, justice preferences and framings of key intervention domains, <https://rainforest-horizon.eu/deliverables/D1.1.pdf>.

We would like to propose a social simulation exercise as an innovative session at the WCSG conference. A social simulation is a collaborative process to allow participants to engage with complex problems that have multiple framings in a game design that emulates the real world. The simulation will be designed to be open ended so that participants can explore different strategies and pathways and the challenges that exist to their desired futures. It will be a narrative-based social simulation based on the draft pathways created by the Rainforest project. Based on key values and justice preferences participants will be asked to join groups to reflect on and enhance the current draft pathways and then to engage in a simulated policy negotiation that will be stimulated by various inputs to highlight key conflicts. Data captured on the policy preferences and the amendments to policies that the participants make will then be used to improve the final versions of the pathways. We would request a time allotment of 90 minutes to allow the discussion to develop.

3.4 New perspectives on the governance of sustainability transformations: Pitches by students

Innovative session

Location: Lijsterbeszaal

Organizers

Mattijs Smits, Environmental Policy Group, WUR

Helena Voorhuis, Bachelor Environmental Science student, WUR

Abstract

This session brings in the future change makers and academics that will be driving change or changing drivers of sustainability governance: our current students. In this session, student will be selected (at a later stage) to present their recently completed BSc/MSc thesis in a short pitch (~5 minutes). A call will be sent around to all relevant programmes at WUR to select students, e.g. Governance of Sustainability Transformations, Environmental Sciences, Forest and Nature Conservation, etc. Students outside WUR are also welcome. Based on the submissions, groups of 3-4 pitches will be formed to be commented on by a discussant (staff member of WCSG). At the end of the session, there will be an open debate between the students and the audience, guided by the key questions of the conference

The proposed format of the session (90-105 minutes) 1. Opening (10 mins) 2. First set of pitches (20 mins) + discussant (5 mins) 3. Second set of pitches (20 mins) + discussant (5 mins) 4. Third set of pitches and discussant (optional, 25 mins) 5. Plenary discussion (20 mins)

Parallel session round 4

Time: 17:15 – 18:45

4.1 Key actors for transformative change

Paper-based session

Location: Bosrandzaal

Chair

Wieke Pot, Public Administration and Policy Group, WUR

Papers

Noor van Dooren. Agents of change for transformative area-oriented management

Water scarcity and the uneven distribution of water resources present challenges for global water managers, which are exacerbated by climate change. Society is facing significant transitions in energy, agriculture, and water, necessitating novel management strategies that transcend mechanistic and technocratic approaches. These strategies are integral to a broader transition process where accountability for emerging issues remains undefined. Agents of change are actors that can play a key role in initiating and directing new ways of operation. They manoeuvre themselves in the complex playing field of realizing change, often within the realm of their professional environment. Area-oriented managers, often described as the linking pin between an organization and its' environment, show potential to act as agent of change.

An analysis of the development and principles of area-oriented management in the Netherlands revealed four conceptions reflecting recent shifts in purpose, focus, and motivations. Given the transitions and challenges the water sector faces, these conceptions may lack adequate elucidation and guidance. Therefore a transformative conception is proposed, explicitly focusing on supporting and encouraging professionals and organizations to realize transformative change. To further elaborate the transformative conception, a conceptual framework comprising nine roles of agents of change was developed through a literature review.

To examine the current state of area-oriented management in the Dutch water sector, and to explore the interpretation and resonance of the transformative conception within practice, an explorative survey was distributed amongst Dutch drinking water professionals working on area-oriented management. In addition,

four explorative interviews were conducted with so called transformative area-oriented managers.

The transformative conception manifests itself within multiple water utilities. This study elucidates how the identified conceptions of area-oriented management reveal underlying principles and perspectives that fuel the decision-making process, rather than providing a methodological approach. The empirical findings illustrate how the transformative conception brings water professionals to balance societal gain and the utilities' interests, and form project-transcending and area-based collaborations. In conclusion, this research has yielded both scientific understanding and practical insights, enhancing theoretical comprehension and real-world application of transformative change in area-oriented management.

Alex López Alberola. Navigating Sustainability: Insights into the Role of Mediating Actors in Shaping Transformative Water Governance

Given the escalating concerns of drought, groundwater deterioration, and other water-related hazards, it is imperative to understand how society and its water systems can change to cope with the current climate crisis. Over the years, this has called for radical changes in the relationships between actors, actors and water (how we think about, see and utilize water), and policymaking, which have had significant effects on the status quo. Alongside this, (new) actors or groups of actors have come to the forefront of the struggle against climate change, which influences transformative sustainability change and how we value water in society.

One such group that, in recent years, has had an increasing impact on (transformative) change is that of mediating actors such as consultants, knowledge brokers, and informants, who, in their intermediary or bridging organizations, or as individual knowledge agents, have shape(d) our perception, value, governance, and knowledge of water. In some areas, they are seen as central in the charge against climatic affects, for instance in agricultural water management, where they have great influence on what is considered sustainable change, how governance takes shape, and which projects are deemed acceptable. This impacts communities and society alike, and greatly influences just, fair, and inclusive change. At the same time, is this influence really in support of transformative change, or do these actors (unconsciously) reinforce the current status quo? This paper investigates the role of mediating actors in shaping sustainable transformative change and related governance, focusing on the experiences of consultants working in the water sector. We attempt to uncover these by utilizing an interpretative design aimed at uncovering the day-to-day experiences of these mediating actors. We perform an ethnographic study, supplanted with observation data and conversational

interviews, within an organization with a focus on consultancy, knowledge sharing, and innovation pertaining to water, and shadow various individuals to see their real-world sway on, and experiences with, sustainable transformative change. Our insights aim to uncover lacunae and opportunities for adaptive and transformative governance, as well as implications for society and the academic field.

Tomas Buitendijk. Stakeholder path dependency and governance in Marine Protected Areas: an interdisciplinary analysis

Globally, coastal and marine environments are being rapidly transformed in response to challenges associated with climate change and biodiversity loss. Marine Protected Areas (MPAs) are a key policy instrument to achieve the sustainable management of these environments. The successful planning, designation, and implementation of MPAs requires tools that help understand the plurality of meanings and values associated by different stakeholders with a given marine environment, including those derived from Cultural Ecosystem Services (CES). Due to their intangible character, these services have generally proven difficult to integrate into overall ecosystem services assessments and subsequent decision-making. Yet, a thorough understanding of the relationship between different stakeholders and MPAs, including at the cultural and social levels, is critical to successful governance and helps ensure a just transition to the sustainable use of coastal and marine ecosystems.

In this paper, we will share preliminary results and reflections from an ongoing interdisciplinary study within the Horizon Europe-funded Blue4All project, where we conduct a comparative test of the facilitated discussion method for stakeholder engagement at MPAs in Ireland and the Netherlands. We employ a theoretical framework based on the interlinked concepts of entanglement and path dependency, to explore how CES give direction to people-place engagements by configuring various affordances and constraints, which ultimately influence priorities for MPA management. As different stakeholders chart unique but intersecting paths through MPAs, an analysis of entanglement, path dependency and contributory factors can help understand different positions. Ultimately, we seek to assess how use of the facilitated discussion method can improve stakeholder recognition in MPA governance, for example by enhancing equity, inclusion, and participation in key decision-making processes.

Kornelia Johansson. The polarized debate of Swedish forests – understanding the role of the forest journalist

As the climate and biodiversity crisis rapidly evolves, the forest has become a site where different positions on how we best address the issue of climate change whilst providing necessary commodities for the society, are on display. In Sweden, forest conflicts have in recent years been visible in the media debate, as a public and polarized discussion about different forest practices. The Swedish forest debate provides an interesting case to explore in order to understand the role of different actors, and specifically the journalist's role, in the dynamics of governance of natural resources.

In currently ongoing work, I explore what characterizes the Swedish forest debate. I do, in this article unpack themes relating to knowledge, truth and impartiality and how the journalists covering forest issues perceive these themes. Interviews, focus groups and an analysis of media articles provides the basis for a discourse analysis in which I find a set of storylines encapsulating what knowledge is made to be and what counts as knowledge in the forest media context as well as what implications objectivity have according to journalists themselves. The discursive approach is combined with literature on environmental journalism and principles of co-creation of research, involving the participating journalist in the process of interpreting the results.

Early findings suggest that objectivity and impartiality are central issues for the journalists, but that the concepts seldom are explicitly problematized. This contributes to a discourse where the focus is on production and technology as presented by the forest industry, is given priority in favor of knowledge claims presented by more marginalized and indigenous voices. Moreover, contestations of the dominant discourse are seen as activism rather than constructive knowledge claims that could be part of a constructive and solution focused discussion.

The study suggests that the media reporting on forest, as well as the role of journalists in today's dynamic media landscape are important aspects to understand how sustainable transformations can come about. It brings attention to objectivity as a concept that are contextual, related to power relations, and hence important to pay attention in the governance of the sustainability transformations.

Danny Tröger. A Trojan Horse in the Last of the Wild? Insights from Planning Evaluation of Forest Plantations in Chilean Patagonia

This paper examines the effectiveness of governance strategies in promoting sustainable transformations and enhancing landscape resilience, focusing on the

Chilean Patagonian region of Aysén. Amidst increasing threats from deforestation, climate change, and natural hazards, the preservation of landscape resilience is imperative for safeguarding biodiversity, carbon-storing soils, and rural livelihoods. Drawing on empirical case studies, we analyze the efficacy of spatial planning and land zoning initiatives as governance tools to mitigate risks and foster resilience.

Our research employs a combination of conformity and performance evaluation approaches to assess the extent to which current governance mechanisms align with environmental objectives and address local risk perceptions. Despite the dedication of regional spatial planning to sustainable land use, our findings reveal significant gaps in the effectiveness of land zoning strategies. Notably, the existing framework fails to eradicate invasive species, mitigate erosion and natural hazards, and incorporate indigenous risk perceptions. Moreover, the promotion of agroforestry as a means to enhance resilience paradoxically exacerbates landscape degradation by favoring the expansion of exotic tree species over traditional rural livelihoods.

In response to these challenges, we propose three alternative strategies informed by the polycentric governance paradigm and insights from comparable cases. Firstly, we advocate for the promotion of traditional agroforestry practices while excluding exotic tree species to enhance landscape resilience and support local livelihoods. Secondly, we emphasize the importance of co-creating land zoning categories for disaster risk mitigation in collaboration with local communities, ensuring their active involvement in decision-making processes. Lastly, we advocate for the promotion of community forest management as a means to empower local stakeholders and foster sustainable landscape governance.

This paper contributes to the discourse on sustainability governance by critically evaluating existing strategies and proposing alternative pathways towards more effective and equitable governance frameworks. By interrogating the discourses and paradigms surrounding current governance approaches, addressing ethical considerations, and acknowledging the positionality of sustainability governance researchers, we aim to advance the understanding and practice of governance for sustainable transformations

4.2 Transforming wastewater governance in the context of scarcity? Reuse and circular water innovation in unexpected places

Innovative session

Location: Boomgaardzaal

Organizers

Kirsty Holstead, Public Administration and Policy, Wageningen University and Research, Wageningen, the Netherlands,

Dave Huitema, Public Administration and Policy, Wageningen University and Research, Wageningen, the Netherlands,

Herman Kasper Gilissen, Utrecht University Centre for Water, Oceans and Sustainability Law, Utrecht, Netherlands; Delta Climate Centre, Vlissingen, the Netherlands, and

Gerald Jan Ellen, Deltares, Utrecht, the Netherlands

Papers

The EU regulatory framework on wastewater reuse – Sophie Melchers, Utrecht University Centre for Water, Oceans and Sustainability Law (UCWOSL)

To advance our understanding of the possible avenues to diversify our water sources, this article explores the regulatory framework for wastewater reuse. Over the past decades, the increasing prevalence of droughts and more persistent water scarcity has led to a need for better and more diverse water sources. EU regulation up until this point has focussed predominantly on ensuring the availability of good quality freshwater through reducing aquatic pollution in ground- and surface waters. However, in order to create a robust freshwater system, sources other than ground- and surface waters must be explored as well. The reuse of wastewater may be technologically feasible, but the regulatory framework is unclear. This has led to a large discrepancy between Member States' regulation of wastewater reuse. Wastewater reuse is located at the regulatory crossroads of demand and supply measures, quantitative and qualitative measures, and water and waste regulation. The new EU Regulation 2020/741 on wastewater reuse has created minimum water quality standards and takes a risk management approach to the reuse of urban wastewater for agricultural purposes. According to this Regulation, Member States are left with considerable freedom to regulate their own wastewater reuse.

However, the obscure regulatory framework surrounding the Regulation combined with the relatively flexible risk management approach means that an exploration of the position of wastewater reuse in the EU is needed for some Member States without prior wastewater reuse experience to start regulating this innovative water source.

Driving transformative change in collaborative water governance – Flavia Cosoveanu, Resilient Deltas Group, HZ University of Applied Sciences Middelburg

The availability of freshwater is as one of the pressing climate change hazards in coastal systems. The adaptation of coastal systems requires a transformative change in water governance. Experimentation is considered an important approach to support transformation through incremental changes in technologies, institutions, practices and culture. Moreover, experiments can facilitate the formation of new actors' networks who come together to share knowledge and resources. Through experimentation and learning, the capacities of actors networks, such as trust and collaboration, can be enhanced. In water governance, many experimental initiatives test technical innovations with the short term rather than the long term perspective which reduce the opportunity for transformative change. Likewise, the upscaling of experiments might encounter legal, social and economic constraints. Therefore, a governance change is required to facilitate experimentation which enables transformative change in the water system. This paper studies this knowledge gap addressing the following research question: How can collaborative governance network enable transformative change via experimentation in a (fresh)water system? To answer this research question, we analyze a case study where an existing collaborative actors network (formed by governmental authorities, industry, drinking water, nature and agriculture) is dealing with limited freshwater availability in coastal region of the Netherlands. Data collection was conducted via desk research, focus groups followed by plenary discussions during four interactive workshops which focused on: 1) climate scenario analysis; 2) governance challenges; 3) collaborative actions and 4) actions implementation. After workshop 2, ten semi-structured interviews were carried out with the participants to get a deeper understanding of the governance challenges. The collected data was examined doing a thematic content analysis using the attributes of the collaborative governance framework (Emerson et al, 2012) in the coding process. The analysis provides insights into collaborative actions needed to drive transformative change in a regional water system. Actors proposed integrated technical and governance actions such as a model-driven water management, a regional water loket (body) with mandate or an industrial symbiosis. However, the

implementation of such actions might be challenged by current governance attributes such as shared commitment, leadership and legal rigidity towards innovative initiatives.

Reuse and circular water innovations – addressing legal barriers from wastewater law – Aster Veldkamp, Utrecht University Centre for Water, Oceans and Sustainability Law, Utrecht, Netherlands

Within the Aquaconnect Demonstrator Project (AMS Institute), purification techniques are being developed to extract water from urban wastewater systems (water harvesting). The aim is to use this alternative water source to meet the water needs of Amsterdam's green spaces in times of drought. The technology is in place, or at least at an advanced stage. To scale up techniques that recover materials from urban wastewater, such as water, struvite or cellulose, many legal questions often need to be answered. One of the legal questions that this project has in common with other projects recovering materials from wastewater is whether the water recovered from wastewater should be qualified as a waste or a raw material/product. The answer to this question is not only legally relevant, but also of great practical importance: operations involving waste materials, such as delivery to third parties, are subject to additional legal obligations. These obligations, but also the image of waste, can make it more difficult for a water reuse market to get off the ground.

Whether or not water recovered from urban wastewater is a waste must be assessed in the light of the definition of waste and the end-of-waste status criteria from the European Waste Framework Directive. This definition and criteria leave a lot of room for interpretation, which can make it difficult in practice to determine the legal status of recovered water and the legal obligations applicable to operations with that water. Waste law is therefore often perceived as a barrier.

This contribution will delve deeper into possibilities to gain more legal clarity on this. It will also address the question of whether, and if so, to what extent there is legal scope for experimentation on the basis of existing legislation and what safeguards should apply here, in order to stimulate innovations for water reuse and water circularity. Finally, it will address what other legal questions exist in the Aquaconnect Demonstrator Project and, where possible, these will be provided with an (initial) answer.

NB: This session is a continuation of the session in parallel session round 3

4.3 Governing urban and regional transformative change

Paper-based session

Location: Meidoornzaal

Chair

Nicolas Jager, Public Administration and Policy Group, WUR

Papers

Lisa Sanderink. The EU Cities Mission: A governance innovation for a climate-neutral Stockholm?

Acknowledging the key role of cities in climate change mitigation, the EU launched the Cities Mission (2021) to accelerate urban climate action. This EU mission was introduced as a governance innovation to create new forms of collaboration and citizen engagement, while emphasizing research and innovation. Concretely, the EU selected 100 cities to develop Climate City Contracts, which should include “clear and visible” commitments and involve citizens, research organizations and the private sector. Supported by a NetZeroCities, these missions are supposed to unlock new economic models, integrated urban planning, digital technologies and innovation management. While scholars have reflected on the potential of the EU Cities Mission, there is a limited understanding of how it occurs in practice and whether it – in fact – fosters collaborations and the intended innovations. To address this gap, we study the EU Cities Mission of Stockholm: one of the first to have its Climate City Contract approved by the EU and receive a so-called EU Mission Label. We employ a who-how-what heuristic to observe changes in the complex governance structures and processes around the EU Cities Mission in Stockholm. This is based on semi-structured interviews with policymakers and stakeholders involved in the Stockholm Cities Mission, complemented by an analysis of secondary sources for triangulation. Our results identify a structure of public and private actors centered around the city administration. New interactions have emerged between the city and the EU, which in turn have changed Stockholm’s position towards national government. New processes were found in innovative approaches to contracting and particularly investment planning. These (new) structures and processes stimulate new economic models and – to some extent – integrated urban planning and innovation management. However, the city is lacking progress in developing new forms of citizen engagement and digital technologies. This analysis helps to understand the complexity of changing governance structures and processes for the EU Cities Mission in Stockholm.

Therewith, the paper provides lessons for other European cities seeking to act on climate-neutrality. Importantly, the paper contributes to our understanding of the EU Mission approach and its operationalization, while critically reflecting on its added value as governance innovation.

Laura Ripoll Gonzalez. Regional identities as drivers of regional sustainability transitions

Sustainability transitions scholars have argued the need to engage in more reflective transformative research to envisage and deliver the solutions needed to deal with current complex societal issues, such as climate change. They also call for a deeper understanding of how the community's needs are framed by both government and local community actors. The development of a shared place brand identity can help frame sustainability narrative and common purpose for local communities as well as act as a governance tool for community action and collaboration. However, in order to reflect the needs and aspirations of local stakeholders, place brand identities must be co-created among place actors. Drawing on the literatures of just transitions, governance, place branding, and sociology, we apply an innovative methodological approach, combining participatory action research and the method of sociological intervention to explore and operationalize a bottom-up approach to developing a regional brand identity as a governance tool to support sustainability transitions. Through a case of a Spanish Local Action Group, we show how the development of a regional identity can facilitate collaboration towards sustainability transformations among the local community (by appealing to the emotions of different actors and bind them towards a common sustainability objective).

Rovena Yazhini. Beyond Urban Economic Growth - Land Governance for Urban Sustainable Development in Hill Station - The Nilgiris, India

Urbanisation presents both opportunities and challenges, particularly in the context of globalisation. Effective governance policies are important to address the diverse spectrum of urban issues when arising. This research focuses on the significance of land governance in the requirement of socially and ecologically sustainable urbanization through governance, recognizing land and natural habitation as an asset for local people and essential for their livelihoods. The paper aims to diffuse the social and economic issues that are entrenched due to city governance, reinforcing the need for urbanisation laws and regulations that prioritize societal well-being over purely economic interests. This way of urban

governance prioritises economic development over social and environmental concerns, which often neglects the rights and services for the local communities and wildlives. With the critical note, the session focuses on the fragmented urban planning and how democratic processes can be strategically manipulated to deny local populations access to their rights and services. Central to the discussion is the furious debate surrounding sustainable urbanization, advocating for a balance between urbanization imperatives and the preservation of local interests and biodiversity. The Nilgiris, located in the Western Ghats of India, is a case study for this research, illustrating the complexities of urban planning in the hills and challenges inherent in achieving sustainable urbanization while safeguarding the unique socio-environmental fabric of the region.

Mareike Smolka. Governance in transformation: alignment work for sustainable computing

Promises of 'sustainable computing' often present sustainability as a matter of efficiency. Policymakers, companies, and scientists frame the increase of energy efficiency as a means to reduce the environmental footprint of computing. However, this framing neglects the ways in which technologies operate within larger socio-technical systems. In socio-technical systems, efficiency increase can drive demand and thus overall energy consumption – a phenomenon also known as the 'rebound effect'. In other words, the objective of sustainable computing cannot be achieved through technological innovation alone, but depends on a wider system transformation.

Recognizing the relevance of system transformation, the NeuroSys cluster experiments with novel governance approaches. NeuroSys involves a heterogenous set of around 160 actors in the Rhenish area in Germany, including scientists and engineers, small- and medium-sized businesses as well as larger corporations, the Aachen municipality and other societal actors. The cluster combines the development of energy-efficient brain-inspired computer hardware and software with social science research on the governance of socio-technical transformation. The governance challenge is to facilitate a collaborative steering of an emerging innovation ecosystem around NeuroSys that integrates economic sustainability, societal responsibility, and socio-technical viability.

As social scientists in NeuroSys, we examine which modes of thinking, practices, and relationships within the cluster and its innovation ecosystem facilitate different forms of governance. We study the structural, institutional, political, economic, material, and cultural conditions that support and constrain sustainable computing, while paying particular attention to how actors within NeuroSys engage with these conditions. Based on two-years of participant observation, interviews, and co-

creative workshops, we analyse how actors engage in 'alignment work' to participate in what we call 'responsible' and 'transformative' innovation ecosystem governance. Our analysis reveals how alignment work shapes different forms of governance by embracing and deferring capacity building for socio-ethical reflection, anticipation, and experimentation. In discussing our findings, we highlight what research on the governance of sustainability transformation can learn from theoretical perspectives in Science & Technology Studies and Responsible Innovation methods, and vice versa.

4.4 Utilization of cultural elements in Native American Communities creating impact and sustainability for generations to come

Innovative session

Location: Lijsterbeszaal

Organizers

Dr. Annie Jones, University of Wisconsin Madison, Division of Extension. Enrolled member of the Menominee Nation, a professor and organization development and tribal nations specialist.

Ariga Grigoryan, University of Wisconsin Madison, Division of Extension. Associate Professor in Community, Natural Resources and Economic Development. Sawyer County and Lac Courte Oreilles (LCO) Tribe

Abstract

The session will include two parts: first part will introduce the use of Medicine Wheel in community development and research conducted by the educators from the University of Wisconsin, Division of Extension working in Native American Communities.

Incorporation of the Medicine Wheel guides Native American organizations and communities through transformation and sustainability, thus making them the drivers of change. The Medicine Wheel is useful for facilitator practice and effective for action inquiry because it is an elegantly simple tool for framing and illustrating; it is holistic, all gifts of the wheel must be considered for transformation to occur; it engages participants by honoring individual and organizational learning; and it seeks harmony among the dichotomies found in complex issues.

These intelligences are the four frequently used components (spirit, heart, mind, and body) of a Native American Medicine Wheel, a multi-dimensional tool and metaphor for reaching human potential. The Native American Medicine Wheel is a mandala symbol that serves as an illustration of man's integrated connection to humankind, Mother Earth, Great Spirit, and the Universe.

Part two of the presentation will introduce community development work as a case study and utilizing Medicine Wheel as a tool for evaluation.

Native American communities have been stewards of the land, environment and ecological systems since time immemorial. This can be observed through cultural beliefs, traditions, generations and values. Food Sovereignty, as the basis for being able to feed one's people, is one of many priorities of the Lac Courte Oreilles Band of Lake Superior Chippewa; one of 574 federally recognized Tribes in the United States of America. This movement has increased capacity and infrastructure, empowered community, and strengthened resiliency through perseverance. The Lac Courte Oreilles reservation encompasses approximately 80,000 acres of land, of which 320 are designated as agricultural.

This presentation will provide an overview of community development and research through the lens of Indigenous culture and teachings. Each community is unique and utilization of this traditional knowledge helps to create a more comprehensive approach, not only to learn about the community but also speak its "language".

This presentation will showcase traditional ways of food production, creating a sustainable community, while improving economies and self-sufficiency.

In addition, a combination of quantitative data collection involving western survey methodologies and qualitative data incorporating tribal cultural elements such as the Medicine Wheel, in order to create a deeper conversation and connection with tribal communities. This helps understand the values, traditions and cultural ways of tribal communities being the drivers of positive change. This leads to a transformation of communities and sustainability for generations to come.

October 17th – Hotel De Wageningsche Berg

Parallel session round 5

Time: 09:00 – 10:30

5.1 Collegetour with Tjeerd de Groot

Innovative session

Location: Bosrandzaal

Organizer

Jeroen Candel, Public Administration and Policy group, WUR

Abstract

The idea for organising a Q&A with dr. Tjeerd de Groot comes from the format of the Dutch tv program Collegetour. Tjeerd de Groot is a well-known Dutch politician (D66), who is mostly known for his calls for a transition toward circular agriculture, far-reaching government interventions to reverse the nitrogen crisis, and halving the amount of livestock in the Netherlands. The last was the immediate cause for the first Dutch farmers' protest. Mr. de Groot has a background in Public Administration (he wrote a PhD dissertation on the EU's Common Agricultural Policy) and was a political aide to then minister of agriculture, Laurens-Jan Brinkhorst. As such, he combines insights and experiences as both a scholar and politicians in sustainability transformations. In the interview, we will question him on these experiences, with much space for the audience to jump in.

