2023
Radboud Conference
on Earth System Governance
Bridging Sciences and Societies
for Sustainability Transformations

Book of Abstracts
and Innovative Sessions

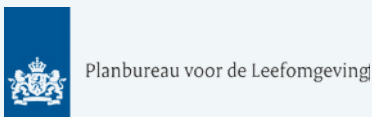Earth System Governance

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The Book of Abstracts and Innovative Sessions compiles abstracts and descriptions of the selected papers and innovative sessions for the 2023 Radboud Conference on Earth System Governance. These materials have been sourced from the Conference's submission portal.

This document is organized chronologically to reflect the conference schedule, providing an overview of the content for each parallel panel and innovative session. It also includes details such as the session's date, time, and location, as well as the names of the chair(s), discussant(s), and presenter(s).

For information on the programme of semi-plenary and plenary sessions, please visit the Conference website:
https://www.earthsystemgovernance.org/2023radboud/programme/

Parallel Panel: Anticipatory practices and politics of carbon removal assessment

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.139 / Zoom

Chair(s):

Sean Low

Miranda Boettcher

Session Overview: Anticipatory practices and politics of carbon removal assessment

Successive landmark IPCC assessments have projected that for ambitious climate targets to be reached, vast amounts of carbon sinks must balance emissions sources – speculative approaches and scales that may never exist as envisioned. These anticipatory assessments (future options and pathways that inform present-day planning) were largely driven by integrated assessment modelling within IPCC's Working Group III, and have had two wider effects. Firstly, they have entrenched 'carbon removal' as a climate strategy, signalling for development of and policy for land, marine, and technology-based approaches. Second, they have spurred reflection on how techno-economic systems modelling could have so swiftly redefined climate action, and how assessment could better map the uncertainties and challenges surrounding carbon removal. This session merges policy-driven and critical perspectives on the anticipatory assessment of carbon removal's feasibility, across socio-political, environmental, and techno-economic dimensions. We aim to bridge these dimensions: (1) by asking how assessments are created through contrasting practices, kinds of expertise, and communities across different polities (institutions, countries, regions) or scales (local to global); (2) by asking what 'performative' (implicitly steering) effects do current assessment practices have on carbon removal, and (3) by asking how assessments can be improved by integrate diverse perspectives, kinds of knowledge, and new engagement methods to better map challenges and concerns.

Presentations (including names of presenting authors):

Carbon Dioxide Removal (CDR) in the IPCC Sixth Assessment Report (AR6). Building consensus or dissensus?

Kari De Pryck

The role of the IPCC is to produce assessments of the state of the scientific literature on climate change, its impacts and solutions. It is expected to highlight where there is agreement and disagreement in the literature assessed by its three Working Groups (WGs) and to integrate their main conclusions into a Synthesis Report (SYR). The assessment of CDR was a particular hot topic in AR6, as many scientists and governments see removal activities as mitigation strategies—akin

to reducing carbon dioxide emissions—while other remain sceptical of their maturity and efficacy. The IPCC WGs, as aggregates of different epistemologies, geographies and cultures, took different approaches to CDR. WGIII for instance highlighted that it was "unavoidable if net zero emissions are to be achieved", while WGII sought to emphasise the risks associated with these activities. In this paper, we explore (1) how CDR was assessed across the three WGs and the SYR; (2) how CDR was framed and negotiated in the approval of Summaries for Policymakers (SPMs); and (3) how the IPCC communicated on CDR at SB57 and COP27. Methodologically, this paper is based on ethnographic methods—direction observation of IPCC/UNFCCC meetings (2019-2023), interviews and document analysis (drafts, review comments, etc.). Conceptually, it builds on social studies of science to explore the negotiated dimension of assessment making. We aim at shedding light on how an all-encompassing institution like the IPCC settles (dis)agreement about policy sensitive issues and creates constructive ambiguities to maintain a certain coherence and a unified front.