More information on the Collegetour format:



ChatGPT

"Collegetour" is a Dutch TV program featuring a host who interviews prominent figures from various fields in front of a live audience, typically students. The format is conversational, allowing for in-depth discussions about the guest's life, career, and views. The show often explores personal anecdotes, professional insights, and societal issues. Guests range from politicians and artists to scientists and business leaders, offering diverse perspectives. The host engages the guest with questions sourced from both the audience and pre-prepared research, fostering an interactive and informative atmosphere. With its blend of entertainment and education, "Collegetour" provides viewers with unique insights into the lives of influential individuals.

5.2 Transformative change through knowledges and interests in science-policy interfaces

Paper-based session

Location: Boomgaardzaal

Chair

Mirjam Schoonhoven, Environmental Policy Group, WUR

Papers

Amalia Suryani. Behavioural factors influencing stakeholder co-creation for sustainable energy access

Policy plays a crucial role in promoting sustainable energy access, where effective policy design and implementation increasingly require interdisciplinary insights and collaboration among diverse stakeholders. Despite its importance, there is a gap regarding why different actors choose to participate in co-creation. This gap is critical to address for fostering meaningful engagement in the co-creation practices for the energy transition, particularly in the energy access context. The objective of this study is to apply the Behaviour Change Wheel (BCW) model to identify the factors influencing stakeholder participation in co-creation initiatives. The Netherlands Energy Compact—a Dutch multi-stakeholder initiative intended to accelerate progress toward Sustainable Development Goal 7—serves as the case study for this research. Using a mixed-methods approach, the study examines the reasons behind stakeholder involvement or lack thereof. The results are expected to have significant implications for both the success of the Compact and the broader effectiveness of co-creation in policy development. By identifying key drivers and barriers to stakeholder engagement, this research provides valuable insights into fostering more effective co-creation processes for achieving sustainable energy access.

Yvonne Scherrer. Inclusive Pathways: An Interdisciplinary Framework for Understanding and Integrating Local Knowledge in Sustainability Transitions

When identifying strategies for governing specific sustainability transitions in a just way, acknowledging the pivotal importance of the knowledge of local communities and their perspectives on desirable development paths is paramount.

For the integration of diverse perspectives, creating a shared understanding should be at the start of any sustainability transformation process true to its standards of

inclusiveness and participation. In addition, such a shared knowledge base allows for grounding any approach in the actual local reality as local knowledge (LK) covers both intricate details on natural resources and ecological processes and a keen understanding of the community's social dynamics, challenges and aspirations.

Thus, considering all these factors and understanding what matters locally is pivotal for collaboratively selecting adequate and locally supported development strategies that aim for mutual benefit.

However, capturing these local livelihoods in an integrative way often proves challenging. Prominent obstacles include issues related to power/domination, to institutional and regulatory logic/constraints and to a lack of insight/overview from the side of (mostly) Western actors due to their usually highly specialized professional backgrounds.

In reaction to the last-named issue and with the intention of creating an interdisciplinary 'bridge', this contribution provides a structured, analytical and inclusive approach to LK by presenting an interdisciplinarily-based framework approach applicable to a broad range of LK forms in industrializing and industrialized countries from rural to urban areas. Moreover, it is accordant with basic sustainability principles and allows for comparative studies and a critical reflection of one's own situatedness.

Methodically, the research is based on an extended literature analysis across sociology, philosophy, anthropology, geography and the ethnosciences. Against this backdrop, 16 theory-based key dimensions and related questions have been identified and aggregated into a conceptual-analytical framework according to Jabareen/Dowding/Stanley, interconnecting 'knowledge' and 'locality' and considering basic sustainability principles. The framework constitutes of a set of multi-disciplinarily informed, central dimensions and corresponding questions, for easy access.

In the field of governing sustainability transitions, this framework offers an avenue for broadening the traditional disciplinary perspectives on LK and its role in the transformation process, allowing for more voices and perspectives to be heard and integrated into it.

Aditya Riski Taufani. Spurring transformation to sustainability: can we leverage the knowledge from policy analysis?

The widespread call for transformation to sustainability has arrived at a consensus that accelerating the process is necessitated. However, this endeavour is proving

challenging, given that transformation is itself a long-term process that is characterized by open-endedness, ambiguity, and uncertainty, within a multi-actor system. A transformation may be viewed as taking place when a critical mass of actors is implementing change, regardless of the initiators' intentions or formally agreed policy directions. As each actor in the transformation retains their own set of values, perspectives, and resources, a transformation is inevitably an arena filled with contestation, resistance, and disagreement.

While many scholars concentrate their research on the 'main' actors, such as the niche and regime groups - government, business, or society, only a few devote attention to the potential role of intermediaries or boundary spanners. These specific actors, whether individual or groups, acts as catalysts, brokers, or facilitators capable of speeding the change process towards sustainability. Intermediaries may be found embedded within the niche or regime groups, but they can also operate as somewhat impartial and objective networkers. They may serve as facilitators, striving to adjust the asymmetry among involved actors that stems from differences in their values, perspectives, resources, or power. They can create an enabling environment for collective action as a prerequisite for transformation.

In our contribution, we leverage knowledge on policy analytic concepts, roles, approaches and tools as resources for intermediaries or boundary spanners in their effort to expedite the transformation to sustainability. This body of knowledge has evolved to include approaches that address the multifaceted perspectives and uncertainties inherent in complex problem situations. Additionally, this field offers concepts and tools appropriate for addressing untamed problems where consensus on information and values among actors is lacking. Such situations often are encountered during processes of transformation towards sustainability. We will explore the relevance of these policy analysis concepts, tools and approaches in supporting transformations to sustainability for the particular case of water policy in Indonesia.

Adam Standring. Informal Functionality in Sustainability Science

Co-production has been of increased importance in policymaking circles in recent years, signifying the collaborative and participatory generation of knowledge and policy solutions among a variety of actors, including the 'end-users' of such policies. Proponents of this approach argue that co-production increases the effectiveness of policy interventions by incorporating a more diverse range of views, values and voices into decision-making processes, thus providing for more legitimate and relevant solutions to be developed. For these reasons, co-production has become a

central feature of sustainability science, which seeks to integrate multiple actors' vision of the common good into practical, real-world solutions.

Critical reviews across environmental and social sciences have highlighted the difficulties – theoretical, conceptual, methodological and practical – in undertaking co-production work while drawing focus on the politics and power relations inherent to co-production. Working across disciplinary, cultural, linguistic and social barriers carries both opportunities for innovation and transformative change, and risks of failure.

'Sustainable intensification of food production through resilient farming systems in West & North Africa' (SustInAfrica) is a five-year research project, bringing together a consortium from Europe and five African countries (Burkina Faso, Egypt, Ghana, Niger and Tunisia), aiming to empower West and North African smallholder farmers and small- and medium-sized enterprises (SMEs) to facilitate sustainable intensification of African farming systems, and to develop and deploy a reference framework on best agricultural practices and technologies. It engages a multidisciplinary (Economics, Sociology, Agronomy, Soil Science) and transdisciplinary (researchers, NGOs, business) team to co-produce, in partnership with African actors, transformative knowledge, solutions and training aimed at African farmers, communities, businesses and policymakers.

This article contributes to the literature on co-production in research on sustainability science by critically reflecting on the objectives, challenges, successes and failures of the SustInAfrica project. Using field observations/interviews from European and African participants, it sheds light on the cultural, social and epistemic difficulties arising during the project as well as the flexibility, pragmatic decisions and practices, termed here 'informal functionality', that were and are necessary for the success of the project evolution and expected sustainable transformative results.

Negotiating knowledge and action for sustainable rangeland management: Successes and failures of boundary work at the science-policy interface in Iceland - Jónína S. Þorlákssdóttir, Agricultural University of Iceland

Unsustainable land use, including clearing of natural birch woodlands and livestock overgrazing, has caused significant degradation of Icelandic rangeland ecosystems, reducing their resilience to natural disturbances such as harsh weather conditions and volcanic ash fall. Organized conservation and restoration initiatives to combat this land degradation have been ongoing since 1907. However, efforts at the science-policy interface to engage agricultural stakeholders in more sustainable

land use have not lead to the desired social and ecological conditions. As there is continued call for collaborative efforts to improve the health of rangeland ecosystems, understanding the underlying causes of past failures would benefit ongoing and future work towards their restoration and sustainable management. The aim of this longitudinal study is to gain insight into boundary work at the interfaces of science, policy and local stakeholders, and how this influences the development and implementation of policy and management interventions for the sustainable use of rangelands. We study the roles and relationships of key actors that drove the process from 1997 to 2021; the importance attributed to knowledge credibility, salience, and/or legitimacy in the different phases, and how this influenced trust, collaboration and the attainment of the desired social and ecological outcomes. Findings highlight the potential of collaborative approaches for securing communication and commitment to policy development, and mobilising widespread participation in management initiatives. It also shows how early success of productive boundary work can be undermined when insufficient effort is put into capacity building of the governance system regarding knowledge co-production, collaborative learning, and action towards sustainability. The study underscores the importance of critical goal setting and continuous monitoring and evaluation to attain reflexive and adaptive governance of the social-ecological system. Furthermore, findings clearly demonstrate the need to acknowledge and address past relationships when engaging in collaborative processes, as these can significantly affect outcomes and available pathways towards facilitating change.

5.3 Making practice theories practical for sustainability governance

Innovative session

Location: Meidoornzaal

Organizers

Sigrid Wertheim-Heck (Environmental Policy group, WUR),

Bas van Vliet (Environmental Policy group, WUR),

Sanneke Kloppenburg (Environmental Policy group, WUR),

Mary Greene (Environmental Policy group, WUR)

Abstract

In today's fast-paced world, urgent issues such as climate change, environmental sustainability, and social inequality demand immediate and effective action. Consequently science is increasingly challenged to provide clear prescriptions to assist policy making for societal transformation. The call for 'ready-made recipes' may lead to an illusion of 'societal manageability' and the idea that we can 'engineer society' into a desired direction. However, this conflicts with the unruly character of the real-world. Developing effective solutions actually demands taking a step back to observe how everyday life takes shape in domestic or professional settings before sensible (governance) interventions can be proposed. Practice theory is particularly suited for this purpose, since daily practices are the unit of analysis in this approach. Yet, policymakers and researchers alike often consider practice theories as impracticable in terms of informing interventions and policies for sustainability. There is a gap between practice theoretical research and practical application, hindering progress towards fitting/effective solutions.

This dynamic conference session aims to address this gap by examining the practical contributions of social practice theories to environmental sustainability governance. Based on PhD projects that take a social practice perspective across distinct domains from food to energy, it explores approaches to bridge theory and practice. A panel of practitioners is invited to challenge how social practice theories can inform actionable strategies for addressing pressing environmental issues and promoting sustainable practices.

5.4 Governing the transformative SDG agenda across sectors and levels: dealing with trade-offs and synergies between SDGs in East-Africa

Paper-based session

Location: Lijsterbeszaal

Organizers

Art Dewulf (Public Administration and Policy Group, Wageningen University),

Bas van Vliet (Environmental Policy Group, Wageningen University),

Verina Ingram (Forest and Nature Policy Group, Wageningen University),

Sylvia Karlsson-Vinkhuyzen (Public Administration and Policy Group, Wageningen University)

Abstract

The United Nations Sustainable Development Goals (SDGs) provide an agenda for transformative change worldwide. The approach taken by the SDG framework is all-encompassing in terms of countries and sectors, and takes a holistic approach across the social, economic and environmental dimensions of sustainable development. The achievement of the SDGs by 2030 is not on track, and given the time and resource constraints affecting their implementation, it is crucial to address interactions between SDGs.

Interactions can take the form of synergies, where investing in one SDG has positive effects on other SDGs, or trade-offs, where investing in one SDG has negative effects on other SDGs.

In East-African countries, like Ethiopia, Kenya and Uganda, many actors invest in the SDGs: from public to private actors, from local to national to international actors, from donor to recipient countries, and across all policy domains. Noticing and taking into account interactions between SDGs is a substantial governance challenge, because actors and efforts are often dispersed across sectors and levels. This paper session includes presentations on SDG interactions and associated governance challenges across three different countries in East-Africa.

Papers

Aytenew Tatek, Dereje Yimam, Gete Zeleke. Governing sustainable development goals in time of institutional fragility: The case of Kunzila integrated landscape management and WASH project

Achieving Sustainable Development Goals (SDGs) requires a certain level of institutional stability, commitment of actors at all levels, peace and security. The Kunzila integrated landscape management and WASH project (ILMWA) was started in times of uncertainty when COVID-19, civil war in the North and conflict all over the country of Ethiopia were imminent. Those phenomena diverted the attention of development actors lowered the commitment of the government, increasing the fragility of institutions. Still, the project interventions were running and results are also being achieved. To better understand how the governance arrangement for SDG implementation still achieved results in such a fragile and volatile situation, we found ILMWA project funded by the Dutch Ministry of Foreign Affairs to be a good case study to assess the interaction between adaptive management, localization, institutional fragility and governance arrangements. To investigate this we used methodological approaches of project document review, field visits and key informant interviews. The result shows, although ILMWA project was started and passed through challenging environments, its community-ingrained design and implementation has helped to maintain its operation during conflicts, pandemic and institutional deterioration. The project implementation was led by a local organization that is well connected to the grassroots realities. The role of community institutions in planning and execution of project activities was instrumental to achieve results. In addition, the adaptive management and localization strategy of the donor has contributed for the effective implementation of the intervention. The project interventions focused on both long-term and immediate needs of communities. Although the project primary objective was on integrated landscape management and WASH, it also targeted pressing issues of communities like rural road infrastructure, access to credit, livelihood options of home gardening and integrated livestock development, access to small-scale irrigation, and gender interventions. These become incentives for communities to continuously engage and own the project. In conclusion, the effective governance of SDGs in the realm of institutional fragility, conflict and low commitment of government at all level could only be possible with a project design and implementation of locally led, some level of flexibility of the funding agency, empowering grassroots level community institutions, demand driven intervention that meets local needs and integrated approach that addresses multiple SDGs at the same time.

Annita Kirwa, Rachel Gitundu. Beyond theory: understanding Sustainable Development Goals (SDGs) interactions within the Kenyan dairy sector

The Kenyan dairy sector assumes a pivotal role in the advancement of the SDGs, including contributing to food security (SDG2), generating income (SDG1 & SDG8) and influencing greenhouse gas (GHG) emissions (SDG13). However, achieving these goals involves navigating a complex landscape of synergies and trade-offs, presenting significant governance challenges. This complexity is compounded by the involvement of multiple levels of governance (international, national, and county) and diverse actors, all supporting the sector's transformation toward intensified production and commercialization among smallholder farmers. We analyze this case adopting a mixed-methods approach, focusing on two key perspectives. Firstly, it examines interactions at the local level, as they occur in the day-to-day lives of dairy producers and how their intersecting identities influence these interactions. Secondly, it delves into the national and international, investigating how actors at various levels of governance engage in large-scale policy investments in Climate-Smart Livestock (CSL) intensification and commercialization, and the extent to which they foster positive interactions or address negative ones to ensure the sector's sustainable transformation.

Preliminary data analysis indicates that dairy is embedded in the socio-cultural fabric of producers in Kiambu county. Food and nutrition (SDG2), the primary reason for which dairy cows are kept, intersect with gender equality (SDG5) regarding labour organization, asset ownership, and decision-making processes over productive assets (e.g. cows and land) and income. Additionally, dairy farming serves as a source of employment (SDG8) through milk and manure sales, while also impacting climate action (SDG13) through feed production, manure management, as well as enteric fermentation. Producers' experiences of these interactions are influenced by social factors such as wealth, gender, age, and marital status. Access to services from institutions like farmer cooperatives and banks further shapes these interactions. Interestingly, while transformation is desirable, interdependencies between national policy areas are inevitable. Following the perspectives of the Kenyan policy actors and sectoral experts on how the aforementioned imperatives are interconnected, SDG interactions clearly manifest themselves at different stages of policy programme implementation. Consequently, in examining how different policy programmes relate to each other, preliminary insights shows that incoming and outgoing SDG interactions cannot be underestimated and need to be addressed.

Tonny Ssekamatte, Nishai Moodley, Bas van Vliet, Richard K. Mugambe. National and Household perspectives on the governance of water, energy, food, and health nexus in Uganda

Uganda is abundant with freshwater resources however malnutrition and poverty persist. Poor irrigation practices, inadequate sanitation, and climate threats have exasperated food insecurity on both national and household levels. Households, the smallest unit of society, are often excluded from governance arrangements despite being sites for sustainable development goals (SDG) interactions, especially between water, energy, food, and health (WEFH). This study explored stakeholder perspectives on the participation of households in governing and coordinating the water, energy, food, and health nexus in Uganda.

Data were collected through the review of documents guided by a checklist, and key stakeholders working at the WEFH interface. These were selected purposively and included representatives of government ministries, departments and agencies, the private sector, civil society organisations, and community representatives. Data were analysed using Nvivo 14.0, following a thematic approach.

Interview transcript review and intercoder reliability tests were undertaken for the key informant interviews, to improve transparency in the research process.

Results firstly show that although national policy program efforts inform coordination and collaboration processes for a nexus governance, decision-making, and planning fall short because of the lack of information and strong vertical coordination. Secondly, national departments and households' participation in the governance of the WEFH was largely sector-specific. Nevertheless, while there is the integration of management and resource mobilisation of WEF sectoral priorities, the participation of households (or their representatives) is important in information sharing, steering a shared system of norms, collaboration, and coordination. Thirdly, collaboration between households and national departments and ministries is vital to determine service needs, as well as oversee and facilitate community involvement in WEFH-related projects.

Conclusions highlight that the coordination of WEFH projects from both the national and household levels is largely sector-specific. Recommendations encourage national departments, ministries, governmental agencies, and district councils, to create interlinkages for nexus governance. This is crucial for increasing household participation, and the coordination of WEFH-related interventions.

Charles Tonui, Josephine van Zeben, Sylvia Karlsson-Vinkhuyzen. Are the SDGs designed as a polycentric governance system? A regulatory analysis

The Sustainable Development Goals (SDGs) since they were adopted in 2015 have become a normative framework that many state and non-state actors at all levels and scales are claiming to be engaged with and guided by including through collaborative partnerships. Several scholars have described the resulting network of regulatory and implementing actors as an emerging polycentric structure. In this paper we take this claim as a starting point and pose the question whether this claim of a polycentric structure for the original design of the SDG governance system holds if assessed against the core components of a polycentric system. This involves having and maintaining a set of specific attributes, institutional essentials, and prerequisites to continue to function as a polycentric system. In case of actual polycentric governance, we expect, among other criteria, a high level of self-governance of individual units in the overarching SDG framework. We assessed the SDG governance design through analysing the central regulatory documents adopted in the UN General Assembly and the related High-Level Political Forum on Sustainable Development. We considered the extent to which polycentric elements are already present within the SDG framework, any gaps in its polycentric structure, and what the results may mean for the multilevel governance of the implementation of SDGs at regional, national, and local levels.

5.5 Transformative change through diverse human and more-than- and non-human actors

Paper-based session

Location: Arboretumzaal

Chair

Wieke Pot, Public Administration and Policy Group, WUR

Papers

Fronika de Wit. Youth are the Futures: Youth foresight for enhanced global sustainability governance

The 2021 United Nations report “Our Common Agenda” highlights the need for accelerated efforts to meet the 2030 Agenda and its Sustainable Development Goals (SDGs). Therefore, in September 2024, the UN Secretary General is organizing a Summit of the Future, where Member States decide upon an outcome document, entitled “A Pact of the Future”. This Pact for the Future, for which a Zero Draft document has already been negotiated, will comprise a chapeau and five chapters, among which a chapter on Youth and Future Generations. The chapter in the Zero Draft stresses both the need to systematically include young people and facilitate greater use of futures literacy and strategic foresight in global sustainability governance. Nevertheless, it fails to link both elements and does not provide youth with the necessary competences to engage in Youth Foresight (YF). Currently, too few opportunities exist for youth to contribute in spaces of strategic foresight for global decision-making. This paper looks into the potential and challenges of YF in global sustainability governance. It uses a systematic review of both scientific and grey literature to select YF case studies and conducts a meta-analysis on their design, discussed topics and proposed ideas, best practices and lessons learned. In its discussion, this paper provides recommendations for inclusive and meaningful YF in global decision-making that serve as actionable knowledge for global sustainability governance post-2030.

Inez Dekker. Multispecies interactions in learning processes for agroecological transitions

Countering the further decline of food sovereignty and loss of biodiversity caused by decades of agricultural modernization processes, a transition to ecology-based

agricultural systems is increasingly seen as a desirable development. In this way, agriculture is recognized as emerging from multispecies interactions between microbes, soils, crops and animals (including humans).

Sustainability transition studies traditionally focus on large-scale disruptive changes in societal systems by looking at interdependencies between humans and stabilizing mechanisms of materiality and institutions. Learning processes are regarded as crucial to support ways for achieving transition goals by challenging and revising the particular system's relationships and structures. How learning in sustainability transitions takes place when interactions between multiple species are considered integral to the system is still unknown.

A recent interest and research into the role of other than human species in sustainability transitions studies can be noted. However, non-anthropocentric approaches have not yet been included in studies on learning in sustainability transitions. Therefore, this article explores how interactions between not only humans, but also other species play a role in learning processes in an agroecological transition initiative. As an initial contribution this paper builds a conceptual framework that interweaves literature on learning in sustainability transitions together with a multispecies approach. The goal of the framework is enabling studies of multispecies interactions in the context of learning processes that can further support agroecological transitions.

The empirical data supporting the development of this framework are based on initial impressions and observations CropMix. This transdisciplinary project aims for a transition to ecology-based arable agriculture in The Netherlands with mixed cropping systems. This is done by facilitating joint efforts between farmers, scientists, civil society organizations and agribusinesses involved in agricultural systems. Driven by transition goals for an ecology-based agricultural systems, CropMix provides a playing field for exploring how multispecies interactions are part of learning processes in such transitions.

Maximilian S.T. Wanner. Roadblocks to effective multi-stakeholder partnerships for sustainable transformation

Multi-stakeholder partnerships (MSPs) are widely recognised as pivotal mechanisms for advancing the Sustainable Development Goals (SDGs). However, they encounter significant internal and external obstacles in catalysing transformative change. This study examines how MSPs can surmount common challenges and evaluates the extent to which employed approaches align with best practice guidebooks for partnership effectiveness. Drawing on survey and interview

data from diverse MSPs, we discern key features that enable MSPs to overcome common challenges, contributing to the long debate on how to increase partnership effectiveness. We situate our findings in the landscape of best practice guidebooks designed to support MSPs in achieving their goals. Whereas MSPs cope with local challenges, deficiencies in meta-governance of the MSP ecosystem impede their potential to effectively contribute to the transformative agenda outlined by the SDGs. To address these challenges, we propose strategies to strengthen the meta-governance of MSPs, empowering them to amplify their impact on SDG attainment and contribute to transformative change. Additionally, we offer practical approaches for MSPs to navigate contextual challenges in the absence of these proposed measures. Our recommendations aim to equip MSPs with the tools needed to fulfil their pivotal role in advancing SDG attainment and transformative change.

Art-Science Collaborations for Transformative Change in the Water Sector - Katja Barendse, KWR Water Research Institute

Global sustainability science has shaped international agreements and laws to address sustainability crises encompassing climate change, biodiversity loss, land and water degradation, and growing inequalities. Despite significant efforts, these goals remain largely unmet. For example: the international community is not achieving the UN Sustainable Development Goals by 2030 and the objectives of the European Water Framework Directive remain out of reach. The root cause of these shortfalls lie in unaddressed structural factors, influenced by societal values and behaviours. There is a necessity for transformative change, which goes beyond incremental adjustments and involves a significant and often disruptive restructuring of systems, institutions, and behaviours.

Transformative learning is one means to achieve transformative change in society and research. It involves deep collective changes in how sustainability issues are perceived and addressed. This study explores the impact of art-science collaborations on transformative learning in the water sector through historical analyses, interviews with artists and scientists, a focus group, and various congresses and workshops. The results show that art can be a powerful tool for transformative learning towards sustainability: it encourages critical reflection and dialogue, promotes reshaping of perspectives and deepens understanding and emotional connections. Our findings demonstrate two methods for integrating art and science:

(1) Art as an instrument: Through (1.1) dissemination, art can translate complex scientific data into accessible formats, fostering a common language between scientists and non-scientists. It enhances comprehension, broadens inclusivity, and overcomes engagement barriers. (1.2) Additionally, our results demonstrate that art-science interactions foster emotional engagement, community involvement, and transdisciplinary knowledge generation, highlighting the efficacy of art as a potent research method.

(2) Synergetic Art-Science collaborations: This collaboration allows a two-way flow of influence and compels a reevaluation of perspectives. It stimulates involved researchers, artists and observers to (re)consider their stance and responsibility and challenges established norms. Collaborative artists and scientists act as catalysts for change, fostering self-reflection and prompting society to (re)evaluate ethical perspectives.

Empathy and meaning-making play pivotal roles in the success of sustainability endeavours. Our study foregrounds that by eliciting wonder, fostering emotional engagement, facilitating transdisciplinary learning, and stimulating meaningful dialogues and reflection, art-science collaborations enrich and emotionally inform society.