Broadening blue (carbon) futures: Qualitative foresight as an anticipatory assessment tool for marine carbon dioxide removal

Miranda Boettcher

Since net zero greenhouse gas emissions targets have become a keystone of climate policy, there has been increasing debate about the need to actively remove carbon dioxide from the atmosphere in addition to dramatically reducing emissions. The ocean plays a key role in regulating the global climate by absorbing a large proportion of anthropogenic carbon dioxide emissions. As the technical and political challenges of land-based carbon dioxide removal approaches become more apparent, the oceans may become the new "blue" frontier for carbon drawdown strategies. This talk highlights ways in which scenario development work on marine carbon-dioxide removal (mCDR) could learn from the way (modelled) land-based CDR (predominantly bioenergy with carbon capture and storage, BECCS) scenarios were focused on cost-optimization. The prioritization of economic criteria in assessing the potential of CDR resulted in the neglect of other factors which have since emerged as significantly reducing the overall 'feasibility' of BECCS – including projected effects on biodiversity, the potential for water and land-use conflicts, as well as political and societal barriers to implementation. This talk argues that more diverse (qualitative) scenarios should be developed to holistically assess mCDR. Reporting on an mCDR foresight process which involved German public officials, scientists and stakeholders, this talk outlines how qualitative, participatory scenario development can; 1) facilitate structured, future-oriented inter- or transdisciplinary communication and learning about the future (in)feasibility of mCDR; 2) widen understandings of plausible/feasible mCDR developments based on the interactions between a broad range of political, economic, technological, and social risks and benefits and; 3) increase critical reflection to examine and challenge the assumptions embedded in mCDR assessment. The talk concludes by exploring how qualitative foresight could complement quantitative scenarios in anticipating the range of diverse socio-ecological dimensions (and their interactions) that will play a role in mCDR futures.

Towards 'responsible' feasibility assessments: Reflections on expert imaginaries of marine CDR

Sara Nawaz

Net zero emissions deadlines are rapidly approaching, and evidence is building that reductions alone will be insufficient to meet these. As such, interest in carbon dioxide removal (CDR) is growing. Marine or ocean-based approaches are emerging as an important category of CDR, given their (theoretical) potential for large-scale carbon dioxide sequestration and storage. While some approaches have undergone small-scale experimentation, others remain at the concept stage. Beyond techno-economic or environmental questions, marine CDR (mCDR) raises challenges for governance, the study of which is only just beginning (National Academies of Sciences Engineering and Medicine, 2021). Rather than understand these questions as ancillary to techno-economic feasibility, scholarship on anticipatory governance and 'responsible research and innovation' (RRI) has highlighted consideration of societal values, needs, and expectations as essential to research and design processes themselves (e.g., Macnaghten, 2016). While scholarship on RRI offers a set of general principles, insights remain high level, and difficult to translate to the diverse and speculative proposals on mCDR.

Investigating experts' imaginaries of mCDR offers one useful inroad to generating specific recommendations on these governance challenges, as they can serve to help interpret how implicit or unstated values and assumptions shape the production of relevant science and particular mCDR technologies. This paper offers insight into such emerging expert imaginaries of mCDR, with a particular focus on its governance challenges. We draw upon interviews with a broad range of mCDR experts to highlight key tensions in the socio-technical assessment of mCDR. Four themes emerge from this research and demand more explicit public debate: (1) ongoing assumptions that certain mCDR approaches are more 'natural' and thus preferable to others; (2) the need for new paradigms of evidence building in light of a growing sense of urgency vis-a-vis climate stabilization targets; (3) the relevance of understanding the material consequences of different technical configurations of mCDR; and (4) the necessity of clarifying ambiguous delineations of publics relevant to mCDR projects. We offer several policy recommendations towards designing more 'responsible' project-level assessment of mCDR.

Headlines 2030: A participatory futuring exercise on climate interventions in 22 countries

Sean Low

The challenges of tomorrow's climatic impacts, sociopolitical conditions, and still-immature response strategies real today are well established. Diverse methods – foresight and scenario construction, prototyping and fiction-writing, games and roleplaying, and even kinds of modeling – anticipate plausible and persuasive futures, make them experiential, and foster greater inclusivity and reflection in public debate and decision-making on climate change.

This paper highlights one particular "headlines" method and exercise, developed as part of a mixed-methods public engagement process spanning (i) 22 countries worldwide (ii) in rural and urban settings, regarding (iii) eight kinds of climate interventions approaches (three solar geoengineering and five carbon removal) that are emerging in scientific, innovation, and policy agendas. The method draws inspiration from scenario construction and prototyping, calling for over 300 participants (~8 people per focus group, 1 rural and 1 urban group per 22 countries) to construct a headline each about a chosen climate intervention in 2030. Each is an abbreviated

scenario, containing three elements: a technology considered especially hopeful or concerning, an event in 2030 that must be either positive or negative, and an actor (civic, governmental, corporate) involved in that event. Each person was asked to explain their headline, and the group collectively voted on headlines they found persuasive or provocative. The headlines were also constructed at the end of a 2-hour session in which these approaches were extensively discussed.