Catalyzing Climate Action: The Role of Liaisons in Enhancing the Transformative Capacity of Dutch Climate Policy - Hidde Boonstra (VU Athena Institute)

This paper explores the transformative capacity of national climate policy in the Netherlands with a focus on the role of policy entrepreneurs, specifically liaisons, who are crucial in catalyzing and supporting inter-departmental efforts. These liaisons, embedded within the coordinating climate policy department (EZK), are pivotal in advancing the Dutch government's ambitious goal of achieving climate neutrality by 2050.

This study was initiated based on the recommendations of a forthcoming report of a learning evaluation of climate policy, which underscores the necessity of embedding transition thinking in climate policy governance. The research leans on institutional and transition literature for a critical reflection on the liaisons' role within this complex framework.

Through a qualitative methodology involving approximately ten liaisons, the study will conduct initial interviews, participatory observation in intervision-style workshops, and concluding interviews to evaluate the liaisons' perceptions and performances. These liaisons will be asked to articulate their envisioned role, achievements, and the challenges faced within the governance structure. The

workshops aim to foster strategy development that liaisons could use to effectively prompt other departments to engage in proactive climate policy actions.

Furthermore, the research will critically analyze the rules, practices, and narratives described by the participants to discern enabling and constraining conditions to their practice, particularly focusing on how liaisons are utilized within and across policy departments.

The expected outcomes include a deeper understanding of the formal and informal expectations of the liaisons' role, the competencies required to perform their duties, and the institutional context of climate policy. This comprehensive insight will contribute to improving the effectiveness of climate policy by providing actionable perspectives on the role of liaisons within the broader institutional framework of Dutch climate governance.

Parallel session round 6

Time: 11:00 – 12:30

6.1 Elements for transformative governance – innovation, anticipation, collaboration and law?

Innovative session

Location: Bosrandzaal

Organizers

Niko Soininen (Professor of Environmental Law, University of Eastern Finland),

Kaisa Korhonen-Kurki (Finnish Environment Institute)

Antti Belinskij (Finnish Environment Institute)

Abstract

Transformative change is rapidly becoming a key concept in the scientific conceptualisation of sustainability, in the context of addressing interlinked challenges such as climate change, resource depletion, pollution, and biodiversity loss. A clear-cut and shared definition of transformative change is missing, although it is often described as radical change (in opposition to minor, marginal, or incremental change) that brings about a fundamental shift in the status quo of a system or other unit of analysis.

In addition to understanding what transformative change is or entails in socio-technical or socio-ecological systems, an important operative question is how change towards sustainability within and across different systems should come about and be fostered. In other words, what are the mechanisms for transformative change – forcing and directing us towards systemic change?

Workshop organisers conducted a review of the key literature on five selected environmental governance approaches: adaptive, earth system, evolutionary, transformative and transition governance where it was found out that the five studied approaches present different and complementary ways of describing change and how it unfolds or can be steered. Collaboration, leadership, learning, plurality, empowering, innovation, visioning, and abruption were seen as mechanisms for change. Moreover, while law is one of the central mechanisms in a policy mix aimed at governing transformative change, its role is presented very simplistically in sustainability governance studies. Even when the law is addressed,

it is often understood from an external perspective as something that can be easily adapted according to the political will and needs of a desired transformation.

The simplistic understanding of law may considerably impede the unfolding and implementation of transformation. To change legal systems, it is important to understand that they are complex systems emerging from the interactions of actors (legislature, administration, courts, companies, civic actors) and legal sources (legislation, precedent etc.). Change in one part of the system is unlikely to yield transformative impact unless such change is guided by an understanding of legal systemic principles and dynamics, including rule of law, legal certainty, and protection of neoliberal markets (e.g., property rights and contractual rights). Moreover, systemic understanding of law opens up possibilities to recognise deep transformation points within existing law that could yield larger systemic change in society than anticipated from an instrumental perspective.

This session draws from the previous literature review and aims to explore the possible elements of transformative governance namely innovation, anticipation and collaboration followed by two presentations from a legal perspective. The session will begin with three brief interventions from researchers working on these different governance approaches and continues with engaging participants for brainstorming on how these elements and law as an instrument and a system will contribute towards transformative governance?

- Intervention: **Elements of transformative governance**, *Kaisa Korhonen-Kurki, Finnish Environment Institute*
- Intervention: **Law in adaptive, earth system, evolutionary, transformative and transition governance**, *Antti Belinskij, Finnish Environment Institute*
- Intervention: **Roles of law and legal systemic change in sustainability transformation**, Niko Soininen and Seita Vesa, University of Eastern Finland

Proposed format of the session: Short interventions by invited speakers followed by facilitated small group dialogues with a world café method.

6.2 Understanding sustainability transformations from a dynamic and interdependence perspective: implications for research and practice

Innovative session

Location: Boomgaardzaal

Organizers

Noelle Aarts

Sabine Baumgarten

Bernadette van Heel

Annet Pauwelussen

Cees Leuwis

Abstract

With our research, we are committed to contributing to a better world. In other words, we aim for transformative change. Change is frequently conceptualized as the result of intentional activities in which the deployment of a certain set of instruments will result in a desired outcome. This conceptualisation of path-dependent change is suitable for simple and non-conflictive situations that indeed allow us to consider the future as plannable and predictable: there is a means, an end, and a direct path between the two. But such change is not transformative. In order to tackle structural barriers to social and environmental sustainability we need to embrace messiness and ambiguity to make space for more radical ways of thinking.

In understanding transformative change from an interdependent and dynamic perspective, amongst other approaches, a complex system approach may be helpful (Aarts, 2018; Burnes, 2005; van Woerkum et al., 2011). In complex systems everything is interacting with everything across various temporal and spatial scales, generating behaviour at the level of the system as a whole. Such research approach goes beyond studying individual (and organizational) behaviour. The focus lies on understanding the interdependence between people and their environment and on the way in which this is formed through numerous, every-day interactions. People's changing activities and behaviours must therefore be understood and explained from the social bonds they have formed in interaction (Elias, 1982:240).

An implication of this contextual and interactional perspective on transformative change is that it becomes inevitable to analyse and understand the process through which change comes about. The focus is on how things (have) become in specific contexts, on the mutual dependencies between causes and consequences, and between people from different backgrounds and interests, shaped and reshaped in interaction. As a consequence, working from static concepts and fixed categories falls short. We should thus find ways to study fluidity and ambiguity with the help of concepts and language that make room for relational thinking.

6.3 Transforming policy evaluation within a Dutch policy assessment agency: can we tackle the challenges?

Innovative session

Location: Meidoornzaal

Organizers

Eva Kunseler, Netherlands Environmental Assessment Agency (PBL)

Lisa Verwoerd, Netherlands Environmental Assessment Agency (PBL)

Pia Nabielek, Netherlands Environmental Assessment Agency (PBL)

Jetske Bouma, Netherlands Environmental Assessment Agency (PBL)

Sandra van der Hel, Netherlands Environmental Assessment Agency (PBL)

Abstract

Evaluation must be transformed to assess and guide the major systems transformations needed in health, climate, food, and social justice (Patton 2020). In policy evaluation, probably the most fundamental shift concerns a departure from evaluations of singular policy interventions (in which there is a clear view from the outset of the linkages between policy inputs and envisaged impacts) to evaluations that start with uncovering the very change mechanisms through which policy programmes might stimulate (or hamper) transformations of complex sociotechnical systems (Janssen et al. 2022; Terweel et al.2022).

The transformation of evaluation practices is a huge call for the evaluation community. In this contribution we bring forward how a Dutch policy assessment agency (PBL Netherlands Environmental Assessment Agency) is transforming its policy evaluation repertoire. On the one hand, the rise of reflexive evaluation within the agency demonstrates how new evaluation criteria and frameworks are developed to evaluate the transformative potential of complex policy programmes, such as climate policy (Kunseler et al. 2023; Nabielek et al. 2023). Reflexive evaluation builds on constructivist evaluation (Guba&Lincoln 1989; Kunseler and Vasileiadou, 2016). The method seeks to unravel systems barriers and mechanisms of change by stimulating transformative learning and inquiry into policy practices (Van Mierlo, 2010; Verwoerd et al 2020; Nabielek et al. 2022). On the other hand, the PBL has a strong tradition in rational (or positivistic) evaluation (Kunseler and Vasileiadou, 2016). Methods for evaluating complex policy packages have nowadays become more sophisticated to accommodate systems thinking. Even

complex linkages between mixes of policy interventions and its envisaged impacts can be modelled or analysed through (Vollebergh 2023, Bouma et al. 2018; 2021).

Ideally, both evaluation practices complement one another in their attempts to evaluate systems transformation. Findings on (expected) transformative impact of policy packages can set the stage for reflexive evaluation of the underlying change mechanisms, rooted in social practice in a specific context. Vice versa, a better insight into those change mechanisms can improve understanding of complex interrelations between policy interventions given highly dynamic societal and political circumstances.

Yet, at PBL we hardly succeed in collaborating and combining different evaluation approaches. We encounter interdisciplinary barriers in our attempts to communicate and collaborate since underlying evaluation norms and standards differ fundamentally. Moreover, accountability mechanisms at government level do not accommodate systems thinking, herewith restricting the room of manoeuvre for PBL and Dutch ministries to transform the evaluation repertoire beyond rationalistic evaluation. Using practical examples from two recent PBL evaluation studies of Dutch Climate Policy and Rural Area Policy, we reflect in this session on how we transform PBL's evaluation repertoire step by step: 1. by combining theory-driven and reflexive evaluation approaches; 2. by challenging commissioners to accommodate systems thinking into their accountability reporting; 3. by taking up a role as action researcher and change agent to stimulate transformative learning in policy processes.

6.4 Transformative change through citizen and grassroots actors

Paper-based session

Location: Lijsterbeszaal

Chair

Siera Vercillo, Public Administration and Policy Group, WUR

Papers

Pieter Lagerwaard. Experimenting with Agriculture: How citizens initiatives aim to govern agricultural infrastructures

The current agricultural crisis in the Netherlands is a wicked problem, including concerns about food production, the state of the land, nitrogen, biodiversity, water quality, and economic productivity and viability. It is in this context that new citizen initiatives concerning food production have emerged. Citizen initiatives such as [Land van Ons](#), [Aardpeer](#), and [Herenboeren](#), have taken matters into their own hands by aiming to restructure and govern the entire agricultural infrastructure: from the governing of land ownership, to food production, to its distribution. However, the (re)construction of agricultural infrastructures poses substantial challenges. There are seemingly small but fundamental concerns such as what biodiversity actually entails, to largescale infrastructural questions concerning how food should be distributed without using the existing and relatively stable infrastructures of wholesalers and supermarkets.

This contribution studies the governance and challenges of these citizen initiatives and their experiments with developing novel public infrastructures. In particular, I study the initiative Land van Ons (LvO). LvO started in 2019 as a cooperative with members that financially support the buying of (polluted) farmland to introduce biodiverse agriculture. The cooperative now has more than 24.000 members and 19 plots of land that it leases to farmers who practice sustainable farming. Drawing on participant observation coupled with in-depth interviews, I study LvO as a participant in a flagship project that experiments with how polluted farmland can be restored, called the [PolderLab](#). I am interested in the experiments – such as the growing of rice, cranberries, and a food swamp – and how these are envisioned to construct a new citizen owned, public infrastructure. I am furthermore interested in the techno-scientific solutions LvO procures, involving novel methods and

technologies of farming and food production that not only provide solutions to existing crises, but raise new political and economic challenges.

**Daniel Alejo. Actors, environmental litigation and transformational change:
A closer look at actors seeking environmental justice through environmental
litigation**

Legal actions are increasingly being pursued in response to growing environmental degradation, injustices, and concerns. Across the globe, various actors have turned to environmental litigation to obtain remedies for affected communities and ecosystems, hold allegedly responsible parties accountable, demand action from governments and corporations, advocate for the recognition of nature's rights, or address governance gaps in environmental issues. Environmental litigation is often framed within a human rights context, effectively bridging the divide between these two legal frameworks and domains. The rise in environmental and human rights litigation has sparked debates about the roles of non-state actors, government agencies, private initiatives, and courts in safeguarding ecosystems and communities impacted by environmental harm.

As part of the ERC Curiae Virides project, I will present the results of a comprehensive mapping and categorization of the actors and courts involved in environmental litigation arising from transnational ecological conflicts in Africa. Using social network analysis, I examined the roles and positions of actors and courts within the environmental litigation network, identifying patterns of conflict and collaboration. The analysis reveals the diversity of actors and courts engaged in environmental litigation and highlights patterns of transnational collaboration, especially among civil society organizations, including NGOs, grassroots movements, indigenous peoples, and individuals. The presentation aims to spark conversations and future research about the role of civil society actors, courts, and transnational advocacy networks in addressing environmental injustices through environmental litigation.

**Lasse Kos. Exploring variations in relationships between grassroots initiatives
and policy-actors: A case study from the ecovillage Boekel in the Netherlands**

Grassroots initiatives play a pivotal role in sustainability transitions, their collaboration with local governmental entities is deemed essential for their efficacy (Feola & Nunes, 2014). Such partnerships can either facilitate or impede grassroots initiatives' progress (Celata & Coletti, 2019), operating not only at the local but also regional, national, and global levels (Feola & Nunes, 2014; Seyfang & Haxeltine,

2012). Moreover, these interactions are dynamic, evolving over time and across different governance levels (Seyfang & Smith, 2007).

Using Seyfang and Smith's (2007) framework, this study examines how the relationship between grassroots initiatives and governmental actors shifts across levels. Locally, the attitude of policymakers towards grassroots initiatives can transform, impacting their development. At higher levels, opportunities provided by institutional frameworks, like accessing new funding programs, can drive the evolution of these relationships (Seyfang & Smith, 2007). Changes at higher levels can subsequently influence dynamics at lower levels (Fressoli et al., 2014), illustrating the complex interplay between governance levels and grassroots initiatives.

This paper analyzes these dynamics in the context of Ecovillage Boekel in the Netherlands. Through qualitative data gathered via interviews and ethnographic observation, it explores the ecovillage's relationships with local, regional, and national authorities. Local government showcases the ecovillage as a model of grassroots sustainability but also contends with concerns raised by residents. The paper documents how these relationships evolve over time, noting instances where initial opposition from local politicians transformed into acceptance.

By delving into the nuanced relationships between Ecovillage Boekel and governmental actors at different levels, this study contributes to understanding the governance-grassroots nexus. It underscores the significance of recognizing context-specific variations and temporal dynamics in these relationships. Additionally, it prompts reflection on policy paradoxes through a relational lens, highlighting the intricate dynamics between grassroots initiatives and multilevel governmental actors.

Maheshwaran Govender. Navigating coastal mega-development in Bangladesh: Local perspectives on just transformation and inclusive governance

Recent blue growth has included a variety of mega projects in the coastal regions of many countries. Amidst such rapid developments, insights into the values, perceptions, and objectives of local communities, particularly in the Global South, are often overlooked. Bangladesh has shown a growing interest in coastal and marine-based economic development after the successful maritime dispute settlement with its neighbouring countries in the last decade. Moheshkhali island, situated on the eastern coast of Bangladesh is a key blue economy development zone, hosting an estimated 68 planned and implemented developmental projects including a coal powerplant, a deep seaport, liquefied gas terminals, a

petrochemical refinery, and a tourism park planned on the island. Our study uses Q methodology (Q) to understand the subjective viewpoints of the local resource users regarding the mega-development on the small island. Given the political sensitivity of the topic, Q provides a well-defined procedure appropriate for engaging a small number of respondents to detect opinion clusters among them. Through a literature review and expert consultations, we identified 16 resource user categories dependent on the island's natural resources for their livelihoods. Between July and December 2023, we then interviewed 33 respondents from the island to represent these resource user types. Using Q, we delineated four distinct perspectives among them: 1. Injustice for growth: Discontent over the mega-development that overlooks local needs, 2. Fair compensation and safety: Advocating for equity and protection amidst change, 3. Development within bounds: Advocating for development with improved governance while safeguarding local interests, and 4. Influential outsiders and powerless islanders: Highlighting the power imbalances among actors in driving change. These diverse viewpoints reflect the plurality of opinions among local actors regarding ongoing mega development in their space. Beyond concerns related to livelihoods, health, and the environment, these opinions offer insights and recommendations for social equity and just transformation within the context of ongoing developments in the region. Our findings highlight the need for inclusive and participatory decision-making to include the multifaceted visions and concerns of local actors to drive equitable and just transformation for coastal development in Bangladesh.

6.5 Cross-sectoral and multi-level governance

Paper-based session

Location: Arboretumzaal

Chair

Sylvia Karlsson-Vinkhuyzen, Public Administration and Policy Group, WUR

Papers

Sander Chan. A Decade of Cooperative Climate Governance: Integrity, Impact, and the Path Toward Sustainable Transformations

This paper discusses a decade (2014-2024) of cooperative climate initiatives that engage nonstate and subnational actors such as cities, regions, companies and civil society organizations in climate change mitigation and adaptation action, against the backdrop of a rapidly evolving climate governance landscape. It particularly scrutinizes the integrity of such initiatives and underscores the need for governance strategies that improve their integrity.

First, based on a transdisciplinary literature review, our investigation marks significant moments and policy developments, including orchestration at major climate summits. Our focus is on the effects that such engagement has had on broader climate governance, e.g. through UNFCCC's agenda on 'Global Climate Action'. We scrutinize the role, and critiques, of governments and international organizations in using, and partaking in, cooperative climate initiatives, and the changes they aim to bring to climate governance, incl. shifts towards polycentricity, as well as emerging demands for integrity, accountability and legitimacy.

Subsequently, we use a longitudinal dataset of more than 600 initiatives (the Climate Cooperative Initiatives Database, CCID), to empirically assess their alignment with emerging governance paradigms, incl. transnational shifts in governance and hybrid multilateralism, the extent they contribute to goals beyond mitigation, incl. SDGs, equity, and justice, and differentiated benefits for developed and developing countries, to ascertain their contribution to sustainability transformations globally. Our findings indicate an expanding field of transnational climate action, demonstrating a growing reliance on collaborative climate governance approaches. Yet, our analysis also demonstrates shortcomings in meeting accountability, legitimacy, fairness and equity demands, raising critical questions about the longer-term contribution of cooperative climate initiatives e.g., to climate adaptation and resilience building, net-zero ambitions, and financing for sustainability.

Finally, we make suggestions to enhance the integrity and impact of cooperative climate initiatives with a view on sustainable transformations. Particularly, we argue that the voluntarism of cooperative climate governance needs to be matched by credible and stringent integrity frameworks which are co-designed with most affected stakeholders.

Elke Kellner. Governance approaches to balance trade-off situations for sustainability transformations

Governance approaches for transformations towards sustainability often need to balance trade-off situations between competing resource interests and Sustainable Development Goals. In a trade-off situation, the achievement of one goal impedes the achievement of others. The interactions between different goals need to be analyzed and understood from a system perspective so that governance interventions don't end up with e.g., opposite effects due to delayed trade-offs with other goals or short-term effects diminishing the need for long-term transformative interventions.

To understand the challenges of governance approaches to balance trade-off situations, I use a case study research design for the Chaco Culture National Historical Park, US. In this case, trade-offs occur between cultural heritage, nature protection, economic interests, and inequality. Data were collected through 20 semi-structured interviews and document analysis. Data were analysed through qualitative content analysis. Interaction archetypes were used to categorize the different governance approaches. The results show how a mix of different governance approaches balances the trade-off situation in the short term by missing the opportunity to integrate interventions for long-term transformations.

Ashok Vardhan Adipudi. Beyond Intentions: Problem-Shifting from the UNFCCC and its Multi-dimensional Impact

Climate mitigation measures under the United Nations Framework Convention on Climate Change (UNFCCC) aim to reduce emissions and enhance sinks to further climate goals. Such measures serve as essential policy tools for states, yet they can result in problem-shifting due to the policy's broad impact and interconnections within the Earth system. While various types of spillovers from climate actions have been identified, the extent and nature of national measures' contribution to problem-shifting are still unclear.

Utilizing 182 national communications between 1994 and 2023 from 25 countries of the Global North, we identify 22 distinct types of problem-shifts within 839 national measures. The results reveal how efforts to reduce carbon emissions inadvertently affect various sectors, including biodiversity, land use, and food security, with a pronounced vulnerability in the Global South.

Our analysis shows that the more developed a country is within this group of 25 developed nations, the greater the likelihood of observing instances of problem-shifting. By mapping the sectoral, geographical, and temporal impacts of these shifts, we identify 68 sectoral impacts, local ecosystem and socio-economic losses in the Global South, and a higher climate burden for future generations from climate mitigation measures. The findings underscore the importance of addressing complex feedback loops and interconnected vulnerabilities that span across sectoral, temporal, and geographical dimensions in climate policy making under the UNFCCC.

Cornelia Fast. Governing synergies and trade-offs through aspirational goals? Evidence from multi-stakeholder partnerships implementing SDG13 on Climate Action

Multi-stakeholder partnerships that combine stakeholders across sectors (public, private, civil society) and levels (global, national, local) of society are an integral part of the United Nations (UN) 2030 Agenda for Sustainable Development. The expectation on these partnerships to facilitate the implementation of the Sustainable Development Goals (SDGs), described as integrated and indivisible, was initiated in 2015 through SDG17 on Partnering for the Goals. Today, their transformative potential is associated with their ability to govern interlinkages between the SDGs. Recent UN reports provide recommendations and point out entry points for the partnerships to focus on, including SDG combinations that should be prioritized. Yet these suggestions leave room for interpretation about *how* a synergistic approach is to be governed in practice. How do multi-stakeholder partnerships govern synergies and trade-offs in light of realizing a sustainability transformation? This paper engages with the academic literature on governance-by-goals and nexus governance to answer this question. Four case studies are carried out using semi-structured interviews with the partners of multi-stakeholder partnerships, aimed at assessing how the goal-setting affects and may explain how interlinkages between SDG13 on Climate Action and other SDGs are governed. In turn, a three-fold contribution is made. First, by engaging with the concepts synergies and trade-offs, the paper develops an increased understanding of their applicability in the context of multi-stakeholder partnerships. Second, the paper

provides empirical evidence about the connection between goal-setting and corresponding solutions for governing interlinkages among SDGs. Third, in turn, the paper highlights enabling and constraining factors that could inform practitioners navigating current and future cross-sector collaborations for sustainability transformations.

Parallel session round 7

Time: 13:30 – 15:00

7.1 Strengthening the rights of future generations: Governance tools towards tackling political myopia

Innovative session

Location: Bosrandzaal

Organizers

Caitlin Masoliver (PhD Candidate at Wageningen University),

Wieke Pot (Assistant Professor at the Public Administration and Policy Group at Wageningen University),

Chiara Macchi (Assistant Professor of Law and Coordinator of Education at Wageningen University – Law Group)

Abstract

For decades, governments have voiced their commitment to counter the adverse effects of human activities on climate change, from statements at International Climate Conventions, to ratifying international treaties, to enshrining principles to protect the environment in their national constitutions. Within this discourse, the concept of ‘future generations’ is increasingly referenced when discussing the need to enact policies to counter climate change.¹ While there is no universal definition of future generations, it can be broadly understood as people who are not yet born, but who will experience the (in)direct consequences of the decisions of people alive today. Others stretch this definition to include today’s children, who similarly have little-to-no political influence over policy decisions that will impact their futures. Despite this increase in discourse around future generations and climate change policy, however, a wide gap remains between political discourse and de facto implementation of policies to advance the rights and interests of future generations. While there is considerable agreement on this in existing literature, there is a lack of clarity around which concrete measures will best establish and sustain the necessary ethical norms, incentives, and capacities for closing this gap. Institutional reform is often explored as a mechanism to facilitate transformative change within a society.

This is well established, for instance, in transitional justice literature on advancing human rights and enforcing the rule of law in post-conflict societies. Exploring the types of institutional reform – and evaluating their effects – in the context of future generations' rights and climate policy is, however, a recently emerging field. This session thus aims to explore the role of institutional reform as a mechanism to strengthening the rights of future generations in present-day policymaking on climate change. It will do so from two perspectives, looking at both the legislative and policymaking level. In doing so, the session hopes to:

- 1) Provide insight into the theoretical debate around the concept of 'future generations' and the recognition of their human rights;
- 2) Provide concrete case studies of how institutional reform has been implemented to protect the rights of future generations in legal frameworks and political institutions;
- 3) Draw recommendations from the successes and shortcomings of the case studies.

7.3 Accountability in governing sustainability transformations

Paper-based session

Location: Meidoornzaal

Chair

Nan Bai, Public Administration and Policy Group, WUR

Papers

Sebastian Reyes de la Lanza. **The promises of data-driven accountability in transnational climate governance: the case of the Global Climate Action Portal**

A key feature of the post-Paris United Nations climate regime has been the orchestration of voluntary nonstate commitments. The Global Climate Action Portal is central to these efforts by serving as the most extensive online repository recognizing voluntary pledges. Moreover, its operation is expected to encourage more ambitious initiatives and track their progress, helping drive societal transformations towards a low-carbon and resilient future. However, the soft nature of orchestration and the lack of regulatory mandates raise concerns over how nonstate actors can be held accountable for their targets' ambition, implementation, and progress reported through the platform.

This research argues that the Portal reflects transnational governance dynamics that are distinctive to the increasingly complex and polycentric climate regime. Transnational cooperative initiatives are the main data providers and act as intermediaries that elicit and manage individual pledges. Although accountability shortcomings of orchestration dynamics have been previously identified, including the Portal's, this research revisits these issues by focusing on the accountability regimes led by intermediary cooperative initiatives. Analyzing these governance relationships is paramount as they underpin how nonstate actors can be held accountable against various standards of behavior relating to Paris alignment and other integrity principles relevant to societal transformations.