We analyze the results for content – distilled but imaginative complexes of risk, benefit, engagement, and governance of 8 climate interventions across 22 countries. We also analyze these headlines for their positive (hopeful, optimistic, utopic) vs. negative (concerning, pessimistic, dystopic) inclinations. Finally, we examine this method's value for participatory and expedited futuring. It is small-N, designed for focus groups – but its simplicity has large-N applications: minimized to three elements of technology, actor, and event, with hundreds of 'snapshots'. At the same time, it confronts and tests the capacity of individuals and mini-public to richly conceive of futures for immature climate interventions.

Parallel Panel: Cases for a nature-based future

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.133 / Zoom

Chair(s):

Anthony Calacino

Presentations (including names of presenting authors):

Everything is water! Towards a model for the successful governance of biodiversity in Dutch surface waters

Carel Dieperink

The aim of the EU Water Framework Directive (WFD) is to achieve a "good" chemical and ecological status for all waters by 2027. Achieving this aim however is no easy task. The Greek philosopher Thales of Milete already argued that in the end everything is water. This may be a bit over the top, but it is fair to argue that water quality stressors are manifold. They range from point source waste water discharges to diffuse run offs from land, sediments and atmospheric deposition to water bed modifications and the introduction of invasive species. Each stressor may be addressed by different agents and different modes of governance may be manifest. Aim of this paper is to develop an empirically grounded model on the governability of biodiversity in surface waters. The model will emphasize the conditions under which different modes of governance will result in ecologically beneficial synergies. By reviewing academic literature we will identify factors that stimulate or hamper a successful performance of a mode of governance. We will make a distinction between centralized, decentralized, public-private, interactive and self-governance. In a next step we will argue under which conditions these modes may reinforce each other. The resulting model will be used in an empirical assessment of several case studies on the (successful) implementation of the Water Framework Directive in the Netherlands. In each case we will identify in what way governing actors have addressed water quality stressors, what results have been booked and what factors have influenced this. The analysis is based on in-depth review of national Dutch guiding documents for the implementation of the Water Framework Directive, regional policy documents and expert interviews. The case study findings will be synthesized into a model for successful governance of biodiversity in surface waters in the Netherlands. We will extrapolate our results and conclude the paper with some suggestions for a good meta-governance of water quality in Europe and beyond.

How do NbS interact with existing inequalities in Cape Town? A socio-ecological analysis

Gerdus van der Laarse

Nature-based Solutions (NbS) are ecosystem-based approaches that address societal challenges while simultaneously benefiting people and nature [1]. NbS have seen an increase in popularity recently thanks to its benefits to support climate adaptation and increase climate resilience, including heat stress mitigation or flood control. While ecological benefits are clear, the literature also acknowledges the negative impacts on already vulnerable communities such as deepening exclusion and green gentrification due to the interaction between NbS with existing social processes of inequalities or segregation [2]. Questions of social justice are still to be addressed [2,3].

In this paper, we aim to understand how NbS interact spatially with existing inequalities in the city by taking a socio-ecological approach. The interactions between people and nature are represented using the concept of ecosystem services. The ecosystem services concept captures the links between nature and human well-being, offering ways to understand where and when nature-based solutions deliver these benefits [3]. The concept also accounts for disservices and, thus, enables the assessment of trade-offs between social and ecological (dis)services associated with NbS [3]. Our case study focuses on the city of Cape Town, South Africa. The city has suffered from intense drought periods and is currently engaging with NbS measures to increase drought resilience. Cape Town also faces challenges associated with historical segregation processes.

Using a data-driven approach, we estimate the spatial scope of NbS across Cape Town. By mapping the spatial distribution of NbS ecosystem (dis)services against existing social inequalities, we identify areas of socio-ecological synergy and exposure. In synergy areas, NbS have the potential to address ecological (climate) challenges and social inequalities simultaneously. In contrast, exposure areas present the risk of intensifying both ecological and social issues due to NbS implementation. We also explore areas of trade-off, in which the enhancement of one ecosystem service leads to the reduction of another. These results contribute to (1) a comprehensive spatial understanding of the trade-offs between ecosystem services and disservices and (2) the development of evidence-based NbS planning and policy that incorporates social justice.