This case study-based paper maps the regimes at play in orchestration dynamics via the Portal, i.e., who is accountable, to whom, and for what. The qualitative content analysis of documentary outputs by cooperative initiatives and supplementary interviews evidence a complex network of accountability relationships that chiefly rely on voluntary monitoring, reporting, verification, and disclosure against various ambition and implementation standards. These data-

driven mechanisms can enhance answerability and transparency, but enforceable sanctions and evidence of societal accountability remain lacking. At the same time, compliance is expected to emerge from reputational incentives, increased market competitiveness, and effects on ties and resources within transnational networks, logics that reinforce the focus on data-driven governance. The research concludes that although current accountability regimes set favorable conditions for compliance, the prominence of data-driven processes also poses potential risks to the regime's overall legitimacy and effectiveness.

Pranay Kumar. Walking the Talk: A Comparative Case Study on Energy Transition Policy Processes using Agent Based Modelling

Energy systems around the world are undergoing radical transformation in terms of their stocks, flows, markets, technologies, actors, and institutions. Driven primarily by sustainability policies and perceptions of security risks, current changes differ significantly from past energy transitions in terms of their depth, scale, speed, and complexity. Energy policies are often framed as a step-by-step process corresponding to Harold Lasswell's *stages model*. In comparison, some scholars argue that a linear and apolitical model of policymaking characterized by objective and rational analysis of options is not adequate. Rather, it needs to be supplemented by alternate paradigms that account for multiple agents, coalitions, institutions, narratives, periods of stability and change, inertia and path dependence, multiple layers of governance embedded in different socio-political contexts. It is no longer sufficient to ask – what are the available policy options and expected outcomes but also to understand the messy policy processes surrounding the entire spectrum of policy stages.

However, in comparison to the growing body of energy transition literature on long term policy content and outcomes in terms of fuel choices and emerging technologies, the *how* questions surrounding messy policy processes in different background contexts have remained understudied. To address this research gap, I draw from energy transition literature and policy process theories to compare how long term, top-down, and scientifically rational policies play out under different institutional, social, and political settings with case examples using agent-based modelling (ABM) framework. ABMs are considered useful in capturing complexity and heterogeneity at multiple levels and allow testing of wide range of policies in realistic settings. My proposed analysis is in two parts: first, I would like to proceed with a systematic review of literature on energy transition to identify dominant policy discourses. Next, I plan to compare illustrative cases on energy transition policies from representative jurisdictions to see how they have evolved played out

using agent-based modelling (ABM) framework. I believe that a comparative analysis from real-life examples will not only uncover useful insights on the black box of policy processes but also inform the discourses on content, choices, and outcomes of sustainable energy transition policies.

Land-use governance: The interplay of social, market, and policy drivers – A global systematic review – Elsa L. Dingkuhn Lilian O’Sullivan, Crops, Environment and Land Use Programme, Teagasc, Wexford, Ireland, Caitlin A. Grady, Department of Engineering Management and Systems Engineering, George Washington University, Washington DC, the United States, Erik de Klerk, Farming System Ecology group, Wageningen University and Research, Wageningen, the Netherlands, Rogier P.O. Schulte, Farming System Ecology group, Wageningen University and Research, Wageningen, the Netherlands

Land use largely contributes to the global sustainability crisis. Transitioning towards more sustainable land use, as called upon by international agreements and recent policies, requires changing the governance frameworks that influence land-use decisions and trends. Such transformations require to understand the multi-scalar influences that mould the current land-use situation and their complex interplay. We examine these influences through three contrasting cases: the regulated EU policy environment through the Republic of Ireland, the market-driven context of Pennsylvania in the USA, and the Philippines an emerging economy from the Global South.

This systematic review reveals which influences were studied, their reported effects on strategic land-use and livestock choices, and their interactions. Direct drivers (regulations, incentives, market-based, and persuasion) were categorized deductively, and contextual/contributing factors (i.e. socio-cultural or structural influences like values or land tenure) inductively.

A standardized selection process returned 81 studies that were read in full. 718 factors occurrences were extracted, over 3/4th were contextual factors. Regulations were generally prominent, and forests were the most impacted lands in all sites. Incentives were more important in Ireland, market-drivers in Pennsylvania, and (per)suasion in the Philippines.

We show that all instruments presented tradeoffs, thus none emerged as effectively meeting all sustainability objectives. We provide contextualised policy

recommendations and reveal common ingredients for sustainable land-use governance. Particularly, we highlight the importance of:

- (i) regulatory approaches in co-regulating hybrid and pluralistic forms of governance;
- (ii) considering contextual factors when designing land-use policies as they aid or work against existing policy goals;
- (iii) anticipating synergies and contradictions among policy instruments;
- (iv) recognizing counter-directional influences beyond government control.

These insights can aid governing the transition towards more sustainable land use in other regions of the world.

Marleen Bekker. Operationalizing a whole-of-society approach to health: realist evaluation of situated action mechanisms and small wins in the Transformative Health Governance model

To address socio-economic health inequalities across Western democracies a 'Whole-of-society' (WoS) approach to integrative health action has been proposed decades ago. Yet this approach has hardly been operationalized. Using the Dutch national All about Health (AaH) collaborative platform as a whole of society manifestation, this study aimed to generate an actionable theory of societal health transformations and transformative governance mechanisms.

Methods

In a realist evaluation design we conducted qualitative multiple case studies over a period of eight years. In an iterative cycle of empirical observation and literature study we conducted abductive analyses informing follow up research activities. We continued to refine our understanding of the dynamic processes underlying health initiatives in relation to health institutions, and in the context of health and other policy systems.

Results

We developed an initial transformative health governance model using Hedström & Ylikoski's (2010) situational, action and transformative mechanisms. Weick's 'small wins framework' (1984) and Hall's three orders of policy learning and change (1993) helped to identify indicators of (temporary) outcomes as incremental conditions towards instrumental, organisational and system change. Our case studies show that organic practices of mediation in situations of disconnect, stagnation, latent conflict, such as 'being there', listening, offering practical assistance and connecting or representing these in political fora, policy networks and social media seem crucial conditions to change. Regional identity seems a

powerful cohesive for perseverance and change over a longer term. This is much less reflected and accompanied by policy system change.

Discussion

Realist evaluation proved useful to develop an initial theory of context-mechanism-outcome configurations that helped making sense of empirical process observations in the case studies. The resulting mechanisms of transformative health governance represent one bottom up approach that seems appropriate for earlier stages, while more advanced stages require complementary political agency for systems transformation.

Conclusions

In an attempt to move beyond Health in All Policies or intersectoral collaborations, the Transformative Health Governance model offers a first attempt to operationalize whole-of-society mechanisms for integrative health action. While it fosters a reconnect between policymakers and communities, policy system change requires complementary governance by political agency.

Majid Asadnabizadeh. Bump in the Road to Global Energy Transition: The Bottlenecks of the Carbon Markets

This study develops a theoretical framework to assess the key drivers of carbon markets, that is, carbon markets approach in the global energy transition. The developed Global Low Carbon Energy Transition (GLCET) framework is then applied to the six metareviews of the literature, with the exception of the literature reviews of Groups 1 and 2. Based on this metareview, the study also considers the key drivers of the GLCET, namely, DE carbonisation of the power sector, fossil fuel phase-out, geopolitical security. Based on the MOSCOW technique, the author concludes that DE carbonisation of electricity is very important and critical (MO), phasing out fossil resources is challenging but requires some solutions (S) and in third place (W) the impact of geopolitical security on GLCET is not very important. The author's main recommendation is to develop a more qualitative framework to understand the main challenges of the global energy transition.

7.4 Transformative change pathways for biodiversity and equity

Paper-based session

Location: Lijsterbeszaal

Moderator

Dr. Verina Ingram

Organizers

Marina Benitez Kanter

Dr. Verina Ingram

Dr. Paul Ingenbleek

Dr. Caspar Krampe

Papers

Marina Benitez Kanter. EU transformative change pathways of coffee and cocoa value chains towards biodiversity and equity

Biodiversity-rich countries in the Global South are experiencing significant biodiversity loss due to land-use change caused by demand for agricultural products from European Union agri-food systems. Globalisation processes have led to increased imports of products such as palm oil, coffee, cocoa and tea into the region. Trade in the European Union has become more “telecoupled” - a “distance connection” of remote and interconnected human and natural systems through diverse flows of goods, money and information- creating high uneven value chains with negative environmental and socioeconomic impacts.

Managing the European Union’s global biodiversity footprint is one of the most important objectives of European Union policy. The Farm to Fork strategy states that “Transformative change pathways of food systems are essential for safe and just transitions.” However, ideas about what transformative changes in food regions and systems are—including remotely telecoupled connected food systems—might vary.

In this context, this work aims to analyze the existing discourses in the EU regarding food systems transformations and the values, perspectives and interests that drive these discourses. This is to understand the diverse existing and future

transformative change pathways that might lead to positive equity and environmental outcomes in producing landscapes of coffee and cocoa in Colombia and Cameroon, respectively. The research question leading this research is: *What are the different discourses on food systems transformations regarding telecoupled agrifood systems, and what are the values, perceptions and beliefs underlying these discourses?* A second research question, aiming to analyse future transformative change pathways, would be: Which are the possible transformative change pathways that could foster biodiversity and equity in producing countries' landscapes?

Two main methods, stakeholders analysis and document analysis, were used to analyze the existing discourses in the European Union regarding food systems transformations of tele-coupled value chains.

In the stakeholder analysis, a mapping of the stakeholders working with coffee, cacao, palm oil and teas in the EU were identified and mapped. Consequently, a document analysis of key actors of multilevel governance systems (International, European, Private, Non-Governmental Organizations and Social Movements) were analyzed. For these 40 documents (i.e. strategies, policies, initiatives, etc.) of 29 key stakeholders were reviewed. Discourses in practices were also assessed through participatory observation of meetings, conference attendance, newspaper articles and in-depth interviews with key stakeholders.

A content analysis of the different discourses in the text, which was coded using themes and subthemes related to food systems transformations, biodiversity and equity, was conducted. The purpose of this was to understand the underlying values related to biodiversity and equity by the different stakeholders, as well as the diverse beliefs and perspectives regarding food systems transformations. Consequently, possible leverage points for food systems were identified. Finally, the challenges and opportunities of possible transformative change governance pathways of food systems transformations of coffee and cacao value chains are presented.

Jeanne Nel. Advancing transformative research and practice for biodiversity: the Horizon Europe transformative change cluster as an amplification process

While there is growing consensus across climate and biodiversity research and policy communities that transformative change is needed, there is less agreement about what it entails and how it can be achieved. This research and innovation gap is currently being advanced by the EU Horizon Work Programme, which funds a

cluster of projects on “transformative change for biodiversity”. Since 2021, there are some 12 projects underway, and more are expected towards the end of 2024. We suggest that this networked project approach provides an amplification process for research and innovation needed for transformative change beyond individual projects. Three Working Groups have been formed within the cluster, each contributing a slightly different perspective on transformative change:

- The Biodiversity Nexus: Strengthening links between biodiversity, water, food, energy, transport, climate, and health
- Production, consumption, and global trade, including Business and Financing. How can the private sector contribute to Transformative Change?
- Values, norms, justice and societal agency to accelerate transformations for biodiversity.

This innovative session aims to bring researchers and practitioners into this network to explore the range of perspectives, narratives and assumptions of transformative change in these working groups. After hearing about the overall aims of the transformative change cluster, and the goals and change narratives of each Working Group, we will break out into discussion groups. The discussion will consider the perspectives offered by each Working Group, discuss areas of complementarity and tension, and identify what else may be needed to advance and amplify transformative research and practice for biodiversity. The feedback will be further considered in guiding Working Group direction in the transformative change cluster of Horizon EU.

Rosalie van Dam. Be the transformative change – theory and practice

In the kick off we will showcase the practice of working on transformative change towards a just and nature inclusive society. The aspirations of two transformative biodiversity innovations are elaborated in the field of nature inclusive building, how they contribute to transformative change towards a nature inclusive society and how we work together via participative action research. As we want to practice what we preach, we try to contribute to transformative change as well as work in transformative ways. This means that we practice the PEPE-principles: pluralising, empowering, politicising and embedding, have an eye for marginalised perspectives, and combine theory and practice. The kick-off consists of two co-presentations. The first is by a practitioner (initiator eco-community) and a researcher (Part of Horizon Europe project BIOTraCes) exploring what happens to our ways of living and building if we transform the narrative of nature-inclusive society to human-inclusive nature. If biodiversity is considered as a vital network of symbiotic relationships in which humans are an integral component, instead of a

dominant and essential part? And how do policy, rules and regulations play a role in the way the mainstream building sector in the Netherlands is currently working against biodiversity, instead of in favour? The second co-presentation is by policy makers (of province Overijssel) and a researcher (Part of Horizon Europe project BIOTraCes), in which will be explained how the program 'Nature for each other' of the province Overijssel tries to set an example in working transformatively by working beyond the established methods of policymaking: the formulation and implementation of their policy is done in co-creation with a wide variety of other organisations and parties. Moreover, their policy is not so much words on paper, but the refinement consists of several action plans composed and implemented by various combinations of actors. Furthermore, there will be explained how research and policy work together by co-developing a theory of transformative change .

Socrates Schouten. Participatory assessment of the transformative potential of networks in combating biodiversity loss

This paper contributes to the understanding of the dynamics of networks active in EU-wide Science-Policy-Society-Interfaces (SPSIs), focused on bending the curve of biodiversity loss.

The EU Biodiversity Strategy for 2030 aligns with global ambitions on halting biodiversity loss by 2030 and restoring important degraded ecosystems. In pursuing these goals, the availability and appraisal of knowledge is pivotal. Knowledges on the decline and restoration of biodiversity, however, are plural, contested, and context-bound.

Science-Policy-Society Interfaces (SPSIs) are networks that intermediate different places where knowledge is (co)generated and employed, and may drive transformation when different knowledges 'meet'. For SPSI networks to govern sustainability transformation, increasing their transformative potential is key; that is, the ability to bridge views, contexts, and ways of working, and to alternate between strategies when needed.

This paper reports findings on the participatory self-assessment of the transformative capacity of EU-wide SPSI networks on Pollination, Freshwater and Nature-Based Solutions. In each of the three networks, an assessment framework is being tested to harvest insights on transformative potential and to reflect on assessment frameworks and types of assessment question.

The networks assessed are all involved in the Horizon Europe BioAgora project, but differ in size, purpose, level of formalization, and stakeholders involved. How do participants in each network perceive their relation to, and capacity for, transformative change? Is transformativity a core or fringe aspect of their operation?

What is their level of acknowledgement of the need for transformative change in relation to bending the curve of biodiversity loss? What strategic, tactical and compositional findings ensue?

The assessment framework under development allows evaluation of higher-order “networks-of-networks”, looking at bridging different knowledges and ‘culturing’ transformations. In this approach, processes between networks are considered that prepare the ground for transformative change across the boundaries of the networks studied, and aim to iteratively help strengthen the networks’ transformative potential.

7.5 Policymaking for sustainable food consumption

Paper-based session

Location: Arboretumzaal

Organizer

Daniel Polman (WUR - PAP)

Abstract

Keeping the food system within ecological boundaries is one of the key sustainability challenges. Current research on sustainable food policy focuses predominantly on governance of the agriculture sector and farmers. Consumer demand is often mentioned as a driver for more sustainable production, for example in the EU Farm to Fork (F2F) Strategy, this is mainly as a demand factor in a capitalist market system. However, the role of consumption practices and consumers, both as policy target and drivers, in the development of food policies remains under-explored.

In this panel we aim to further zoom in on the relation between food consumption and public policy. Both supply of and access to sustainable food are interactions of daily practices and food environments of consumers, with political and policy contexts. While sustainable consumption can be seen as statements in favour of more sustainable foods systems, policy innovations, in turn, can influence and change consumption of sustainable products. In this regard, sustainable consumption connects with numerous policy fields such as, but not limited to: public health, state welfare, city planning, education, public procurement, and waste management. This panel explores the role and potential of consumers as both a target group and change agents in the transition to more sustainable and socially just food systems. In particular, we welcome papers studying the following topics:

1. Which policy instruments and mixes contribute to more sustainable food consumption?
2. How do consumer/societal demands affect food policy development?
3. What are drivers and effects of consumption as a form of political participation?
4. How do other (non-food) policy domains interact with food consumption?

Papers

Sanne Djojosoeparto (w/ Muriel Verain, Maartje Poelman, Jeroen Candel, Hanna Schebesta & Sander Biesbroek). Towards a more plant-based food supply. Recommendations for governments to facilitate the introduction of the protein transition in public organisations

Shifting dietary patterns from animal-based proteins to more plant-based and alternative protein sources – the protein transition – is urgently needed to improve planetary and human health. Public food procurement is considered to be an effective policy instrument to accelerate the protein transition and to be a potential game changer towards a sustainable food system. However, this potential has remained far from leveraged, and it is largely unknown which barriers and enablers exist in that context. Therefore, this study aimed to gain insight into the barriers and facilitators that are perceived by relevant stakeholders when implementing the protein transition in public food procurement, constructing a comprehensive framework of these barriers and facilitators. Our study was conducted in the Netherlands, because of the barely changed animal protein consumption levels despite increased political salience in the past years, but findings are also relevant for other countries. Semi-structured interviews were conducted with participants from a wide range of (semi-)public organizations (e.g., universities, hospitals, governments), in 2022. Five main themes of barriers and facilitators were identified: (1) food offerings, (2) support and motivation, (3) finance, (4) policies, processes, and contracts, and (5) contextual factors. The insights and framework can strengthen the scientific evidence base and can serve as a foundation for future research. Moreover, the insights can be beneficial to officials working in (semi-)public organizations to effectively design and execute their procurement process, and can help policymakers in policy development to foster (semi-)public organizations to implement the protein transition in their own contexts.

Joana Wensing (w/ Jose David Lopez Rivas & Daniel Polman). Policy instruments for reducing meat consumption. Design for a choice experiment

Our current food production and consumption patterns based on the logic of “take-produce-consume-discard” are seen as unsustainable. Making our food system more circular is seen as an important future direction for reform. This transition requires new sets of circular food policies, which will have important implications for both consumption and production of food. With this study we would first like to investigate to what extent current food consumption behavior is circular, and how social and political categories differ in these food consumption behaviors, and

second to develop new insights on preferences for different circular food policies by a conjoint survey experiment with policy packages.

Daniel Polman (w/ Joana Wensing & Jose David Lopez Rivas). Consumption as everyday political participation

Political consumption – deliberately consuming or avoiding products for politically motivated reasons – has been studied as a popular and contemporary form of political participation. However, studies focusing on the micro-foundations of political consumption overlook the role of the everyday social context in which people make and motivate their consumption choices. In part, this is due to the current measurements of political consumption that rely on single recollections of boycotting or buycotting of products over a specified past period in large scale surveys. In order to overcome this lacuna, we study the effects of everyday social context on political consumption using ecological momentary assessment. This method allows us to follow respondents over a longer period and collect data at different consumption moments.

Tom Kiel. Towards sustainable and healthy outcomes in the EU food system: Accelerating transition pathways through configurations of leverage points

Leverage points may be used to strategically target policy interventions in complex systems, in such a way that ripple effects can affect structural change. However, little is known about the cumulative effects of distinct configurations of leverage points to accelerate transition pathways. This paper builds on the conceptualization of ideal-type transition pathways to show the relevance of categories of leverage points. Causal loop diagrams displaying EU food system complexity are discussed during focus groups to pinpoint promising leverage points. The induced framework is then applied to show how interactions between leverage points may enable acceleration of a sustainable and healthy transition.

The EU food system is confronted with a host of sustainability and health problems such as the 6th mass extinction wave, soil degradation, climate change, obesity, and micronutrient deficiencies. Although from a scientific viewpoint a lot is known about the causes and potential solutions for these problems, implementing policy interventions to overcome sustainability and health problems remains challenging.

The main question of overcoming contemporary sustainability and health problems is where to intervene in the food system. The EU food system consist of a great complexity of interrelated activities, technologies, institutions, values, and

paradigms that influence each other. Interactions span across different domains such as the production of food, processing and distribution, retailing, and consumption, but also across adjacent systems such as ecosystems, finance, healthcare, technology, and education. Together, complex interrelated structures shape the food system regime that is focused on delivering societal functions such as feeding the EU population, making profit, and maintaining stability in doing so. These relatively stable structures make it complicated to plan a series of policy interventions that build towards more sustainable and healthy outcomes.

Few studies have examined sequences of leverage points in food and energy systems. But those studies fail to utilize feedbacks in distinct configurations to accelerate transition pathways. This study aims to fill that gap by showing how distinct configurations of leverage points may generate momentum towards sustainable and healthy outcomes. In that way, crucial components of the system may be restructured in conjunction to each other, thereby avoiding lock-ins. To do so, this paper builds on complex feedbacks in five subsystems (biophysical & environmental, health, political-economic, innovation & infrastructure, and socio-cultural) and shows how configurations of promising leverage points may align with ideal-type transition pathways. The paper thereby aims to answer the following research question: *How may leverage points in the EU food system activate reinforcing feedback loops within ideal-type transition pathways to accelerate a sustainable and healthy transition of the EU food system?*

Evangelia Padenoglou, Francesca Leucci, Saide Esra Akdogan. Transforming the EU Food Policy: the Impact of Enviroscore on Sustainability Practices

This paper evaluates the transformative potential of integrating Enviroscore, a novel eco-labelling system, into the EU's food labelling regulations. Developed in 2021 by AZTI and the University of Leuven, Enviroscore simplifies the environmental impact assessment of food and beverages with a straightforward five-grade label. It aligns with the Product Environmental Footprint (PEF) framework approved by the European Commission.

The potential role of Enviroscore within the EU's regulatory framework sparks ongoing debate in legal and scientific circles. Those endorsing the Enviroscore mainly argue that it aligns with EU policies like the Green Deal and the Farm to Fork strategy, promoting informed consumer choices. However, a wide adoption of the Enviroscore presents significant legal and technical challenges, especially in terms of enforcement and compliance across the EU Member States due to lacking green claims policies at the national level.

For this reason, this paper aims to assess the feasibility of integrating EnviroScore into the existing EU regulatory environment by evaluating its potential strengths and limitations from both a legal and a technical perspective. Moreover, it explores how this integration could enhance the coherence and effectiveness of eco-labelling initiatives across the European Union.

Guided by the research question, "How could the integration of EnviroScore into the EU food eco-labelling system drive a transformative change towards sustainability?", this study is structured into three sections.

First, it provides a comprehensive literature review focusing on existing tools for analyzing the environmental impacts of food, including a detailed examination of EnviroScore.

Secondly, the paper explores EU's eco-labelling regulations, highlighting limitations in current labels' effectiveness in promoting sustainable consumers' behaviours and industry practices. It discusses legal and technical challenges in implementing a unified environmental scoring system.

Lastly, the paper assesses EnviroScore's integration into the EU's eco-labelling system and its broader implications. It evaluates whether and how EnviroScore aligns with or, conversely, challenges previous regulations, especially under the newly adopted Green Claims Directive.

In this way, this study aims to contribute significantly to the discourse on eco-labelling by highlighting the importance of standardized environmental scoring systems like EnviroScore as pivotal mechanisms for fostering sustainable transformations in environmental policies within and beyond the EU.

Plenary roundtable discussion

Time 15:30 – 17:00

Justice, Decoloniality and More-Than-Human relations

Location: Bosrandzaal

[Livestream](#)

Moderators

Arjen Buijs, Forest- and Nature Conservation Policy group, WUR

Bas Verschuuren, Forest- and Nature Conservation Policy group, WUR

In this plenary round table we will discuss critical issues about making sustainable transformations just and inclusive, sensitive to values, needs, knowledges and histories of all actors. Topics include the role of different actors, including non-human nature, in just transformations; the role of knowledge institutes such as universities and identifying the most urgent actions from governmental and non-governmental actors.

Keynote

Dr. Farhana Sultana is Professor in the Department of Geography and the Environment at the Maxwell School of Citizenship and Public Affairs of Syracuse University, where she is also the Research Director for Environmental Collaboration and Conflicts at the Program for the Advancement of Research on Conflicts and Collaboration (PARCC). Her work encompasses political ecology, water governance, climate change, social and environmental justice, decolonizing knowledge, and transnational feminisms.



Panelists

Sophie Koers is the Executive Director of The Broker, a leading knowledge brokering organization dedicated to fostering a globally sustainable and inclusive society. From her time as a student activist and throughout her career and life, Sophie has looked for ways to include all relevant perspectives in any decision-making processes. With The Broker - a knowledge brokering organisation in the field of international sustainable development cooperation - she is committed to redefining the role 'knowledge' should play in solving global challenges and reshaping the 'development' dynamics.



Dr. Esha Shah is a lecturer at Wageningen University. She is a feminist scholar who believes in moral power of ideas to change the world working with knowledge institutions like Universities to be able to engage with the history of ideas, to debate them, contest them, and hold them close to my heart. As per my institutional identity. Her research has involved debates on development and technology in India involving history and anthropology of indigenous irrigation technology and social and environmental justice movements against e.g. large dams.



Danielle van Oijen is the Programme Coordinator Forests of Friends of the Earth Netherlands. Danielle coordinates the Agro-Commodities, Forest Land Governance, and Liberia programme within the forest team of Friends of the Earth. Friends of the Earth campaigns to stop landgrabs and deforestation. She has worked for Vogelbescherming Nederland, Greenpeace, and AidEnvironment and studied with Wageningen University.



Dr. Laura Burgers works as assistant professor at the Amsterdam Centre for Transformative private law (ACT) at the University of Amsterdam on themes including climate litigation, the rights of nature and the rights of future generations.



October 18th – De Leeuwenborch, WUR

Parallel session round 8

Time: 09:00 – 10:30

8.1 Conceptualizing transformative change from different perspectives

Paper-based session

Location: B0066

Chair

Verina Ingram, Forest- and Nature Conservation Policy Group, WUR

Papers

What transformative change means at the biodiversity science-policy interface: views from Finnish IPBES and Red List experts on the aims and mechanisms - Anna Salomaa

Transformative change towards sustainability is needed to maintain the future living conditions for people and nature. Actors at the interface of science and policy assess and mediate knowledge on the state of nature and the solutions. These actors have a position to influence policy and society therefore their views on transformation matter to the governance for transformation. The objective of the present paper is to unveil the understandings of transformative change by biodiversity science-policy interface actors. We propose a framework adapted from Roger Few and others 2017. The adapted framework will have three main components: mechanism of change (e.g. innovation, expansion), target outcomes (e.g. relation to drivers of risks, and to biodiversity loss or carbon emissions or human wellbeing), and the object of transformation (e.g. conservation policy or science-policy-society interface). We use this framework to analyze Finnish IPBES and Red List experts' understandings of transformation. Interviews cover the Finnish IPBES authors until 2019 and the Finnish IPBES Plenary-7 delegation 2019 (12 interviewees), and the authors of the forest and peatland sections, the most notable land ecosystems, of the Finnish Red List of Ecosystems 2018 (15 interviewees). IPBES is the leading panel on biodiversity and the Red Lists are the most comprehensive sources to measure the state of biodiversity. Thus, when it comes to biodiversity, these organizations and their actors contribute key knowledge with a strong epistemic authority on how to understand transformation.

The experts are central both in what knowledge is coming out of the assessments and in the science-policy interface; they could contribute to steering the governance for transformation. The study allows us to discuss how transformative change is understood and made manageable through the operationalization of transformation. Thus, the study reveals how the abstract notion of transformative change becomes embedded in our shared knowledge of reality. In addition, the results of this paper thus will help find a role for biodiversity policy instruments and communities in the governance of transformation.

Maximilian S.T. Wanner. What is 'transformation' for sustainable development and the 2030 Agenda? A systematic literature review

The 2030 Agenda for Sustainable Development and its associated Sustainable Development Goals (SDGs) represent a global endeavour to address interconnected societal challenges. Central to the SDG discourse is the notion of transformation, encapsulated in the title of the Agenda itself, "Transforming our world." Despite its rhetorical power, the concept of transformation remains vague, contested, and subjected to debate among scholars. This study conducts a systematic review of academic literature on the SDGs and the 2030 Agenda from 2009 to 2024 to elucidate how the concept of transformation is defined and utilized by researchers. By mapping theoretical and thematic trends surrounding transformation, the study aims to provide clarity on this key, yet poorly defined, concept. We offer insights on the past, present, and potential future uses of the concept in studying contributions to the transformative change necessary to achieve the SDGs. The findings contribute to scholarly discourse on sustainability governance and offer insights to inform the actions of various stakeholders. Ultimately, the study seeks to foster a more informed and reflexive approach to the SDGs process, mitigating the risk of tokenization and promoting meaningful progress towards SDG fulfilment.

Katrien Termeer. Governing transformative change: three archetypical pathways

Choosing governance strategies for successful and just transformational change is critical. However, various assessments show that staying below 2°C global warming or meeting the COP15 target to reversing biodiversity loss by 2030, require deeper, more system-wide and faster strategies than currently observed. This theoretical paper explores the following question: how could an advanced understanding of the depth, scale and pace of transformational change, increase the efficacy and justness of governance strategies?

There are three main characteristics of transformational change: in-depth is important to address root causes and lock-ins; system-wide scope is important to include cross scaling interconnections and urgencies; and quick change is important to prevent crossing dangerous tipping points. Although preferable, strategies that are simultaneously deep, system-wide and quick are impossible. When change is in-depth and system-wide, it is probably slow. When change is in-depth and quick, it probably has a narrow scope. When change is system-wide and quick, it is probably superficial.

The paper presents three governance pathways that are more realistic. They start with strategies representing two of the three characteristics, while the third follows the two initial steps. (1) The Big Plans pathway starts with deep and systemwide change, and adoption and implementation will take time (e.g. large-scale flood protection). (2) The Small Wins pathway starts with deep and quick change, and could become system-wide through broadening and upscaling (e.g. community-based conservation). (3) The Rule Changes pathway starts with systemwide and quick change and could deepen through increasingly sharpening the rules (e.g. the EU emissions trading system).

Drawing from a range of examples we illustrate how these three pathways deal differently with the interrelated sustainability crises, result in different challenges, face different risks of failure, provide tailored governance strategies and involve different equity implications. The suitability of a pathway depends on the particular sustainability challenge, the societal context within which it occurs and the capabilities of the governance system. It is important that each pathway balances effectiveness with equitability while transforming from the current to the future state

What are we talking about when we talk about transformation? – Laura Mai, Tilburg University

The global climate crisis response envisioned by the Paris Agreement (the most recently concluded international treaty on climate change) is commonly understood as demanding 'transformative' change. Yet, we lack a holistic conceptual framing for making sense of what such change would entail, how it might unfold, and who and what it will involve. Moreover, there has been little critical engagement with the question of what is at stake when invoking the notion of transformation. Contributing to the broader debate about what climate change demands of governance, this paper describes transformative dynamics as processes of change which work towards radically different states of affairs that seem practically impossible under the status quo, but which could arguably be realized if different

conditions were in place. Developing an ontology of transformative change, the paper identifies heterogeneous temporality, the actualization of impossible possibilities, and distributed engagement as three central features of transformations in climate crisis. Having laid the conceptual groundwork, it then takes a critical turn and foregrounds unresolved tensions that run through transformation thinking. The aim here is to connect to critical discourses and show how these tensions can serve as entry points to meaningfully engage with the notion of transformation. The paper closes by offering some reflections on what engagement with the notion of transformation might mean for how we do scholarship.

Judith Klostermann. Defining nature positive food systems as a start of a transformative process

The transition to a nature-positive food system requires a change in paradigm from 'causing less damage to nature' to 'doing good for nature'. Attention has evolved from global advocacy about the reciprocal relationship of food systems with nature towards really rethinking these systems. The term, however, leaves room for interpretation and a blurred understanding of the concept may undermine meaningful steps towards required change. Therefore, we explored how "nature-positive food systems" could be meaningfully defined in a way that is beneficial for nature-positive transitions. To do so, we formulated a working definition, based on literature and internal discussions. We acknowledge that defining nature-positive food systems is a contextual process in which the aim is more about increasing shared understanding, rather than obtaining a final definition. As working definition, we refer to nature-positive food systems as food systems that have nature at the heart of decision-making and that will lead to increased biodiversity and improved ecosystem functioning through collective understanding and action. It is important to acknowledge that nature-positive food systems also need to provide sufficient and healthy food for people and that they should contribute to sustainable livelihoods of many people. Whether you do it right for nature depends on the spatial context in which the system operates and on the agreement on what kind of actions can be taken. We believe that the most successful nature-positive food systems are supported by an integrated approach and collaboration. Our actions therefore aimed at developing practical tools for actors such as food system stakeholders, policy makers and companies to understand how their potential actions may interact and what trade-offs, dilemmas and tensions may arise. We develop a preliminary set of tools for identifying, measuring and monitoring nature-positive food systems. With these tools trade-offs and synergies can be identified, as well as improvements, game changers and governance mechanisms to promote

nature-positive food systems in a specific context. We also collect practical experiences with our tools by applying them in different situations in low and middle income countries.

8.2 Transformations via the law and reflexivity

Paper-based session

Location: B0067

Chair

Hanna Schebesta, Law Group, WUR

Papers

Jerneja Penca. Transformative potential of the nature restoration law

The scope of the intersecting socio-environmental crises calls for a transformative change. The literature defines it as a deep, fundamental and system-wide change in ways of living and organising towards a long-term health of ecosystems, which people and nature are part of. Policy-making and law at various scales have recently indicated willingness to design transformative actions to move towards sustainability. In that context, nature restoration (also 'nature renewal', 'renovation', 'rewilding', 'nature positivity') has been identified as a specific measure (UN Decade on Ecosystem Restoration 2021-2030, 2023 Kunming Montreal Biodiversity Protocol, EU's 2030 Biodiversity Strategy and the specific Nature Restoration Law). While the concept of restoration has a history in biodiversity governance and law (e.g. Telesetsky, Cliquet, Akhtar-Kvahari 2017; Akhtar Kvahari and Richardson 2019) and restoration ecology (e.g. Jordan et al. 1987), it is now receiving a heightened policy attention that has not been examined adequately in its relation to transformative change, as being envisaged and formally endorsed.

The paper will examine nature restoration as a possible case of a transformative regulatory action. The EU's Nature Restoration Law will be brought into an explicit conversation with the concept of transformative change, as this is currently developing in the scientific and policy community. The existing law will serve as a means of deliberating the impact, potential and limits of regulatory initiatives in the domain of nature restoration, and in that context consider the conditions, under which the transformative potential of restoration can be realised. Various concepts and approaches will be reviewed, including those of leverage points for sustainability transformation, transformative governance, procedure/outcome division from the legal doctrine, as well as the findings from the relational approaches and environmental humanities. The ambition is to reflect on the ability of transformative change to become a feasible strategy, and contribute to a shift in the research from considering transformation as an elusive and abstract concept to one that can or cannot be operationalised through activities of public authorities.

Kris van Koppen. Exploring the reflexive potential of EU nature protection law

Reflexivity is a key concept in governance theory and environmental sociology and considered a crucial factor in sustainability transformations. Reflexive environmental law can be characterized as legislation that fosters reflexivity as a driver of positive environmental change. Often, it is associated with a shift away from 'command-and-control' towards more interactive forms of governance, but it can be argued that direct regulation, too, has the potential to stimulate reflexivity (e.g., Ross 2024). This paper explores reflexivity in EU legislation for nature conservation. First, it articulates what reflexivity implies in the domain of nature conservation. It argues that in this domain regional authorities and civil society are key actors. Reflexivity for nature encompasses three main dimensions: cognitive reflexivity (actively acquiring knowledge of the location and health of high-value nature areas and species, and the factors threatening them), normative reflexivity (actively identifying and acknowledging concrete values of nature), and instrumental reflexivity (being able to develop and improve measures for protecting nature). Drawing on social learning theory, the paper explores how reflexivity, over these dimensions, can be influenced by legislation and by the social practices that legislation stimulates. These potential influences are then compared with the empirical case of the Habitats Directive, on the basis of existing evaluation studies. Preliminary findings suggest that the Habitats Directive has contributed to cognitive and normative reflexivity in member states. The paper ends with a discussion of the reflexive potential of the EU Regulation on Nature Restoration.

Lieselot Vanderbussche. Towards an actionable understanding of reflexivity for policy practice

In the early 1990s, Ulrich Beck authoritatively linked up the notion of 'reflexivity' with the need for society to fundamentally change, in order that society can address looming environmental and social disasters successfully. Since then the concept prominently features in governance and policy literature in relation to persistent problems and sustainability transitions, denoting the ability of policy arrangements to reconfigure itself in response to reflection on its performance.

However, as of yet, reflexivity still is by and large an abstraction rather than an actionable concept connecting the cognitive act of reflection with 'action'. Current conceptualizations of reflexivity tend to over-emphasize the role of *cognitive* processes, and by doing so, fail to explicitly register how reflexivity 'interacts with the real world'. Therefore, this paper addresses the question: how can reflexivity

become *enacted* in policy analysis for transition, and how can it be applied in policy practice?

The paper argues that to elaborate reflexivity to have a more ‘worldly’ orientation and serve as an actionable heuristic applicable in policy practice, it can build on practice theory. By crosslinking the conceptual underpinnings of reflexivity with those of a practice-based approach, reflexivity is operationalized as a continuous, embodied and engaged process.

After presenting reflexivity as a actionable heuristic, the paper relates how this served as a basis in developing a concrete evaluation process. We describe experiences with evaluating the Dutch climate policy, engaging national policy makers based on the heuristic’s logic to make reflexivity actionable. The experiences inform a critical discussion of the affordances and resistances in climate policy governance that the actionable heuristic laid bare.

8.3 How transformative is the EU Green Deal? Empirical insights into improvements in the performance of marine governance under the EU Green Deal

Paper-based session

Location: B0068

Organizer

Moses Adjei, Environmental Policy Group at Wageningen University

Abstract

The marine environment is under threat from multiple blue crises, including climate change, loss of biodiversity and pollution. At the same time, the oceans are seen as a potential for new economic activities, such as offshore energy, deep sea mining, and aquaculture. The EU Green Deal includes many blue elements and seeks to answer the challenge of making European society climate neutral and decouple economic growth from resource use in a way that leaves no person and place behind. The ambitious objectives of the EU Green Deal require equitable transformative action to change society to protect marine life by decarbonising marine sectors and circular use of marine resources.

However, instigating transformation within longstanding governance arrangements is very challenging and is often hampered by institutional barriers such as path dependency, bounded rationality, and institutional inertia. In addition, marine governance suffers from poor communication and coordination between actors, sectors and governance layers, often. The lack of collective action across sectors and governance actors impedes effective policy implementation as uninformed or uncooperative actors stall policy implementation, or solutions developed in policy silos become contested rather than shared.

The EU Green Deal contains a focus on digital tools to help achieve its sustainability objectives. E-governance innovations are proliferating, and are expected to foster transformative change by enhancing transparency and communication. To what extent these innovations contribute to achieving the EU Green Deal ambitions and can create transformative change is unknown.

This session presents ongoing work from the EU Horizon 'improving the PERformance of MARine GOVernance project' (PERMAGOV). Within PERMAGOV, social scientists, decision-makers, industry and NGOs will co-develop and apply

Marine Governance Performance Assessment Framework to plan the implementation of collaborative and e-governance Marine Governance Strategies, aimed at improving the capabilities of actors to implement EU Green Deal policies within the regime complexes of Marine Energy, Maritime Transport, Marine Life and Marine Litter. The session will introduce the project and present current developments of marine governance transformation in the realm of Marine Energy, Maritime Transport, Marine Life and Marine Litter.

Papers

Nelson F Coelho, Moses Adjei, Judith van Leeuwen. Governing the transformation of the maritime transport industry: how the port and ship dichotomy shapes implementation of the EU Green Deal

The European Green Deal (EGD) prompts a transformation of European logistics systems, providing a renewed attention to the role of maritime transport in EU trade. The EGD has led to the development of the Sustainable and Smart Mobility Strategy and the Fit-for-55 legislative package, which put emphasis on efficiency, digitalization and decarbonization of the industry. As the terms of political engagement change, so do the existing regime complex governance arrangements. Their transformation is ongoing, as new law and policy is enacted at various levels to respond to the EGD. The governance of maritime transport's adaptation to the EGD can be seen from the ship perspective or from the port perspective. At the shipping level, new reporting, monitoring and verification mechanisms and the EU emission trading scheme require collaboration between ship owners, shipping companies and public authorities. At the port level, there is an opportunity for a renewed role as alternative fuel storage and production, as well as to create new short-sea shipping routes to divert cargo from congested roads to coastal waters and inland waterways; this requires collaboration between terminal operators, shippers, and freight forwarders. Overall, these ship and port focused constellation of actors are both in the process of responding to high level policy making processes, but their ability to implement policy is dependent on their collaboration to overcome barriers. This paper presents the impact of the EGD on the regime complex of maritime transport under this ship/port dichotomy, introducing some of these new collaborative dynamics and institutional barriers based on new data collection as part of the PERMAGOV project.

Lindsey West, Wesley Flannery. Accelerating offshore renewable energy; a non-EU member state perspective

The UK asserts itself as a global leader in offshore wind and claims a ‘first mover advantage’ on floating wind. It has set ambitious targets, including the delivery of 5GW of floating wind by 2030. A range of new policies have been produced to support delivery of these targets and to ensure the UK maintains competitiveness in the face of EU policy innovations, including the Green Deal Industrial Plan and REPowerEU Plan. The Celtic Sea is now established as one of the world’s largest floating wind pipelines. Regional actors in the south-west of England recognise the major socio-economic benefits of a new floating wind sector and are taking decisive and strategic actions to ensure that benefits are captured locally. Actors within a public-private partnership are drawing upon shared resources (funds, knowledge, expertise) to advance their floating wind agenda, while the establishment of the Cornwall Floating Wind Commission in 2023 has introduced new actors into the governance arrangement and created new rules of the game from the bottom up. This case study explores emerging tensions in the development of the floating wind sector in the Celtic Sea, including tensions between regional agenda setting and existing centralised governance structures, as well as tensions between new policies that allow streamlined environmental assessments for offshore wind projects and new post-Brexit environmental legislation that aims to protect vulnerable marine ecosystems.

Moses Adjei, Hilde Toonen, Troels J. Hegland. Enhancing coastal livelihoods and biodiversity conservation through co-management of Small-scale fisheries (SSF) in Italy

European consumers depend on seafood as an important source of nutritious food. This is particularly so for Mediterranean countries within the EU, which are among the countries with the highest fish consumption rates. About 86% of the fishing boats in the Mediterranean region are small-scale fisheries (SSF) which mainly depend on family labour and serve as an important way of life of the coastal communities. However, the small-scale fishery is fraught with several challenges such as climate change, competition for ocean space with other marine users (e.g., industrial trawlers, offshore resource extraction) and marine pollution. The integration of knowledge from different stakeholders along with more inclusive and innovative approaches have been suggested as stronger and more acceptable approach to managing fisheries. Such knowledge integration and benefits could be achieved using various support mechanisms (e.g., co-management) and tools (e.g., digital platforms and models) to create greater data accessibility, coordination, and

engagement. This study focuses on Italy where large marine areas which serve as important fishing grounds are being transformed into marine protected areas (MPAs). Based on interviews with key actors within two notable fishing areas which are also designated as MPAs (Otranto and Torre Guaceto), we examine the processes and challenges to co-management of the small-scale fisheries by highlighting the discourses, institutional barriers and the power dynamics among different actors in co-management of fisheries.

Shannon McLaughlin. Institutionalised human-nature relationships in the Spanish Mediterranean Sea: Contrasting EU Green Deal governance with the Rights of Nature to tackle agricultural sources of marine microplastic pollution

To transition European society away from pollution and towards toxic-free environments the societal drivers that foster polluting practices need to be understood. The drivers of pollution are conceptualised by leading scholars as a manifestation, not a side-effect, of a particular relationship with Nature, i.e. characterised by Nature's objectification and the prioritisation of 'human' needs. It is how these embedded human-nature relationships affect governance that merit further research. Specifically, how Nature's objectification and de-prioritisation shapes decision-making, and in turn, creates institutional conditions for actors to enact the change needed to reduce pollution.

The South-Eastern Spanish coastline is threatened by agricultural sources of marine microplastic pollution. In the region, intensive greenhouse agriculture has proliferated and, currently, its coastline is tackling pervasive agriplastics pollution to the detriment of social-ecological wellbeing. However, two different governance systems with embedded human-nature relationships are emerging. The province of Almeria (the Sea of Plastic), is governed under the EU Green Deal, which despite ambitious microplastic reduction objectives and legislative development, is argued to embed the objectification of Nature. In the Mar Menor, by contrast, Rights of Nature have been instituted where the Mar Menor is recognised as a legal subject with the right to exist free from human-sourced harm and to be cared for by a select committee. These two governance systems present a unique opportunity to study how Nature's objectification and subjecthood influence framings, decision-making, and solutions for sustainability within the same geography.

This paper will seek to understand how these human-nature relationships are embedded within the governance systems of these case studies, to understand how ecological objectification and subjecthood change the dynamics within governance to support pollution-free transitions. It will do so by employing the governance

arrangements framework, to map how the actors, including Nature, and their coalitions, employ certain discourses to shape the rules of each case, and what resources are available to them to do so. In addition, it will seek to contrast the cases to understand how different embedded human-nature relationships shape microplastic pollution governance within the EU and identify where drivers or challenges lie to tackle agricultural sources of microplastic pollution.

8.4 Evaluating sustainable transformation in the oil palm sector to decrease environmental impact and increase social wellbeing in an economically viable way

Paper-based session

Location: B0075

Organizers

Maja Slingerland, Plant Production Systems WUR

Rosa de Vos, Plant Production Systems WUR

Abstract

Palm oil production has rapidly expanded over the last decades which is associated with negative environmental impacts, including deforestation, biodiversity loss, GHG emissions, large waste streams, as well as social problems such as land conflicts and dispossession.

As researchers, we aim to challenge the dominant discourse that monoculture cropland expansion is needed to serve the ever increasing global demand for raw materials. By building new partnerships to jointly collect evidence from the ground, we strive to establish a new paradigm of land sparing by land sharing, increased circularity, lower contribution to climate change, and added value to residues for domestic use or export, serving the multifaceted demand for socio-economic and environmental sustainability.

Based on theories on strategic niche management and transition management, including a multi-level perspective, we identified niches, desired regime changes, and pressures by the socio-technical landscape that may lead to a transformation of the sector according to the new paradigm. In the SUSTAINPALM project we aim to develop and upgrade social, technical and market niches to mainstream transformation by (1) implementing and showcasing promising technologies, business models, and social agreements in living labs, (2) monitoring these niches to provide evidence of their value and support continuous improvement (3) sharing those experiences in communities of practice to foster learning across niches and promote out scaling (4) addressing barriers for out scaling and upscaling which can be technical, financial, social, regulatory, governmental, or market related. We connect the niches to three regimes: the agricultural, energy, and rural development regime. We relate both niches and regimes to socio-technical landscapes consisting

of global agreements and the aspirational Sustainable Development Goals, particularly related to climate change, natural resources & biodiversity, no hunger, no poverty as well as responsible consumption.

Papers

Rosa de Vos, Raghda Rabicha, Annika Nelles, Jusrian Saubara Orpa Yanda, Ika Sumantric, Lotte Woittiez, Maja Slingerland. **Sharing land, sharing benefits? Exploring the potential of intercropping on oil palm fields for transformation to inclusive and sustainable oil palm production**

Intercropping is promoted as potential strategy to transform oil palm landscapes to become more sustainable and inclusive. Combining oil palm with annual food, feed or green manure crops, or with other perennials, can increase land use efficiency and expand income opportunities for farmers. Meanwhile, the need for further crop land expansion is reduced, thereby mitigating deforestation and protecting vital ecosystems. The best time for intercropping is after (re)planting, when oil palms are still young and there is abundant open space between palms. Moreover, as (re)planting is often expensive for farmers, intercropping can provide a solution to sustain a living during the pre-production phase of oil palm. However, the terms of inclusion and trade-offs for this system are yet unknown.

Governments, consumers, investors, traders, and farmers may have conflicting interests in terms of crop choice, management, as well as land and labour arrangements, and cost-benefit distribution. Also, these stakeholders may have different expectations of the environmental and social impacts of oil palm intercropping.

In this presentation, we discuss a case study on land sharing between oil palm farmers and watermelon farmers in Bengkulu, Sumatra, Indonesia. Here, oil palm farmers invited watermelon farmers to use the open spaces between their young palms, hoping to benefit from management of the watermelons in terms of fertilizer, weeding and field maintenance.

Watermelon farmers in this region, in turn, are often landless farmers who hope to benefit from 'free' access to land to cultivate watermelons. We assess both the agronomic potential of this intercropping system, as well as land, labour, and cost-benefit sharing arrangements between different actors. We will discuss this case as an example of the development of a socio-technical-institutional niche. We investigate its potential to contributing to transforming the oil palm sector, through evaluating opportunities and bottlenecks for implementation and mainstreaming with stakeholders. Finally, considering potential trade-offs, we aim to make

recommendations for policy-making and private stakeholders aimed at regime change from monoculture oil palm fields for a limited number of farmers to a more diversified and inclusive oil palm landscape.

Peter vd Meer, Idsert Jelsma Ghislaine Bongers, Yudi, Wlarso, et al. Living labs as means to an inclusive transformation process, based on visioning and stakeholder engagement

In a Living Lab approach different interdisciplinary stakeholders test practices in real-time settings. It stresses the importance of recognizing plural views on 'sustainability' to (1) arrive at tested, alternative innovations in palm oil production which address the synergies and trade-offs between the environment and economy, and (2) to arrive at reciprocal relationships (through stakeholder dialogues) which can lead to change in policies, institutions, and governance practices. In this session we will present preliminary results on the process of Living Lab initiation and reflect on the first results in terms of stakeholder involvement and concrete outcomes. We use cases from Indonesia where under the SustainPalm project we have developed a number of Living Labs on sustainable use of degraded peat areas by involving local communities and associated stakeholders. Together with stakeholders we identified sustainable land-use systems which reduce the trade-offs between economic and environmental benefits of drained peatland agriculture areas such as oil palm plantations. Through Living Labs different communities of practices will investigate the viability of alternative crops and cultivation systems, including an evaluation of financial- as well as environmental benefits. Topics are selected by consulting involved stakeholders. These alternative land-use systems will aim for reducing GHG-emissions, rehabilitate ecological functions, and generate income for smallholder farmers and larger oil-palm companies. We will reflect on lessons learned so far by evaluating to what extent the Living Lab framework enabled to take into account the expectations and experiences of relevant stakeholders.