Realizing coordination across policy sectors, levels of government and national borders for implementing nature-based solutions in the Vechte-Dinkel river system

Huub Ploegmakers

Nature-based solutions (NBSs) can play an important role in adaptation to climate change in river systems. River restoration, space for water, and other strategies to enhance the natural water storage capacity of river systems may play an important role in both drought and flood management. Differently from grey infrastructure, NBSs may also contribute to other agendas, such as nature development and biodiversity restoration. This paper presents the results of in-depth research on the implementation of NBSs within a cross-border river system, the Vechte-Dinkel river system shared by Germany and the Netherlands. Document analysis, in-depth interviews, and workshops revealed major challenges of coordination across (1) policy sectors,

such as water management, spatial planning, nature policy and agriculture, (2) levels of government, such as EU, national and regional governments, and (3) national borders. In the paper it is first shown how both institutional and discursive factors hinder the coordination needed for the implementation of NBSs in the Vechte-Dinkel river system. Institutional factors concern the differences in planning systems, planning cultures, procedures and accustomed practices. Discursive differences concern the different meanings given to (the role of nature in) climate change adaptation within Germany and the Netherlands. Secondly, it is shown how a selective group of policy entrepreneurs managed to overcome these differences and coordination issues by initiating pilot projects with NBSs, seizing windows of opportunity, using discursive strategies, building networks and generating financial resources for their implementation. By doing so they not only managed to set up pilot projects but also contributed to the internal growth of these pilots.

Fluvial ecosystems as triggers for the ecological project of reticularity

Angioletta Voghera

River systems naturally contribute to territorial valorisation through ecological continuity and reticularity. Developing policies and governance tools is however necessary to define ecological projects at the regional and local scales. Over the last 10 years, in France and Italy, many experimentations have been developed to strengthen the role of nature in cities and territories, enhance resilience and biodiversity, and meet United Nations Sustainable Development Goals (SDGs). On the one hand, Italy has developed methods and guidelines and implemented planning actions to encourage the development of rural and urban ecological networks (for example, in 2014, the Province of Turin approved the "Linee Guida per la Rete Ecologica" - Guidelines for the Ecological Network within the framework of the provincial plan). Meanwhile, other governance tools, such as the River Agreements, were promoted to guide the development of nature-based solutions (NBS). On the other hand, France has developed a set of strategies (called "Trames Vertes et Bleues"), through different levels of government and spatial scales to promote and valorise biodiversity, starting from the river landscape. Ecological valorisation occurs through ecological patterns (the "trame"), but, additionally, other methods exist to evaluate the ecological functionality of territories (for example, River Agreements are functional to valorise water quality). From this perspective, we aim to compare different models by highlighting positive and critical aspects and measuring their effectiveness in terms of ecological restoration. In addition, the paper discusses how governance tools, guidelines and planning actions may contribute to coordination across governance levels and territorial scales, thus overcoming these as possible implementation barriers.

Parallel Panel: The Future of Oceans

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.170 / Zoom

Chair(s):

Asli Calim

Presentations (including names of presenting authors):

A strive for effective ocean governance: managing institutional complexity through coordination

Matilda Petersson

Effective ocean governance is urgently needed to address shared policy problems such as overfishing, illegal, unregulated and unreported fishing, the destruction of marine habitats and loss of marine biodiversity. Ocean governance is characterized by a complex and highly fragmented institutional landscape, with multiple international organizations addressing interconnected issues, exhibiting 'functional overlaps' across mandates, objectives and members states. Concerns have been raised that increasing institutional complexity could affect the ability of international organizations to solve shared policy problems, as it may result in contradictory policy responses, which can contribute to legal inconsistency and limit compliance, cause inefficiencies and duplicated efforts, while boosting competition across international organizations over resources and mandates. There is a widespread assumption that coordination across international organizations with functional overlaps is important for fostering effective governance that can create synergies rather than trade-offs, for example by strengthening policy coherence, clarifying divisions of labor and making use of different sources of information, knowledge and expertise. However, few studies have systematically studied coordination efforts across multiple international organizations, and how it affects the ability of these organizations to address shared policy problems. Ocean governance - being highly complex and fragmented in nature, provides an appropriate case for exploring coordination efforts across international organizations with functional overlaps operating within the same broadly defined issue area while addressing multiple specific policy problems within that issue area. Specifically, this paper asks: how and when do international organization with functional overlaps coordinate their work, and what are the implications for their ability to address shared policy problems? The findings of this paper will contribute to ongoing debates in the literature on institutional complexity on institutional overlap, coordination and policy coherence, as well as to the literature on problem-solving capacity of international organizations.

Institutional Overlap and Interplay Management for Marine Environmental Governance in the Seas of East Asia: ASEAN, COBSEA and PEMSEA

Maruf Maruf

Conference Stream(s): *Justice and Allocation*
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

The marine environment and its biodiversity are currently being subjected to a large amount of pressure as a result of anthropogenic drivers such as climate change, ocean acidification, marine plastic, and marine noise. These significant stresses would indicate not only a dramatic shift in the marine environment but also a number of questions regarding the applicability of current instruments and how the existing institutions should respond to the complex marine environmental issues in the Anthropocene. This article looks into the existing variation of institutional architecture and their regulatory response for the protection of the marine environment and its marine biodiversity in the Sea of East Asia (SEA). It shows that a number of institutions and initiatives at the regional level have been established by Government in response to the need for the protection of the marine environment. As a result, this institutionalization gives rise to a multiplicity of regulations and policies, many of which are complex and overlap. Although the adoption of these institutions and initiatives appears to have a positive impact on the conservation of marine biodiversity, the implementation of several laws and policies adopted by these institutions is considered as one of the main gaps in the protection of the marine environment and biodiversity. This article explicitly examines three relevant institutions for the protection of the marine environment and its biodiversity in the SEA, including the Association of Southeast Asian Nations (ASEAN), the Coordinating Body on the Seas of East Asia (COBSEA) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). This study claims that there are various areas of overlap between the duties of these institutions in protecting the maritime environment and marine biodiversity in the EAS region. Therefore, managing the institutional overlap is essential to enhance the efficiency and accountability of the ASEAN, COBSEA and PEMSEA for the protection of the marine environment. In this respect, the concept of interplay management may help to enhance the efficiency and accountability of the institutions involved in the protection of the marine environment and its biodiversity in the SEA.

Who is governing marine plastic pollution?

Babet de Groot

The world ocean is a plastic soup. Approximately 8 Mt of land-based plastic enter the ocean each year, adding to a growing sink of mismanaged plastic waste estimated at 6300 million metric tons in 2016. Recent attention to the human and environmental health impacts of marine plastic pollution moved intergovernmental organisations, multinational corporations, and environmental non-governmental organisations to address this crisis. This has spurred the United Nations to enter into negotiations for a Global Plastics Treaty.

The transboundary and cross-jurisdictional nature of marine plastic pollution has made its governance insurmountably complex. While there is no integrated binding instrument for marine plastic pollution, it is affected by existing multilateral environmental agreements, regulatory standard-setting schemes, industry associations, advocacy campaigns, beach clean ups, and social-behavioural rules and norms. These institutions, and many others, govern marine debris. My PhD research aims to understand this evolving governance architecture in the light of a new international agreement on plastic pollution.

Conference Stream(s): Justice and Allocation
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

My PhD research employs interviews to conduct a social network analysis of the governance network for marine plastic pollution. I ask professionals working in public, private, and non-profit institutions at the national, regional, and international levels how they collaborate to address marine debris and whether this constitutes effective governance. I build on constructivist regime theory to contribute to the evolving literature on regime complexes and non-regimes. This lays the groundwork for research on how plastic is governed at the global level and provides original insights to help decision-makers cultivate institutional integration to address this tragedy of the commons.

Science-Policy-Industry Relations from Marine Laboratory Perspectives

Alice Vadrot

The protection of the marine environment depends on the availability of ocean data and functioning monitoring systems to support and measure the implementation of the global sustainability agenda and the UN Decade of Ocean Science for Sustainable Development. Although research has illustrated the need to integrate scientific, political and industrial efforts to increase the up-take of ocean science in decision-making, there is a lack of knowledge on how these relationships are formed in practice and how they already shape the monitoring of marine life.