Wolter Elbersen, Yessie Widya Sari, Ben van den Broek, Julien Voogt en Johan van Groenestijn, Aritta Suwarno, et al. Transforming the palm oil system to a Circular Multiproduct Sustainable System

Oil Palm is a perennial crop that delivers not only oil but also a large amount of residues which are hardly or not used for added value products. One way of making the oil palm more sustainable is to make better use of the large amount of residues which oil palm also produces. This requires changing the production system and the mill, governance of biomass streams, but also requires that the products find a

market. Using these products for replacing fossil fuels can reduce GHG emission or spare land if the residues are used to replace growing a crop. I.e. starch or sugar made from the palm trunk can replace sugar cane or cassava, while recently cut trunks could be used for making furniture replacing wood plantations. Some artisanal sugar making is taking place but there seem to be barriers to bring this to scale. Most trunks are still remaining in the field to decompose.

We did a bottleneck analysis to find which technical, financial, logistical, institutional, but also policy and market barriers exist that block transformation of the sector. We also identified opportunities such as the latest ideas voiced by RSPO to not only certify palm oil but also oil palm residues. This may create a market push for sustainable residue use.

Complicated questions arise of how to engage both the producers and the buyers of these new residue based products. Though “simple” financial benefits will in the end be most effective and attractive, perceptions of what is sustainable and how different stakeholders can be convinced to contribute to the transformation is the most important question for now. What approach should be taken here?

8.5 Climate learning through gaming: A critical playthrough of the boardgame Daybreak

Innovative session

Location: B0076

Organizer

Adam Standing (School of Economics and Management, ISEG: University of Lisbon, Portugal & Centre for Environment and Sustainability Social Science, Örebro University, Sweden)

Abstract

The didactic and pedagogic function of games and play has long been recognized by educators. Games have also had an important role in critiquing social ills and promoting innovative solutions to social problems. The earliest iteration of one of the most recognizable modern board games, Monopoly, designed by Elizabeth Magie as The Landlord's Game, emerged as a critical commentary on landlordism and the inequalities of unregulated capitalism. Recent experimental practices in policymaking (see, for example, the UK's Policy Lab) have sought to bring policymakers and stakeholders together through game design and play in order to creatively co-produce solutions to complex problems.

The principle aim of this session is to critically reassess the pedagogical function of game play, and more specifically evaluate its potential in raising awareness of the nature of global environmental problems among various different actors, including indicating potential solutions for alleviating/mitigating problems and the socio-economic trade-offs that the implementation of solutions implies.

It does so by facilitating a multi-group playthrough of the board game Daybreak, a game that requires players to react and respond to rising global temperatures and the inevitable environmental catastrophe this entails. The session consists of an introductory period in which the game concept, format and rules are explained, followed by a playthrough of the game among multiple groups. The session ends with a structured and critical discussion on the game itself and on the role of games and play more broadly in fostering climate awareness among a variety of actors.

Daybreak is a 2023 released co-operative board game for one to four players designed by Matt Leacock (Pandemic, Forbidden Island) and Matteo Menapace (Fading Memories, BrisCORONA). In the game, players take on the role of world powers (China, America, Europe, 'the Majority World'), each with their own set of

social, economic and environmental problems and differing capacities to deal with them. Global asymmetry is reflected in the game play which necessitates interactive, participatory and communicative co-operation between players to achieve the best outcomes. The game asks players to reflect on the necessary trade-offs among solutions by modelling the social effects of transformations within the game. Rapid and unstrategic transformations may lead to social unrest which can be mitigated against if players build up 'social resilience' (by, for example, implementing universal healthcare or recovery policies).

The critical discussion following the playthrough will focus not just on the game play and implementation of the social problems within the game but also on broader questions on the pedagogical utility of gameplay. Participants will be asked to critically reflect on their own activities as well as the game itself. Among the questions to be raised:

- What are the opportunities and limits to game play in raising climate awareness?
- What actors/settings might this be appropriate for?
- How does Daybreak contribute to raising awareness (what are its strengths and weaknesses and how might it be improved)?

NB: This session will continue in parallel session round 9

8.6 Lessons of informality for the governance of food system transformations

Innovative session

Location: B0078

Organizers

Mirjam Schoonhoven-Speijer, Wageningen University,

Sigrid Wertheim-Heck, Wageningen University,

Alejandro Guarin, International Institute for Environment and Development (IIED)
London

Abstract

Effective steering of food systems towards more sustainable and inclusive directions requires holistic approaches to understanding localized dynamics. For most of the global population, localized implies their engagement, to varying degrees, in informal food practices. However, informality is mostly overlooked in research and policies, being perceived as traditional, chaotic, vulnerable, and at times illegal, whereas formality is labelled modern, regulated and organized; and often seen as the preferred direction when steering for change. However, informality in food systems, existing outside regulatory frameworks, can be regarded as an expression of agency, to meet needs that are insufficiently accommodated by more formalised structures. This while formal structures might in fact reproduce power inequalities and dynamics of exclusion. Moreover, such a dichotomy does not exist in the everyday realities of food systems: actors often blend formal and informal spheres (re)producing locally fitting solutions. In this special session, we therefore explore the multifaceted nature and real-world complexities of informality for food systems transformation. We argue that understanding how people navigate real world issues is essential for explaining governance challenges and opportunities for food systems transformation, uncovering hidden leverage points and pathways for change.

In this special session, we aim to explore the multifaceted nature of informality in food systems in terms of activities, actors and geographies – Africa, Asia, Latin America and Europe - and the crucial role of these activities in ensuring continued access to (both land and aquatic sourced) food while facing an increasingly uncertain future. We have the following aims with the session: First, increasing breadth and depth to understanding informality as an important economic and

social phenomenon, using several theoretical lenses. Second, emphasizing the importance of participatory diagnosis before intervening.

Ready-made solutions for steering transformative progress often overlook local complexities, and are thereby unfitting, or even hindering progress. And third, giving further evidence for the importance of informality to finding leverage points for food system transformation. The resourcefulness of the informal sector reveals transformative resilience dimensions.

We built on several cases showing the diversity of informality in terms of activities, actors and geographies. The session is organized in partnership with stakeholders beyond academic research and includes the voices of partners in the Global South and Europe, who are experiencing the local dynamics we describe on a daily basis (see also the session format below). The outcomes of the session will feed into an opinion piece written by the collaborators of the session addressing the resourcefulness, organisation and resilience of informal food practices found in the richness of cases, and how this may contribute to learning about the governance of food system transformations.

The opinion piece might be presented at outlets such as the UN Food systems summit; the Global Informality Project, and/or as TABLE explainer. This kind of knowledge creation is importantly needed for informing and steering the debate around governing food system transformation.

Parallel session round 9

Time: 11:00 – 12:30

9.1 The governance and politics of defining, triggering and evaluating transformative climate adaptation

Innovative session

Location: B0066

Organizers

Emilie Broek Public Administration and Policy Group (PAP) at Wageningen University & Research

Dore Engbersen Public Administration and Policy Group (PAP) at Wageningen University & Research

Prof. dr. Robbert Biesbroek Public Administration and Policy Group (PAP) at Wageningen University & Research,

Prof. dr. Aarti Gupta Environmental Policy group (ENP) at Wageningen University & Research

Abstract

This session will actively involve the audience to discuss and innovate tools and governance arrangements that can be used to define and trigger transformative climate adaptation (TCA) and evaluate whether progress towards it is being achieved. Despite increasing calls for TCA, there is little knowledge or consensus on how it should be defined, measured, or achieved. TCA calls for addressing the conditions that generate or perpetuate climate risks in the first place, and highlights the need for systemic transformation. Yet how to define which adaptation actions are considered transformative, and evaluate whether progress is being achieved is conceptually, empirically but also politically challenging. The various interests and values of different actors come into play when determining what qualifies as a transformative change. It is important to critically probe the need for TCA, acknowledging the continuum that exists between transformative actions and those that risk becoming maladaptive when end-users and local contexts are not properly considered. Given the lack of a common definition and the political contestations surrounding TCA, innovative governance arrangements are needed to foster inclusive and decisive action towards TCA. Finally, little agreement exists on how to

best evaluate progress towards TCA, calling on the need for new tracking tools and approaches.

This session aims to unpack three main themes: 1) Critically define TCA and what it intends to achieve; 2) Identify the enabling/constraining conditions or processes for TCA; 3) Evaluate whether we are making progress on TCA. The session will incorporate short paper-based pitches, discussion breakout groups, and a concluding plenary to unpack the three themes. Collectively with the audience, the aim of this workshop is to understand how to bring these three themes together.

Timeline:

Time	Agenda Item	Moderation
5 min	Opening remarks and introduction	Chair, Prof. Aarti Gupta (WUR)
30 min	Paper presentations on session themes and propositions: <ol style="list-style-type: none"> 1. <i>Defining</i>: Between theory and action: Assessing the transformative character of climate change adaptation in 51 cases in the Netherlands, Dore Engbersen (WUR) 2. <i>Triggering</i>: Three archetypical governance pathways for transformative change toward sustainability, presenter TBD (WUR) 3. <i>Evaluating</i>: Governance by Metrics: The Politics of Tracking Climate Change Adaptation, Emilie Broek (WUR) 	Presenters will discuss their papers, each related to one of the session themes. They will conclude with 1-2 propositions for the breakout sessions to discuss.
20 min	Interactive Delphi Study on Defining Transformational Climate Adaptation and walk the line activity	
25 min	Breakout discussion groups on the propositions from the paper presentations. Each group will discuss one of the propositions, exchange lessons and experiences, and innovate tools and governance arrangements to bring these into practice.	
10 min	Concluding plenary reporting back from the breakout rooms, linking the three session themes together, and open up for a final Q & A with the audience	Prof. Aarti Gupta

9.2 Climate transformations and justice

Paper-based session

Location: B0067

Chair

George Iordachescu, Forest- and Nature Conservation Policy Group, WUR

Papers

Lauri Peterson. Mapping the Intersection of Cooperative and Individual Climate Commitments: Insights from Subnational Actors' Efforts Towards Net-Zero Goals

Subnational actors are increasingly taking the lead in combating climate change by committing to voluntary climate actions at an unprecedented scale. Many cities are spearheading individual efforts by proposing ambitious net-zero and emission reduction targets. These climate policies, whether pursued cooperatively or independently, aim to curb greenhouse gas emissions and mitigate the risks of severe climate impacts. Despite growing scholarly attention to the effectiveness of transnational governance, there remains a gap in understanding the overlap between cooperative initiatives and individual city efforts, particularly regarding net-zero pledges and the key actors involved. To address this gap, we present a novel dataset combining information from two existing databases. Our analysis focuses on over 200 individual net-zero commitments and more than 600 cooperative climate efforts. The primary objective of this study is to identify central cities and elucidate the relationships between cooperative initiatives and individual commitments. We pose the question: What are the interconnections between cooperative and individual climate commitments? To answer this question, we employ statistical methods and social network analysis to map relationships between individual and voluntary climate initiatives, identify central players, analyze overlaps between cooperative initiatives, and assess their relationship to policy and potential impacts. This research sheds light on the evolving landscape of subnational climate action and informs strategies for enhanced collaboration towards achieving collective climate goals.

Ingrid Boas. World Bank's Climate mobility futures: Mainstreaming anticipatory action on internal climate migration

In 2018, the World Bank (Group) published a report titled Groundswell: Preparing for Internal Climate Migration. The central headline of the report is that 'By 2050 –

if no action is taken – there will be more than 143 million internal climate migrants across these three regions: sub-Saharan Africa, South Asia, Latin America'. In the report they propose that this number can be reduced up to 80% if 'concerted action' is taken in the present. The report has been widely picked up in media and academic publications, especially citing the highest possible number of internal climate migration flows of 143 million that the report puts forward. The report has become central to the discursive space of climate change and human mobility as the numerical scenarios and related arguments are further being enacted and circulated by humanitarian organizations such as International Organisation for Migration and the UN High Commissioner for Refugees. In the latest assessment report on climate change published by the IPCC, seven chapters enact findings of the 2018 report, including a box presenting the quantitative projections. Prior to this World Bank report and its follow-up reports per region, numerical predications of climate migration have been actively contested in academia. The relations between climate change and human mobility were argued to be too multi-causal, political and uncertain for them to become numerical. Interestingly, however, the future scenarios and estimations of possible climate mobility flows associated with the World Bank reports tend to be accepted and circulated without much critique. This in part is a consequence of the highly 'robust and transparent' and scientific impression of the modeling approach used in the report. Building on critical anticipation literature, we argue, however, that the creation and dissemination of climate mobility futures is never a neutral act, and that climate mobility futures remain inherently multi-causal and uncertain. Our analysis, as we will present in this conference, as such aims to demonstrate the political nature of the World Bank report(s). We demonstrate how the imaginaries strategically presented in the reports suggest some sense of certainty and urgency to act on climate mobilities, and how based on these futures, the World Bank effectively enables a space for action to preemptively address a future imaginary of climate mobility through its agenda of development.

Karin M Gustafsson. What (and where) is social science expertise for sustainable transformative change?

As transformative change is presented as a prerequisite for a sustainable future by many actors in multiple arenas, voices are simultaneously raised for the need to acknowledge and highlight the importance of social science expertise to facilitate this change. An example of this is the arguments made in academic discussions for the inclusion of social scientific experts in expert organizations such as the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental

Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES), organizations that carry a responsibility to support the realization of a sustainable transformative change to address the crises of climate change and biodiversity loss. But what do we know about social science experts and their expertise, and where is social science given the space to contribute expertise and what does the role of a social scientific expert look like? By drawing on and learning from previous studies on experts and expertise in the fields of science and technology studies (STS), public understanding of science (PUS), and public communication of science and technology (PCST), this study explores social science expertise. This exploration of previous research and theory on (social science) expertise provides an understanding of social science expertise that allows an analysis of the roles ascribed to social scientists in the dominating theories on transformative change. This understanding is also to be used in future studies of the spaces and roles ascribed to social scientists in the process of transformative change. Together the study helps answer questions such as; what does the role of a social scientific expert look like in sustainable transformative change, what roles are social science experts given in theories on transformative changes, and what social spaces are needed if social science experts should be able to contribute their expertise.

Ariadna Romans i Torrent. Low-income women's lived experiences of the slow water disaster in Cape Town, South Africa

This research investigates the lived experiences of low-income women in Cape Town by using an intersectional feminist political ecology approach to delve into the city's water distribution system and its most recent crisis. Low-income women are among the most vulnerable groups to water shortages, yet water governance often fails to address their specific water needs. To address this gap, this investigation analyzes the everyday realities narrated in low-income women's stories and identifies opportunities for and barriers to mainstreaming their experiences into local water policies. Far from how literature has understood it so far, this research conceives that the water crisis in Cape Town is a slow disaster built over time. It makes visible the multiple and compounding ways low-income women suffer from the lack of water to inform a more holistic approach to water governance that includes not only marginalized communities but also matters relating to intersectionality.

For this reason, a revision of the policy to make it more social-aware and ensure its implementation process with co-creation mechanisms among low-income women is encouraged.

9.3 Governing transformations through markets

Paper-based session

Location: B0068

Chair

Nowella Anyango-van Zwieten, Public Administration and Policy Group, WUR

Papers

Alexia Brunet Marks. Transitioning to Regenerative Agriculture using Offsetting, Strategic Alliances and Partnerships

Regenerative agriculture—a farming practice that sequesters atmospheric carbon dioxide (CO₂) into the soil—has potential to turn into big business in this climate crisis. If farmers can accurately measure the amount of trapped carbon in their soil, they can sell that stored carbon as a “carbon credit,” a tradeable certificate representing the right to emit one metric ton of CO₂ or the equivalent amount of another greenhouse gas. As more than seventy countries race to cut greenhouse gas emissions by 2050 in order to meet Paris Agreement^[1] goals, carbon credits are not only becoming the “new currency” to meet or exceed national and global targets, they have the potential to reduce exposure to legal liability from legal claims (shareholder misrepresentation, fraud and greenwashing) as firms advertise corporate environmental, social, and governance (ESG) policies.

As regenerative agriculture gains momentum, investors are cautious about the potential carbon sequestering holds. While fifty-eight of the top one hundred food companies in the world are using regenerative agriculture to sequester carbon—by meeting specific acreage targets (like General Mills, Pepsi, and Cargill) or by committing to larger business strategies (like Nestlé)^[2]—critics call these projects ‘unquantifiable,’ ‘unreliable,’ and ‘greenwashing.’

If regenerative agriculture wants to help companies reach “net-zero” goals by 2050, buyers need to be reassured that carbon credits from carbon sequestration are measurable and verifiable, and sellers need to be reassured that their interests will be protected. Regulation is needed to: (1) provide a uniform definition and standards for regenerative agricultural practices, (2) improve measurements of regenerative agriculture outcomes and soil carbon, and (3) require companies to disclose the role that carbon offsets play in their climate-related business strategy. This Article uses a comparative law approach to identify regulatory gaps and

solutions for scaling up regenerative agriculture in Europe, using case studies of European farms, food companies and market participants.

Mariana Debernardini. Carbon farming practices or practicing carbon farming?

The European agriculture sector is under pressure to reduce its overall impact on the environment by 2050. Incentivizing farmers to adopt carbon farming practices is heralded as a key approach to reaching climate neutrality by academics, policy makers, private actors, and civil society organizations. As a result of growing interest by public and private parties to develop carbon farming incentivisation schemes, the European Commission published a Legislative Proposal on a Union certification of carbon removals. Carbon farming schemes have largely been developed to contribute to climate change mitigation, for example, by issuing credits that can be purchased by polluting industries through the Voluntary Carbon Market (VCM). Therefore, these schemes have been criticized as having “carbon tunnel vision,” because they favor farming practices that are proven to mitigate climate change. This top-down approach to defining farming practices may risk overlooking the very practitioners that will ultimately implement carbon farming. Across Europe, there are farmers and land managers already participating in carbon farming schemes. These so-called “front-runners” are seen as pivotal in sustainability transitions, as they may encourage other farmers to adopt sustainable practices, inspire thinking beyond the known solution space, and contribute to re-imagining alternative futures. We therefore aim to bring a bottom-up understanding of carbon farming by learning from front-runners and asking the overarching question: what is a carbon farming practice? We collected data from interviews with 21 front-runners across Europe and analyzed their practices through the lens of social practice theory (SPT). By studying practices as the main unit of analysis, this study provides an alternative lens to behaviorist approaches that put undo emphasis on the individual. Preliminary results show that by focusing on the elements of practices, we can build a richer understanding of farming practices. Results also show us that these seemingly independent practices are deeply entangled in bundles across space and time. Finally, we find that even front-runner farmers are in a constant state of adapting practices to fit the context of their farm through experimentation. This leads to further questions related to how carbon farming practicing, rather than practices, could be incentivized and supported.

Freddy van Hulst. Essential pollution - PFAS and the power of 'essential use' in EU chemicals governance

The PFAS restriction proposal under EU REACH legislation is an ambitious effort to reduce the known and unknown risks of PFAS to socio-ecological systems. The chemicals strategy for sustainability- part of the EU Green deal- proposes an essential use concept to phase out the use of substances of concern like PFAS unless their use is 'necessary for health, safety or critical for the functioning of society and if there are no alternatives'. In this paper we explore the actors, discourses and power relations that are currently reshaping EU chemicals governance, partly in response to the PFAS restriction proposal and the chemicals strategy for sustainability. We draw on expert interviews and the findings of a living lab with expert stakeholders on PFAS in the medical product chain, where PFAS use is often classified as 'essential'. We present how actors, competing discourses and power relations create the potential and limitations of the essential use concept to drive transformation in chemicals governance. The paper concludes with a reflection on how the transformative potential of policy concepts (such as essential use) are shaped and tested in the process of being operationalized into actual legislative decisions.

9.4 Evaluating innovation and change

Paper-based session

Location: B0075

Chair

Nicolas Jager, Public Administration and Policy Group, WUR

Papers

Mark Wiering. Real/ Realistic transformations. In search of conditions for sustainability transformations, an example of the Dutch energy domain

Societal transformations towards sustainability are dependent on a variety of factors and there is not one 'grand theory' that can explain, let alone predict and help manage, these complex processes of change. Nevertheless, it is worthwhile to have a closer look at real change processes in recent history (over the last decade) in specific sectors and infer possible conditions of change. For this purpose, we scrutinize the recent accelerated transitioning from fossil fuels to renewable energy in The Netherlands, in search of the drivers and carriers of change processes. After the serious earthquake in Groningen in August 2012 then Minister Kamps defended the exploitation of natural gas in Groningen as 'a necessity' and framed replacing it as an impossibility. Only five years later, then Minister Wiebes called the neglect of the damage caused by natural gas exploitation as 'a government failure of un-Dutch proportions' and announced to phase out the gas exploitation in the Netherlands. How have storylines changed in this short period and how such 'creeping' change be made more explicit in research? Important entities of research are the changing discourses and storylines in media, parliament, and in crucial policy documents. This will be connected to the role of the key players and actor coalitions, responding to and carriers of changing discourses, the role of focusing events entering the stage and the pressure from activities of social movements and the availability of the alternative technology of renewable energy. These elements are investigated with the help of a comprehensive conceptual framework designed for the dynamics of stabilizing and change factors, inspired by the governance arrangements approach, with actors & coalitions, power & resources, rules of the game and discourses as structuring ingredients. Methods that are used are content analysis with the help of media software, analysis of themes, topics, storylines and use of language in political debates and policy documents, and process tracing. The findings give inspiration for potential conditions of change and are tentatively applied to assess transformation processes in other domains.

Ruben Akse. Exploring conditions for change: The role of uncertainty in mobility innovations

One of the key drivers in sustainability transformations is the way actors experience and deal with uncertainty. Uncertainty is not just an absence of knowledge but is the patchwork of experiences of such absence as influenced by the actors' background and context in which they operate. This article presents three lessons regarding the governance of uncertainty based on a synthesis of a PhD thesis about mobility innovations.

Lesson 1: Start with the experience of uncertainty by actors in empirical research. Often, scientific studies treat uncertainty as a characteristic of a system, independent of actors' interpretation of it. However, actors do not perceive the concept of uncertainty uniformly. We found in fact through case study analysis of two Dutch mobility innovations that actors treat long-term uncertainties as short-term risks, and consequently rely on project management approaches to reduce this 'risk.'

Lesson 2: Embrace an interactive process view of public and private actors making decisions together. Through investigating the process of experiences and responses towards uncertainty, we found that actors in a Dutch Rhineland governance model responded to uncertainty by multi-actor negotiations, whereas in an Australian Anglo-Saxon model, actors were more focused on go-alone strategies of benchmarking and defining standards. Choices for uncertainty management are thereby steering the innovation process, so that a decision-making process co-evolves with decision-making content.

Lesson 3: Understanding governance approaches for uncertainty management can significantly be improved through transdisciplinary research, in which multiple perspectives are integrated and tested in practice. In this research, we integrated analytical schools that assume a singular system ontology with actor-oriented schools that focus on the plurality of actor perspectives on systems, in the form of individual experiences and group decision-making. Actor-oriented schools can enrich analytical approaches with an understanding of behavioral mechanisms, and vice versa use the analytical approaches to scale up for system impact. We applied this thinking in a serious game, in which a multi-layered intervention primed participants towards different decision-making behavior under uncertainty. The results of such an intervention can be used for building larger reflective training programs that change actors' mindset, competencies and adaptive capacity in dealing with uncertainty.

Shahana Bilalova, Nicolas W. Jager, Jens Newig, and Sergio Villamayor-Tomas.
How to achieve water-related sustainability? Assessing building blocks of water governance

It is widely recognized that ensuring the sustainability and well-being of water systems depends on effective governance. While different bodies of literature have explored the effectiveness of specific governance solutions, little is known about how different sets of solutions coexist with each other and associate with performance. With an emphasis on the role of the problem context, our study attempts to identify configurations of structural and procedural governance characteristics that result in successful performance in relation to water-related sustainability. Using fuzzy set qualitative comparative analysis (fsQCA), we examined 43 water governance systems that deal with problems of surface water pollution and groundwater exploitation in agriculture. The results show that no governance characteristic is necessary on its own to explain performance; instead, they are necessary parts of larger explanatory configurations or pathways, collectively providing a sufficient explanation for performance. Among the conditions, the importance of governance capacity stands out for be common to all performance pathways found. Also, the analysis demonstrates associations between the complexity of the governance system and that of the problem context. Our study contributes to advancing the theory of governance as it relates to different problem contexts and combinations of solutions, offering valuable insights for policymakers and practitioners navigating the complexities of water governance.

9.5 Climate learning through gaming: A critical playthrough of the boardgame Daybreak

Innovative session

Location: B0076

Organizer

Adam Standing (School of Economics and Management, ISEG: University of Lisbon, Portugal & Centre for Environment and Sustainability Social Science, Örebro University, Sweden)

Abstract

The didactic and pedagogic function of games and play has long been recognized by educators. Games have also had an important role in critiquing social ills and promoting innovative solutions to social problems. The earliest iteration of one of the most recognizable modern board games, Monopoly, designed by Elizabeth Magie as The Landlord's Game, emerged as a critical commentary on landlordism and the inequalities of unregulated capitalism. Recent experimental practices in policymaking (see, for example, the UK's Policy Lab) have sought to bring policymakers and stakeholders together through game design and play in order to creatively co-produce solutions to complex problems.

The principle aim of this session is to critically reassess the pedagogical function of game play, and more specifically evaluate its potential in raising awareness of the nature of global environmental problems among various different actors, including indicating potential solutions for alleviating/mitigating problems and the socio-economic trade-offs that the implementation of solutions implies.

It does so by facilitating a multi-group playthrough of the board game Daybreak, a game that requires players to react and respond to rising global temperatures and the inevitable environmental catastrophe this entails. The session consists of an introductory period in which the game concept, format and rules are explained, followed by a playthrough of the game among multiple groups. The session ends with a structured and critical discussion on the game itself and on the role of games and play more broadly in fostering climate awareness among a variety of actors.

Daybreak is a 2023 released co-operative board game for one to four players designed by Matt Leacock (Pandemic, Forbidden Island) and Matteo Menapace (Fading Memories, BrisCORONA). In the game, players take on the role of world powers (China, America, Europe, 'the Majority World'), each with their own set of

social, economic and environmental problems and differing capacities to deal with them. Global asymmetry is reflected in the game play which necessitates interactive, participatory and communicative co-operation between players to achieve the best outcomes. The game asks players to reflect on the necessary trade-offs among solutions by modelling the social effects of transformations within the game. Rapid and unstrategic transformations may lead to social unrest which can be mitigated against if players build up 'social resilience' (by, for example, implementing universal healthcare or recovery policies).

The critical discussion following the playthrough will focus not just on the game play and implementation of the social problems within the game but also on broader questions on the pedagogical utility of gameplay. Participants will be asked to critically reflect on their own activities as well as the game itself. Among the questions to be raised:

- What are the opportunities and limits to game play in raising climate awareness?
- What actors/settings might this be appropriate for?
- How does Daybreak contribute to raising awareness (what are its strengths and weaknesses and how might it be improved)?

NB: This session is a continuation from the session in parallel session round 8

9.6 Evaluating policy transitions and frameworks

Paper-based session

Location: B0078

Chair

Ellen Mangnus, Public Administration and Policy, WUR

Papers

Michael Rose. Does participatory governance help address long-term environmental problems? Conceptual framework and empirical evidence from public decision-making processes in 23 democracies

Democratic myopia, lacking salience, and high uncertainty seem to make it difficult to govern long-term problems like climate change, biodiversity loss or the environmental consequences of infrastructure projects. Participatory approaches may benefit environmental decisions, but the literature largely neglects the implications of the long-termness of many environmental issues. Conversely, the literature on long-term governance disregards the potential of participation to solve long-term problems. To address this gap, this study develops a new conceptual framework and statistically analyzes 303 cases of public environmental decision-making processes to assess the role of participatory governance in addressing long-term environmental problems. The results show that participatory governance indeed helps to solve and prevent long-term environmental problems – but in different ways than it addresses short-term environmental problems. Intensive deliberation proves key for effectively addressing long-term issues, while the representation of environmental and economic interests in the process makes no difference for the environmental standard of the governance output. The opposite is true for short-term environmental problems. Surprisingly, issue uncertainty, while higher in long-term issue settings, does not affect the solution of long-term but only of short-term environmental problems. In general, deliberation seems to be more decisive than participation for effectively addressing long-term environmental problems.

Mandy A. van den Ende. Exploring different governance futures in search of responsibilisation as a transformative governance approach to sustainable land use

Shaped by prevailing value-systems, such as capitalism, anthropocentrism, individualism, and neoliberalism, existing governance approaches to sustainable land use tend to hinder rather than to foster societal transformations to sustainability. This is reflected in governance approaches – comprising actors, institutions, and policies – that tend to embrace technological innovation to address the direct causes of unsustainable land use, such as land management practices, while maintaining the deeper economic, institutional, and sociocultural system structures, such as the agricultural lobby, policy exceptionalism, and spatial planning norms. An example of a governance approach with the potential to fundamentally change unsustainable land-use systems is “responsibilisation”, where powerful actors (re-)allocate responsibilities to others. However, as long as current power imbalances persist, regime actors retain the authority to allocate responsibilities for more sustainable land use according to the default value-systems. Based on these insights, we argue that for governance of transformations to take place, it requires transformations *in* governance regimes first. Hence, the goal of this paper is to portray responsibilisation as a governance approach of transformations toward sustainable land use, by exploring alternative responsibility divisions through the lens of four schools of thought that convey governance futures with, respectively, a less powerful market (degrowth), and a more empowered state (securitization), civil society (cooperatives), and physical environment (rights of nature). We used the empirical case of the Dutch peatland, a densely populated area with conflicting land-use claims and a myriad of environmental land-use problems, among which subsidence. From the observation that other governance approaches to subsidence in this area, such as experimentation and policy integration, tend to resort to technological “solutions” without fundamentally altering the land-use system, we argue that portraying more transformative responsibilisation demands a reorientation of prevailing underlying value-systems. Together with experts, we reflected on alternative responsibility divisions for subsidence from the four schools of thought. We also developed action perspectives together with practitioners to imagine more transformative responsibilisation as an achievable reality. We hope that by exploring different governance futures for responsibilisation, this paper offers a valuable contribution to addressing the “crisis of the imagination”.

Jan van Tatenhove. Understanding regional transitions: reflections from governance, community studies and law

The Southwestern delta in the Netherlands has to deal with the challenges and consequences related to climate change and the loss of livelihood of communities. On the one hand, sea-level rise and periods of extreme high water in the rivers Rhine and Meuse threaten the safety of the delta and the fresh water supply. On the other hand, the delta is economically and social a peripheral region. The disappearance of economic activities, the reduction of social facilities and increasing processes of gentrification threaten the livelihood of coastal communities in the Southwestern Delta. To deal with these threats and to develop strategies towards a sustainable, climate-resilient and prosperous delta regional transitions are needed.

The aim of this paper is to give insight in the challenges the delta is facing and the enabling and constraining conditions to develop regional transitions. Transitions refer to the needed fundamental (institutional) changes, such as socio-economic transitions to improve the livelihood of communities, transitions related to water safety, the energy transition to sustainable energy, and transitions in governance and law to institutionalize the transitions legally, politically and in policies. This paper will present a multi-disciplinary conceptualization of regional transitions, based on insights from political science, sociology, anthropology and law and informed by cases from the Southwestern delta in the Netherlands.

Raoul Beunen, Thanne Walawwe Gedera Fathima Mafaziya Nijamdeen, Ansje Lohr. Delineating Governance for Sustainability Transformations Insights from Coastal Management in Europe

Governance approaches play a pivotal role in driving transformative changes towards sustainability. This study delves into the mechanisms, pathways, and challenges associated with governance approaches, arrangements, and tools aimed at fostering societal transformations. Specifically, we explored how societal norms, governance arrangements, and policies can catalyze transformative changes, aiming to create a more equitable and sustainable society. We focused on coastal regions that are facing a range of interlinked social and environmental challenges, including biodiversity loss, climate change and ensuring socio-economic viability. Although many of these issues have been on the policy agenda for quite a while, actual practices show that bringing about necessary changes in governance and in the planning and management of coastal areas proves to be difficult. Coastal regions are characterised by fragmented governance systems that make it

particularly difficult to work toward sustainability transformations. We apply Evolutionary Governance Theory to analyse the evolution and implementation of EU policies related to coastal areas to identify important barriers as well as possible pathways for change in this context. We first and foremost emphasize the role of governance in sustainability transformations and argue that any attempt to strategize towards transformations should start with a good understanding of the governance contexts and the evolution of relevant governance paths as these shape the possibilities and limits for change. Next we show that the fragmented governance context and the strong sectoral focus on specific (economic) interests are important barriers that hamper the development of integrative visions for coastal areas and make it particularly difficult to change governance systems. Third we identify possible sites where the development of visions and long-term perspectives, policy integration, and strategizing towards sustainability transformations could be possible. We end with some general conclusions and a discussion of the lessons that could be learned about sustainability transformations from the reflections on coastal governance, governance frameworks can serve as catalysts for equitable and sustainable societal transitions.

Montserrat Koloffon Rosas, Teresa Deubelli-Hwang. Transformative capacity of partnerships for SDGs: Opening the black box of problem-solving and intervention-design processes in nexus governance

As windows of opportunity close, the recognition that sustainability transformations are required, rather than slow-paced incremental progress, grows. Partnerships, particularly those engaging with multiple Sustainable Development Goals (SDGs) simultaneously (ie. nexus governance), are endorsed as promising collaborative governance mechanisms to accelerate progress towards the 2030 Agenda. However, while the effect of structural characteristics of partnerships have received some attention, their problem-solving and intervention-design processes (tools, methods, and practices), employed to govern SDG nexuses and enable sustainability transformations, remain in a black box. In line with the UN 2030 Agenda Partnership Accelerator, this paper suggests that a fitting process, able to manage the challenges posed by wicked problems and the collective action dilemma, is necessary to facilitate the required transformations in sustainability governance. Accordingly, an index is advanced to assess the MSPs' transformative capacity as a function of the fit between their operational processes (tools, methods, and practices) and their transformative ambitions. Through a survey design, the empirical landscape of partnerships' operations is mapped to determine gaps and performance variations. Similar partnerships with contrasting levels of transformative capacity are selected for a comparative analysis through case

studies. The research objectives focus on exploring the transformative effects of MSPs' problem-solving and intervention-design processes, aiming to theoretically develop an approach for determining their transformative capacity and empirically assess existing processes and capacities. The study aims for practical relevance by contributing to a better understanding around effective governance through MSPs, and informing meta-governance strategies aimed at nudging partnerships towards a transformative governance mode.

9.7 Sensory Nature walk

Innovative session

Location: start at entrance Leeuwenborch building

Organizer

Bas Verschuuren, Forest- and Nature Conservation Policy group, WUR

Abstract

During this sensory nature walk the participants will explore how to meaningfully connect with nature. Through exercises such as silent walking, meditation, viewing, touching, smelling, and hearing we will explore how we connect with nature. We will share our experiences and discuss how meaningful nature connection can benefit our well-being. The walk will start and end at the entrance of the Leeuwenborch building.

Parallel session round 10

Time: 13:30 – 15:00

10.1 Relational perspectives on sustainability transformations

Paper-based session

Location: B0066

Chair

Mirjam Schoonhoven, Environmental Policy Group, WUR

Papers

Bram van Helvoirt. The transformative power of value-driven local and regional food initiatives in the Netherlands

The number and diversity of initiatives (re)connecting Dutch farmers with their local and regional community and environment in a direct and reciprocal manner is increasing. These local and regional food initiatives may (re)shape the interactions and interdependencies between farmers and citizens by going beyond the indirect transactional ties which connect them in global food chains. By doing so, they may showcase valuable bottom-up lessons for democratic and participatory food system transformation in the Netherlands.

In our attempt to better grasp the appearance, functioning and transformative power of farmer-citizen interactions in local and regional food networks in the Netherlands, we recognize intrinsic, relational and instrumental values as important potential drivers for collective action and change. We hypothesize that motivation and values of the initiatives -i.e. their initiators, members and supporters- will be key for boosting transformative change. The main research question is 'how can we typify the diverse range of local and regional food networks in the Netherlands based on their underlying values and potential contributions to transformative change?'

Our empirical work surfaced three main types of initiatives:

(1) social food initiatives initiated by social entrepreneurs focusing on participation, an inclusive society and health. Their transformative change can be found in their role of food sharing for the aim of societal participation and empowerment of people in isolation;

(2) agrifood commoning initiatives initiated by farmers, citizens or civic groups that focus on social and ecological values surrounding agriculture and food. Their transformative practices are geared towards alternative economic paradigms, new models for ownership and community organization, human-nature relations, and food citizenship;

(3) local and regional short food chains initiated by farmers with a focus on a fair price and a diversified business model. Instrumental values are at the forefront, which may lead to a more gradual change in production systems due to enhanced farmer-citizen interaction and feedback.

These findings suggest that the Dutch food system should not be considered as a system of uniformity, but one of diversity. The diverse range of identified food networks can spur value-driven transformative change by (re)connecting farmers and citizens.

Jan van Tatenhove. Reflexivity and transformative change in marine governance: theoretical insights

This paper aims to theoretically understand reflexivity and transformative change in marine governance. Core concepts are reflexivity, social learning and transformative governance change. The paper starts with presenting a framework that shows how reflexivity as a cognitive process at the agency level relates to transformational changes in governance arrangements and in socio-political structures of society. In the interplay of agency and structure, reflexivity can become transformational. That is, it can lead to changes to the structural properties of governance arrangements or even to changes in the structures of governance. An important assumption is that reflexivity turns into change only when actors use their capability to translate learning into change in their governance practices, while structural properties (rules, resources and discourses) of governance arrangements can enable or constrain reflexivity and/or change. In the second part of the paper this framework will be refined based on insights from empirical research projects applying this model. To strengthen the analytical framework refinements will be discussed related to: (1) the importance of emotions in reflexive marine governance especially in terms of how subjectivity shapes and highlights the power dynamics that determine whose emotions count in decision-making in marine governance; (2) the importance of reflexive drivers (autonomy, accountability and adjustability) within the law that affect the reflexivity of private actors (market parties); (3) reflexivity and learning in networked governance arrangements.

Jeffrey Edward Blackwatters. Assembling the Capacity for TransForm(ative) Change towards Just Naturescapes

In climate-biodiversity arenas there have been numerous calls for radical change, leading many scholars and practitioners formulating theories, principles and other forms of guidance's on how change can be governed and in turn made "transformative". Nature-Based Solutions (NBS) have emerged here as particular means in changing the climate and nature agendas by posing solutions to complex integrated sustainability problems. This particular need for change generated by NBS, however, have been driving ideas around transformation, foregrounding the type and speed of change (i.e. incremental/fundamental, slow/fast) over what is actually being transformed, how and for whom. Missing from these accounts is that there are *always and already* a multiplicity of processes changing, reworking outcomes and reconfiguring the heart of transformation: justice. Therefore, we argue for an approach recentering the multiplicity and relationality in how the capacity for transformative change is assembled in practice. Assembling transformative potential is achieved through a multiplicity of relations, *imagining* how change occurs (*transform*) towards particular outcomes (*transform*) and whether this is just (*just*), and how these imaginations are in turn *enacted*. Thinking through how relational assemblages of NBS – Naturescapes – are accomplishing the capacity for transformative change, we argue that each facet of transform(ative) change (Trans/Form/Just) reconfigures what transformative potential can become. This is turn means that there is no universal "good" or "transformative" endpoint; and the "good" is constantly being reworked as relations unfold, or as Annemarie Mol contends: "the good is inevitably multiple: there is more than one of it".

Machiel Lamers. Governing Sustainability Transformations in the Deep South: The role of science in the dedicated process towards a comprehensive regulatory framework for Antarctic tourism

The development of tourism in the Antarctic is characterised by exponential growth and diversification of modalities and activities. During the 2023-2024 Antarctic season the number of tourists reached a new record of around 115.000 visitors. For over two decades, scholars and policymakers have raised concerns about the actual and potential risks and impacts of Antarctic tourism development, for instance, on the natural environment, on heritage, wilderness values, and scientific operations. Tourism is regulated largely through the 1991 Environmental Protocol to the Antarctic Treaty, an international environmental agreement from a period when Antarctic tourism activities were still very modest. Since then Antarctic Treaty states have struggled to find consensus on comprehensive and acceptable

regulatory mechanisms on Antarctic tourism and to implement binding tourism-specific measures into the national legislatures of the signatory states. However, in recent years the momentum for a more comprehensive regulatory framework is growing, partly driven through a Netherlands-led initiative. In this presentation we will explore the emerging science-policy interface around the dedicated policy-making process towards a comprehensive regulatory framework for tourism development in Antarctica. This dedicated process aims to transform the current regulatory system in order to keep tourism in Antarctica within critical limits by developing a collective vision about what Antarctica should look like in 25 years' time and what this would mean for Antarctic tourism governance. The following building blocks are envisioned to contribute to the framework: 1) regulatory options for managing the growth of tourism; 2) regulatory options for managing the diversification of tourism; 3) the development of a systematic monitoring programme; 4) mechanisms for improving compliance and enforcement; 5) improving governance. More specifically, we will zoom into the role of a Dutch funded research programme on Antarctic tourism and the approach taken to translate research results into concrete policy designs.

10.2 Three pathways for social networks in scaling up societal transformations towards nature positive: collaborate, challenge, disrupt

Innovative session

Location: B0067

Organizer

Judith Westerink, Wageningen University & Research

Abstract

Bending the curve of biodiversity loss requires transformative change to societal modes of production and consumption, lifestyles, markets, governance and paradigms. Social networks – as networks of actors and networks of networks – hold promising potential for scaling up these societal transformations. They facilitate exchange of knowledge and innovations across institutional boundaries like policy, markets, science and civil society. They can offer a range of resources and ways to shape more sustainable policies, social conventions and rules, as well as unlock vested interests. And they provide a means for mobilising critical social momentum from local through to global scales. A Science Service for enabling the transformative changes needed to reach the goals of the European Biodiversity Strategy for 2030 is currently being developed by the BioAgora project. It builds on this promise of social networks across science-policy-society interfaces. The Science Service acknowledges that to enable transformative change, social networks and the science-policy-society interfaces will themselves need to be transformative. A framework to support the transformative potential of networks has thus been developed. It suggests that for social networks to be transformative requires contributing to transformative change by directing attention to the root causes of biodiversity loss, while simultaneously working in transformative ways. The framework proposes three pathways for networks to combine and navigate in their transformative ways of working: pathways that collaborate, challenge or disrupt. It is not necessary (or perhaps even desirable) for all networks to work along all three pathways. However, networks should be able to draw on the capabilities of other networks to be agile across the three pathways. This has important implications in terms of the motivation, composition, structure, internal and external functioning, and outputs of social networks. This session will begin with a short round of inspirations from researchers working on BioAgora. After

introducing the proposed pathways for social networks to navigate, the innovative session will commence to engage participants in different pathways and how they can be combined across different transformation contexts. The session aims to harvest perspectives, critical review and examples of the different pathways and what they mean in the context of enabling transformative biodiversity research and practice.

10.3 Transformative change through actor entanglements and relationality

Paper-based session

Location: B0068

Chair

Ingrid Boas, Environmental Policy Group, WUR

Papers

Sharmini Nair. A Postcolonial Ecofeminist Response to the International Labour Organization's Just Transition Framework

Climate change has been impactful in the production of jobs across the globe. To ensure justice for workers and to help a labor transition into a green economy equitably, the International Labour Organization (ILO) introduced the Just Transition Framework. One area of focus of this policy framework is gender equity. Nevertheless, analysis of what this might mean for women in developing countries is absent in scholarship. Thus, this research begins with the query: How are the descriptions of women in previously colonized spaces in the ILO's Just Transition Framework compatible with the Postcolonial Ecofeminist approach? The anchoring method is Critical Discourse Analysis (CDA) which provides guiding instructions to study power through language. Further, utilizing the Postcolonial Ecofeminist approach, this research helps to identify tension points in the ILO documents on gender and environmental protection which would otherwise be glossed over. This research concludes that the gender equity project as described by the ILO's Just Transition is faulty due to its fixation on incorporating women from previously colonized spaces into the capitalist global economy, its description of women from previously colonized states as victims and the exclusion of women by its prescription of top-down policy making.

Danny Tröger. Industry Impacts More than Nature: Risk Perception of Natural Hazards (and its Research) in More-than-human-worlds

Understanding the dynamics of transformative change towards sustainability requires a nuanced examination of the entanglements of diverse actors, both human and non-human, and the justice implications inherent in their actions. This paper investigates the potential of Actor-Network Theory (ANT) to transcend the nature-

culture divide and challenge hegemonic paradigms in risk perception research (RPR) through a case study of fishermen in the Patagonian fjord lands.

By exploring the risk perception of natural hazards among fishermen, we delve into the convergence of hazard and vulnerability, elucidating the complex interplay between socio-environmental factors and individual perceptions. Drawing on narrative interviews and grounded theory methodology, we uncover the emergent order of risk perception, characterized by constructions of natural event systems, attributions of cause and blame, psychological processing, territorial and professional identity, and perceptions of the national state.

Our findings challenge the conventional dichotomy between natural hazards and environmental degradation, highlighting the interconnectedness of human-environment relations and the appropriation of nature. We propose a hybrid understanding that transcends binary classifications, emphasizing concepts such as environmental transformation, human-environmental relations, and the displacement of sustainable traditions and common-pool resources.

Moreover, our analysis suggests that ANT offers a valuable framework for elucidating the complex web of actors driving transformative change towards sustainability. By allowing for the ambiguity in the description of actor networks, ANT facilitates a holistic understanding that encompasses both human and non-human agencies. This inclusive approach not only enriches our comprehension of sustainability transitions but also fosters more equitable and just outcomes by challenging asymmetrical power dynamics and hegemonic knowledge production.

In conclusion, this paper contributes to the discourse on sustainability transformations by showcasing the potential of ANT to unravel the intricate dynamics of actor entanglements and justice implications, offering insights for fostering more inclusive and equitable pathways towards sustainability.

Anne van Veen. What can we learn from De-mooo-crazy: a performative experiment with a cow-human citizen's assembly?

Cows have high stakes in the transition towards a sustainable food system, but are rarely actively included as stakeholders in research and policy. Their opportunities for steering the transition are therefore extremely limited. To do justice to cows, we need to create spaces for them to co-govern. This means developing new governance approaches, but also requires a change in human beliefs about who is knowledgeable and who is capable of governing. As a step towards cow-co-governing, we developed the performative experiment De-mooo-crazy, a mock citizen's assembly in which four humans represented cows and two humans

represented future generations. Their assignment was to develop a future vision for how cows and humans will live in the region De Achterhoek in 2050 and to come up with policy measures and legislation to achieve that future. In preparation for the assembly, the participants received input from experts (cow and human) and did theater- and storytelling-based exercises aimed at cross-generational and cross-species perspective taking. The aim of the experiment was twofold:

1. learn about the potential and limits of indirect representation of nonhuman animals in a citizen's assembly. To what extent are current citizens able to attune to the needs and desires of future cows and humans?
2. learn about the effects of cross-species perspective-taking on the citizen-performers: Could this be a transformative learning experience? Can such democratic and/or artistic practices be an instrument of value and belief change?

Based on interviews with the participants, we conclude that indeed transformative learning took place (e.g., changed beliefs about cows, behavior change). We also found that indirect representation can contribute to cow justice if certain conditions are met, and that indirect representation is never enough. In this paper, we elaborate and reflect on our findings and invite you to think along about what next steps could be.

Ingrid Boas. Digital Tuvalu: State sovereignty in a world of climate loss

In a widely shared video, the government of the island state of Tuvalu posed an imaginary of Tuvalu as a digital nation in a situation of unabated climate change. In this paper, we take the example of Digital Tuvalu as a paradigmatic case to advance the debates on international relations in the Anthropocene, demonstrating how the processes of climate catastrophe and digital state formation juxtapose. In linking climate loss and state extinction to notions of virtual sovereignty and cyber statehood, we are attentive to the infrastructural power of large ICT companies, while at the same time acknowledging the agency of the Tuvaluan state in navigating the challenges of the Anthropocene. We discuss how a virtual deterritorial state mobilizes the Tuvaluan indigenous philosophy of fenua, to link land, sea, people, and culture in a relational understanding of territory and sovereignty. Digital Tuvalu in this way envisions emerging digital technologies to rebuild Tuvaluan fenua in virtual space, thereby regaining agency in the face of existential climate threats. This, so we argue, signals a new and highly relational model of digital state preservation, having profound implications for international relations under conditions of the Anthropocene.

10.4 (Re)thinking Private Consultants: Exploring Their Future (Re)directions Towards Just Transformations

Innovative session

Location: B0075

Organizer

Alejandra Burchard Levine, VU Amsterdam & Arcadis NL

Abstract

This thematic innovative session on actors and just transformations aims to address the limited scholarly attention given to the roles of private consultants in spreading sustainability ideas and paradigms worldwide. Despite their prominent involvement in policy processes, questions persist regarding how these firms drive sustainable transformations and the fairness of their practices. The increasing outsourcing of government work to these non-elected actors since the 1980s has sparked controversy and led to the term "consultocracy" to describe the shift from public to private policy-making, relying on for-profit and billable consultants.

Consultancy practices are well known in the development cooperation space. For instance, the Netherlands is a key country in spreading its water management expertise globally. However, criticisms have been raised regarding the lack of social inclusion and perpetuation of power imbalances in Global South contexts. Considering these critiques, our session aims to ask: How can we imagine the future of private consultancies in north-south collaborations?

To address this question, this session invites key practitioners and scholars to reflect on the roles and dilemmas of private consultancy practices in north-south collaborations. This session will facilitate a fishbowl-style interview to collectively reflect on international cooperation consultancy practices. Scholarly guests will be invited to draw insights from the interview and conversation, to explore possible (re)directions for the future of private consultancies. Through cases and collective discussions, the session aims to shed light on the challenges related to private consultancy firms and envision a more just and effective future for sustainability governance in north-south collaborations.

The session will commence by examining the Dutch-Colombian water cooperation as a starting point for the interview and discussion. Emerging themes may highlight the role of consultants in brokering ideas and paradigms such as resilience, integrated water resources management (IWRM), building with nature, circularity,

and participative governance. The depoliticization effect of these paradigms, along with challenges related to the credibility and legitimacy of foreign consultants compared to local consultants, will be explored. The extent to which cooperation projects involve genuine participative processes will be questioned. The critical role of local consultants in contextualizing local knowledge alongside foreign expertise will be reflected upon. While local national partners play key roles, better management of local community and regional partnerships still needs much improvement. Issues with the current consultancy model, including billability interests, high costs, and short-term project designs for tackling long-term sustainability transformations, will be explored.

The session will prompt exploration of whether a future path exists toward achieving just transformations by reflecting on the types of (re)directions required for the future practices of private consultancies.

10.5 Polycentric governance and citizen-based energy transition

Paper-based session

Location: B0076

Organizers

Cyria Emelianoff : Professor at Rennes 2 University*

Guillaume Bailly, Associate Professor, at Le Mans University*

Lucas Durand, assistant professor at Le Mans University*

Moïse Tzayem Demaze : Professor at Le Mans University*

Salima Salhi, postgraduate researcher Le Mans University*

Fabien Nadou, Associate Professor, at EM Normandy Business School*

Abstract

The aim of this session is to bring together scientific contributions that examine polycentric modes of governance (Ostrom et al, 1961; Ostrom, 1991; 2008; 2009; 2010) in the field of energy transition and citizen-based renewable energy projects. We will pay particular attention to the processes by which these initiatives are disseminated in Europe. Multidisciplinary approaches are welcome, as well as methodological cross-fertilisation. The processes by which innovation is disseminated will be analysed using quantitative and/or qualitative approaches. The proposed contributions will be based on the theoretical fields of social geography, territorial economics, environmental governance, and transition studies, and will draw on feedback from a variety of case studies in urban, peri-urban and rural areas, which do not mobilise the same groups, the same stakeholders or the same sources of energy. In this respect, the various case studies will demonstrate the complexity of the interactions between the chain of players involved in the emergence of community energy projects (Creamer, 2018; González, 2022; Pillan et al, 2023). Associations, local authorities and private groups are all involved to varying degrees in the spread of community energy projects. The authors are therefore invited to re-examine the principles of self-organisation of stakeholder collectives (Daudet, 2002) and the characteristics and evolution of the forms of multi-level territorial cooperation that result from these interactions (Sovacool, 2018; Petrovic et al, 2022). Transcalar alliances appear to be crucial for diffusion: how are they built? The contributors are invited to take a critical look at existing governance models (Gui and MacGill, 2018). Which methodology can be used to study the

polycentric governance of civic energy transition? What strategies have these collectives developed, as evidenced by the work of Seyfang et al. (2013) and van Der Schoor and Scholtens (2015). What resources (Seyfang and Haxeltine, 2012) have been mobilised to bring these projects to life? As mentioned by Ostrom et al. (1961) and Jordan et al. (2018), what conditions are conducive to the success of these projects?

Papers

Guillaume Bailly & Salima Salhi (Le Mans University). Analysis of spatio-hierarchical diffusion processes of citizen energy collectives in western France

In France, the emerging wave of citizen renewable energy (RE) projects is in line with the subsequent European decision and national policies aimed at reinforcing the number and the role of energy communities. The rise of these initiatives in France is inspired in part by the successes observed in Germany (Fontaine, 2019) and other European countries (Poize and Rüdinger, 2014). Scientific research on energy communities and the spatial diffusion of citizen RE projects has grown recently, reflecting the growing interest in decentralized and more democratic energy solutions (Rüdinger, 2019; Gomez and Tyl, 2023). Our study builds on previous work identifying Western France as a fertile ground for RE initiatives due to historical anti-nuclear struggles and commitment to local sustainable development (Vaché, 2009; Sebi and Vernay, 2020), and will characterise the process of spatial diffusion of RE initiatives in Western France. Our work examines how citizen RE projects are constructed and spatially diffused in Western France. Which local players are involved in this participatory/community energy dynamic, and how do they interact? How do territorial, social and environmental specificities influence these diffusion processes? What is the role of support networks, notably RECIT and TARANIS, in implementing and supporting these initiatives? Our findings are based on quantitative database analysis combining data provided by RECIT, TARANIS and ÉnergiePartagée, qualitative data from a corpus of individual interviews conducted in Bretagne and Pays de la Loire, and the practice of participant observation through immersion in developing citizen collectives.

Lucas Durand (Le Mans Université) & Cyria Emalianoff (Université Rennes). The epicentres of citizen energy communities in western France: A rural-urban comparison.

In a context of energy centralization, renewable energy communities (ECs) developed late in France, especially in 2005-2010 (Sebi and Vernay, 2020). As in other European contexts, such as the Netherlands (Halleck Vega and van Twillert,

2023), distribution is very uneven. In 2023, the Loire region contained nearly 40% of renewable capacity installed in France by ECs. How can we explain the dynamism of this territory, which is not endowed with particularly remarkable sources of renewable energy? To elucidate this question, the contribution will address two epicentres of emergence and diffusion of ECs: one rural, at the origin of citizen wind power in France (Redon region), the other urban (metropolitan Nantes), with the rise of citizen photovoltaic installations. Based on qualitative research using non-directive and in-depth interviews with local EC actors and participant observation of their support networks, the communication will address three points, confronting urban and rural dynamics: 1. Identification of the conditions for the emergence of these pioneer ECs and the reasons for their specific localisation. 2. Reconstruction of the relational ecosystem that grew around the ECs' dissemination strategies. 3. Analysis of the debates, conflicts, and lines of political divergence that traverse the spin-off strategies of ECs, following Korjonen-Kuusipuro (2017) and Radtke and Bohn (2023), but from a more geographical stance. Our hypothesis is that these divergences reveal contrasting visions of and relationships to the lived environment, from a horizontal and rhizomic reappropriation of the socio-ecological transition, to a vision of land as simply a resource to be urgently mobilised for a vertical and sectoral massification of renewable energies.

Annemiek de Looze. A complex systems perspective on participatory decision-making for a just energy transition

Accelerating the transition to a renewable energy system is a complex challenge involving transformative changes in not just technology and infrastructure, but also in policies, institutions and behaviour. Public acceptability and stakeholder engagement have increasingly arisen as crucial elements in ensuring that these changes and socio-technical innovations occur. By informing decision-making with input from actors who are affected by the decisions, the idea is that decisions are made in a more just and democratic manner, representing the broad variety of values, perspectives and concerns interested actors may have.

Whether participatory decision-making results in more just outcomes is up for discussion. Research on the impact of participatory decision-making on just transitions has hitherto been dominated by case studies. In this paper, we zoom out from the single case and aim to understand participatory decision-making processes on a broader level. In doing so, we understand participation as “an emergent and co-produced phenomenon” in which cases of participatory decision-making are not isolated instances, but rather part of a *collection* of instances that mutually interact with each other and with the socio-technical (energy) systems within which they

are embedded. We are thereby contributing to a recent academic move towards more holistic understandings of participation in which the relational, co-productive, and systemic nature of elements of the energy transition is at the forefront of scientific analysis.

To understand in what ways a collection of participatory decision-making processes can change the course of the energy transition, we are building a cross-disciplinary conceptual framework in which we combine the vocabulary of Complex Adaptive Systems (CAS) with theories of change. We further empirically apply this framework to a collection of participatory practices to unveil emergent processes of change in four different contextualities: technological, place & community, policy, and business & economic context. All in all, this research contributes to improving the commensurability of CAS and change literature by cross-pollinating concepts from one field with another to improve the systemic understanding of the energy transition and the transformative capacities of participatory decision-support tools for accelerating a more just energy transition.

10.6 Rethinking SDG7: Current Gaps and Future Directions of Energy Access Beyond 2030: Perspectives of the 4TU Energy Access Alliance

Innovative session

Location: B0078

Organizers

4TU Energy Access Alliance

Nowella Anyango-van Zwieten (Wageningen University & Research)

Nihit Goyal, Luis Cutz, Kenneth Bruninx (Technical University of Delft)

Jelena Popovic, Niek Moonen, Amalia Suryani, Maarten Appelman, Ilman Sulaeman (University of Twente)

Henny Romijn, Jonas van der Staeten, Diego Quan Reyes (Technical University of Eindhoven)

Abstract

The current Global Stocktaking on SDG7 | United Nations estimates that about 10% of the world population will still not have access to electricity and 30% will lack access to clean cooking by 2030. In spite of a general consensus that SDG7 on universal energy access is on track to miss its targets, some – especially those working with aggregated, globalised data – claim significant progress on leading indicators, diverting focus away from real energy access problems experienced by millions globally.

As the 4TU Energy Access Alliance (an interdisciplinary group of scholars from the four technical universities of the Netherlands), we argue that the aggregated data, which measure energy access in a binary (yes/no) manner, gloss over wider gaps shown in more granular evidence about regional, rural-urban and gender experiences. We also argue that these heavily outcome-oriented indicators overlook fundamental challenges that go beyond providing often unstable and ill-fitting technologies to as many households, as quickly and as cheaply as possible.

We challenge the extent to which the SDG7 outcome-driven agenda (the number of people with access to energy) has brought about scale (SDG7 targets will not be reached by 2030), sustainability (financial, technical, social, institutional, and environmental), and impact (broader social, environmental and economic effects of energy access, such as on people's and nature's health and well-being). At the

heart of access are real lives with economic, social, environmental and political needs that are connected to other aspects requiring transformative change.

In this session, we would like to open up the discussion on SDG7 assessment to a diversity of scholars and other participants. This will be in addition to contributions that we have received – and will share – from our direct participation at the March 2024 UN-DESA consultation meeting for experts in advance of the global midterm review summit. We are also scheduled to discuss our concerns at the NL Energy Compact, the Dutch SDG7 platform for collaboration between government-industry-academia-NGOs and other organisations aiming to provide 100 million people with sustainable energy. Finally, our input will also include contributions from African scholars and stakeholders participating in a Graduate Research on Worldwide Challenges (GROW) workshop in April 2024.

An overhaul in the perception of global energy access is needed, and working towards a new global agenda, Beyond 2030, is an opportunity to make that shift. This can be done by drawing on the lessons and evidence from the past years, but also leveraging on the wider technological, political and social developments and trends at the global, regional, national and local levels.

Guided tour through Wageningen

Time: 15:15 – 16:15

Nature & history in Wageningen Walking tour

Location: start at entrance Leeuwenborch building

Guide

Jim van Laar – Forest- and Nature Conservation Policy group, WUR

Description

Jim van Laar has a depth of knowledge of the stories and histories behind the places and spaces, green and urban, in and around Wageningen. Since 1876 Wageningen has grown from a village to an international campus and was ranked as the most sustainable campus in 2023. Jim will inform you about education, culture and nature during this walking tour. We challenge you to find a question that Jim doesn't know the answer to!

Decolonial Walking tour through Wageningen

Location: start at entrance Leeuwenborch building

Guide

Raven van Asch, WUR

Description

The Decolonial Walking Tour through Wageningen, developed by WUR students, sheds light on the colonial history embedded in the town's architecture and heritage, often overlooked by residents and visitors alike. The tour highlights symbols of the Dutch colonial past, such as stained-glass windows and historical sites connected to Wageningen's agricultural knowledge that influenced plantations in former colonies. Through thought-provoking stops, participants are prompted to reflect on themes of freedom, injustice, and the continuing legacies of colonialism.

NB: It takes about 30 minutes to walk to the city centre.

The Decolonial walking tour will also end at the city centre of Wageningen.

Poster session

October 16th and 17th

Time: 12:30 – 13:30

Location: Bosrandzaal

Posters

Mou Rani Sarker and Deepa Joshi.

Where Does Power Lies? Elite Capture of Freshwater Canals in Coastal Bangladesh

The coastal region of Bangladesh, known as the deltaic food basket, supports around 80 million people whose livelihoods rely heavily on freshwater sources like canals. Climate change and human interventions in this area significantly impact water-related challenges. Hence, freshwater scarcity emerges as critical issues, posing threats to food security, ecosystems, and the viability of sustainable development. In this context, freshwater grabbing, influenced by local power dynamics, is crucial but has garnered limited research attention. This paper addresses this gap by examining how power dynamics influence elite dominance over canals and the implications of inclusive or exclusive of marginal groups in water resource management. The study was carried out in two villages, Kultali and Dhankhali, located in the coastal area of Munshigonj union within the Shyamnagar upazila of the Satkhira district in southwestern Bangladesh, employing mixed methods.

The findings confirmed a growing scarcity of freshwater for both domestic and agricultural use, attributed to the encroachment upon canals. Historical analysis reveals that since the 1980s, the region has experienced a trend of private canal leasing facilitated by officially issued licenses. The leased canals undergo transformation into human settlements, roads, and other infrastructure, as well as being utilized for large-scale shrimp aquaculture. The power framework reveals water conflict for unequal power relations underpin most instances of elite domination. Interestingly, community leaseholders, while not economically influential, typically possess expertise in land leasing and maintain strong communication channels with local administrative authorities. Small-scale and marginal farmers, fishers, and women are the primary victims of this canal appropriation.

Following Cyclone Sidr in 2007, shrimp farming expansion intensified conflicts with crop farming, exacerbated by complex wetland leasing regulations. Chaotic policies disproportionately benefit local elites, producing negative impacts on lives and livelihoods, fueling social conflict, and exacerbating income inequality. Additionally, irrational grabbing marginalized the participation of the poor in policy formulation and investment decisions. Prioritizing fair land zoning, agricultural planning, enhanced regulations, and efficient integration of land-water-climate-food institutions is suggested for sustainable coastal development and food security.

Elsa L. Dingkuhn, Farming System Ecology group, Wageningen University and Research, Wageningen, the Netherlands AND Crops, Environment and Land Use Programme, Teagasc, Wexford, Ireland, Rogier P.O. Schulte, Farming System Ecology group, Wageningen University and Research, Wageningen, the Netherlands, Lilian O'Sullivan, Crops, Environment and Land Use Programme, Teagasc, Wexford, Ireland, Yuzhi Zeng, College of Science and Engineering, University of Edinburgh, Edinburgh, Scotland, Caitlin A. Grady, Department of Engineering Management and Systems Engineering, George Washington University, Washington DC, the United States.

Multifunctional land-use governance: do we have the science to inform policy? A systematic literature review.

Soil-based ecosystem service, or soil functions (SF) have gained attention from scientists and policymakers over the last decade. Current agri-environmental policies target the increase of multiple SF: from carbon sequestration, to protecting biodiversity, through addressing water pollution, while maintaining productivity. The implementation of such policies requires readily available knowledge on interactions between SF and on drivers impacting their supply. Despite the multifunctional nature of soils being widely acknowledged, related research still extensively focuses on isolated functions while they are rarely studied in combination.

We assess the state of soil multifunctionality in science, and the extent to which interrelations between governance, land use, and SF supply have been studied. We therefore compare examples from three contrasting regions: the Republic of Ireland, Pennsylvania in the United States, and the Philippines.

Through a systematic literature review, we identified all published studies focusing on >2 SF. We limited our search to SF that were studied in relation to land use. We provide a bibliometric analysis of current research on soil multifunctionality in the three study sites. 93% of the 4253 studies found focused on one single function, and where thus excluded. Among the 1143 included studies, water purification was

the most co-occurring SF (along with water regulation in the Philippines), and carbon cycling was the least co-occurring.

Finally, by applying natural language processing techniques on the abstracts of all included studies, we explored how SFs are recurrently linked with specific land uses and influencing drivers, such as governance instruments.

We show the extensive focus of past and current research on single SFs. While this narrow focus allows for in-depth investigations on specific SF and related fields, it limit the scope and applicability of findings when addressing complex, multidimensional challenges, such as sustainable land use and the optimisation of SF supply. Thus, more inter/transdisciplinary research addressing multiple SF and their interactions is needed to better inform interventions linked to current agri-environmental policy goals.

We reveal important knowledge gaps related to multifunctional land-use governance. These constitute areas for future research, which can help better inform and calibrate interventions for more sustainable land use and management.

Sophie van Geene, Margherita Simonetti, Haley Wickman, Micha Slotboom, Hannah Hartley, Clara Lina Bader.

Designing a degrowth pathway to transform the global meat industry: Mapping dynamics between Dutch and Ghanaian poultry sectors.

There is a growing interest in applying new economic paradigms to transition the global food system to a more sustainable one. For this transition, it is crucial to understand the state of affairs, and whether the underlying assumptions that we make are correct: 1) Economies of high-income countries (HICs) appropriate resources from low and middle-income countries (LMICs) and, 2) HICs supply local markets in LMICs with cheap food products, rendering local production uncompetitive.

This poster, based upon a research report, aims to address this second assumption specifically for the Netherlands (HIC) and Sub-Saharan Africa (LMICs) by asking: *What is the position and the impact of the Netherlands (NL) with regards to exports of meat products to Sub-Saharan Africa (SSA)?* In our research report, we addressed this question by using a case study of the export dynamics in the poultry sector between the Netherlands and Ghana. For this case study, we conducted literature research, interviewed one expert in African livestock production, performed a stakeholder analysis, and developed maps of the system. This led us to find evidence that could suggest that the Netherlands (HIC) contributes to supplying local markets in Ghana (LMIC) with cheap poultry products, rendering

local production uncompetitive. Furthermore, we identified leverage points for degrowth in the Netherlands, proposed possible implications of degrowth in the poultry sector on Ghana, and recommended further research to support future plans related to degrowth initiatives.

**Esther L. Trilken, Leuphana University, Leiden University, Lea Gathen.
Transformation or transition to sustainability? Academic perspectives on terminology and conceptual understanding in the evolving discourse**

Despite the increasing volume of research on sustainable change processes, inconsistencies and disagreements remain in the scientific literature about the conceptual essence of these processes. This study takes up the issue and addresses the problem from an academic point of view to further clarify terminology and conceptual understanding. Expert interviews with scientists from the community of sustainability transformations and transitions provide qualitative insights which are analysed for differences and similarities. In a second step we derive a framework on enabling and hindering factors for sustainable change processes from the data. Hence we add a self-reflective element to the existing scientific discourse on sustainability transitions and sustainability transformations in line with its engaging character across scholarly disciplines.

Frieda Kay, Cornell University.

Catalysts for Connection: An Individual Actor-level Perspective on Intermediary Roles in Sustainability Transitions

Intermediaries are essential actors in sustainability transitions. People in these “in-between” positions broker relationships, transfer information, coordinate processes, and configure outcomes within socio-technical systems, facilitating the transition to a more sustainable future. While existing literature on sustainability transitions primarily frames intermediaries as organizational actors, this research responds to other calls within transitions research for more individual-actor perspectives, and thus reframes the intermediary role as an individual-actor role to illustrate the importance of the people in these positions, and their actions and attributes. Through a qualitative analysis of semi-structured interviews with individuals involved in the siting process for a prominent large-scale solar project, multiple individuals are identified as intermediaries within the empirical context of New York State’s energy transition. Four types of intermediary roles—Bridgers, Conduits, Aligners, and Shapers—are developed to conceptualize specific relational actions and functions. A composite narrative analysis demonstrates how intermediaries are

enabled by multiple individual attributes and contextual factors, which emphasizes the importance of both subjectivity and structure to this functional role. By making explicit this otherwise unarticulated individual intermediary role, these findings provide the basis to recognize and support individual intermediary actors, whose micro-level actions provide key relational infrastructure to catalyze and sustain transformative change.

Mirko Suhari and Jens Jerkowitz, Thuenen Institute of Rural Studies,
Braunschweig.

How to Govern Transformations towards Paludicultures Utilizing Grounded Theory Methodology to Understand Options for Climate-Smart Farming on Organic Soils in Germany

Paludiculture is a concept coined by Hans Joosten (1998) for agricultural and forestry use of wet (and rewetted) organic soils. These soils were essentially formed in bogs and fens and were historically utilised only at their edges as marginal land. Significant yields were achieved after they had been drained on a large scale. In peatland-rich European countries such as the Netherlands and Germany, cultivation of these soils was seen as a measure to improve the population's food situation. A reassessment of this type of utilisation is gaining ground, since findings from climate change research have drawn attention to the fact that drained organic soils emit a considerable amount of greenhouse gases. Establishing paludiculture as a new form of cultivation is seen as a way of drastically reducing CO₂ emissions in the so-called LULUCF sector. In Germany, 95 % of peatlands are still drained and mostly used by farmers as grassland, for livestock farming or as arable land (e.g. for growing maize and potatoes), frequently highly profitable. The Federal government and some federal states provide incentive programs to encourage them to rewet their organic soils and convert to paludicultures. Furthermore, real-world experiments with various paludicultures have recently been launched to clarify especially practical and economic issues relating to the conversion. Nevertheless, it remains an open question to what extent farmers are prepared to actually change their existing farming methods in such a way that the desired large-scale rewetting of organic soils actually takes place. As social scientists, we accompany these social-ecological transformations and are currently studying the governance conditions which support the conversion to wet management of organic soils. Based on frameworks of social-ecological systems and innovation research, we apply grounded theory methodology to investigate the drivers and barriers for scaling a sustainable transformation of peatlands. By using various data (transcribed interviews, observation protocols, etc.), we can reconstruct

the different perspectives of the actors involved on the opportunities and risks of this transformation process and the complex challenges of multi-level governance become apparent. In our presentation we will discuss the current state of our research.

Pavel Kogut, 21c Consultancy.

PERMAGOV: Improving Performance of EU Marine Governance

EU marine governance must evolve to meet the goals and objectives established in the European Green Deal (EGD). A shift is needed from the current largely fragmented nature of marine governance towards a more agile, cross-cutting arrangement, one that is in sync with wider developments taking place at sea, at shores and on land. The PERMAGOV project sets out to achieve that by piloting a novel Multi-Level Collaborative Marine Governance (MLCMG) framework for various regional seas and national waters around Europe. The framework includes tools to support the analysis of how innovation and change can alter marine governance arrangements to make them better optimised for EGD. PERMAGOV examines how existing governance arrangements, institutional barriers, formal-informal dynamics and digital solutions are used and manifest themselves in the nine case studies spread across marine transport, life, energy, and litter. The resulting body of knowledge on marine governance performance will provide the basis for co-developing MLCMG strategies that marine stakeholders can leverage to better implement EGD policies.

Minna Kanerva, University of Bremen.

Conceptual rationing of meat — Moving forward through ecological regulation?

There is by now largely a consensus within the science end of the science-policy nexus that, especially in the Global North, meat production and consumption have to be radically reduced as part of the great food transformation towards sustainability. It may be argued that the aim as well as many of the policy recommendations for the consumption side are in fact forms of conceptual rationing. In other words, it is often assumed that only limiting meat consumption by whatever means will result in sustainable levels. In reality, however, the suggested means for achieving reductions are largely still based on the idea of voluntary changes in consumption, whether by influencing consumers directly, e.g. through education or nudging, or by more structural measures, such as transforming subsidies, utilizing taxation, or banning advertising. Similarly, recommendations to influence deeper leverage points, such as values and

ideologies, are also based on the principle of voluntary reductions. Considering the barriers to enacting strong and effective policies while still relying on the principle of voluntarism, the question is: could such measures bring about the necessary reductions in meat consumption, or would involuntary reductions be required at some (possibly near) future point? The strongest form of involuntary reductions would be political rationing — currently a taboo subject in any area of consumption beyond a short-term crisis situation. If we indeed need to bridge the gap between what is currently feasible and what is soon necessary, how could societies be prepared for restrictions on consumer freedom in this very contentious area? Arguably, using ecological regulation, whereby policies at different leverage point levels are strategically combined and policy measures sequenced, may be our best bet. This presentation will argue further, that employing consumption corridors can be a way to more explicitly and positively frame conceptual rationing, especially due to the participatory nature of agreeing the corridors. This participatory element can also make the idea of restricting consumer choice more palatable to the general public, and potentially offer governments one exit from the lock-in situation of corporate capture of food systems governance. Finally, a matching discourse tool of the continuum of meatways can be beneficial in affecting the deeper leverage points directly. In particular, continuum thinking can resolve some of the tensions between conventional animal-based meat and new meat (production and) consumption, while strengthening transformative discourses.

Thies Reemer and Eunice Likoko, Wageningen Center for Development Innovation, Wageningen University & Research.

Unpacking social equity in food system transformation

Current food systems are unsustainable and inequitable, the concept of social equity increasingly features in the food system transformation discourse in the Social Sciences group at WUR. However, technological and economic outcomes are often prioritized. Even though there are some promising social equity initiatives, they are often not poorly articulated in strategies, not prioritized and not well operationalized at organizational and programme levels. This paper aims to inspire a way forward: by reflecting on how practitioners and institutions can better understand and contribute to social equity outcomes in food system transformation processes. It provides an overview of social equity in food systems unpacked into three key concepts namely; social inclusion, gender equity and just transition, by exploring how these concepts, their usage and interpretation impacts social equity goals. By examining the current narratives, understanding and use of these key social equity concepts, this paper shows that the current usage of these terms is either as a catch all term that is ambiguous, an add-on to projects to appear

'politically correct', or used with a limited understanding ; leading to no significant outcomes. It examines what is missing in both discourse and practice and proposes that going forward social equity and its underlying themes need to be incorporated as strategic issues, at the centre of projects, and as a goal or outcome that is integrated at the core of transformation initiatives. It proposes key messages to underpin the usage and implementation practices of these concepts for food system transformation. In conclusion, the paper proposes the need to articulate social equity more firmly in Food System models and gives recommendations on how to take the social equity narrative forward in organizational strategies and knowledge development, roles, resource allocation and partnerships; as a way forward in shaping the discourse and work around social equity in the food system. As the challenge of social inequity in the food systems of the world continues, continuing with business as usual will lead to missing out on opportunities to have a cutting edge understanding and practices of food system transformation, sustainable transitions and positive societal impact.

Conference Locations

Hotel De Wageningse Berg - Generaal Foulkesweg 96, 6703 DS Wageningen

Leeuwenborch Building - Hollandseweg 1, 6706 KN Wageningen (see blue circle on the map below)

Map of Wageningen Campus