By studying science-policy industry relations from the perspective of three marine biodiversity laboratories, this paper aims to advance our knowledge of the day-to-day practices and relations that underpin the co-production of knowledge on deep sea ecosystems. We conducted collaborative laboratory ethnography in Sao Paulo (Brazil), Brest (France) and San Diego (US) following a detailed field note taking guide and visual data collection to systematically observe the monitoring policies, practices and infrastructures in action and document the laboratory life in each of the three cases.

Our results illustrate close ties between marine science, policy and industry in each of the three laboratories, which we explain by overlapping monitoring interests in exploring, and exploiting marine resources and ecosystems. Yet, our results also indicate regional differences, which tend to be closely connected to 1) the research funding system of a country, 2) the scientific culture of the laboratory, 3) personal connections and ambitions, 4) marine resources and environmental conditions. We conclude by emphasising the need to consider laboratories and other spaces, where ocean science and knowledge is produced as transformative sites of global environmental agreement-making and power. This paper speaks to the general theme of the conference to bridge sciences and societies for sustainability transformations and analytical lens of adaptiveness and reflexivity.

Conference Stream(s): Justice and Allocation
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Governing urban transformation: Critical perspectives on experimentation and scaling

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.109 /

Chair(s):

Rachel Mary Macrorie

Linda Westman

Presentations (including names of presenting authors):

Bridging the old and the new: The role of transition intermediaries in facilitating urban experimentation and leveraging transformative change

Franziska Ehnert

Intermediaries act in the in-between world between the built-up of new and the break-down of old societal configurations to facilitate change and reconcile opposing world views. While there is a broad literature on experimentation to foster urban sustainability transitions, there is limited understanding of intermediaries acting as facilitators and translators in urban experimentation. By portraying intermediary roles within both niches and regimes, this empirical contribution seeks to elucidate and critically reflect on their role in urban experimentation. This serves to explore the politics and underlying normative assumptions, which shape and are revealed by experimentation. The question arises if experimentation does create spaces to mediate between competing political priorities and build consensus, or reproduces power struggles and dominant policy rationales.

The qualitative case study provides an empirical exploration of niche and regime intermediaries in local experimentation by analysing the transdisciplinary-transformative research project [Name of the project removed for anonymous review process]. The real-world laboratory created a space for experimentation with different forms of intermediation to develop new transformative governance approaches. The roles adopted by niche and regime intermediaries show the importance of combining change from below with change from above. Niche intermediaries acted more as visionaries, knowledge brokers and advocates of change, seeking to contribute to both reconfiguration and the scaling of experiments through knowledge transfer. By contrast, regime intermediaries have an ambivalent nature of acting within-and-beyond the regime. They acted more as guides and facilitators, creating a shared institutional infrastructure and coordinating local-level activities. Boundary concepts like co-creation were important to align different logics of action.

While the findings showed an enabling function of municipalities for experimentation and transformative change, they also exposed the power asymmetries between regime intermediaries and niche actors arising from expertise and process knowledge. Moreover, regime intermediaries

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Conference Stream(s): Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

relied on dynamic governance configurations even though they had an official mandate to promote transformative change. They lacked integration in strategic political priorities and therefore operated outside and in parallel to overarching policy or planning processes. The findings further reveal the challenge for experimentation to transform projectified urban governance settings instead of reproducing them. This matters for intermediaries because they require long-term stability and financial support in order to shape transitions effectively.

Time for a change? The chronopolitics of creating scalable shared mobility spaces in Munich and Barcelona

Manuel Jung

Urban experimentation promises to solve two problems at the same time: Producing urban laboratories for demonstrating imagined future arrangements of materiality and meaning (Engels et al. 2019) and shaping these places to lend credibility to the futures enacted within them (Gieryn 2006). Such experiments entail major social, material, and temporal reorderings under the mandate of creating scalable models. According to the linear logic of experimentation, if proven successful, these models will be scaled in space, time and structural dimensions (Sengers et al. 2021). Assuming technological and infrastructural changes could scale in synchronized ways with social routines and practices, this logic foregrounds a solutionist approach that falls short of accounting for local and deviating transformation pathways (Pfotenhauer et al. 2021). In our analysis, we explore two pilot experiments in Munich and Barcelona, in which policy makers and researchers set up shared mobility spaces together with the residents in two respective neighborhoods as explicitly scalable models for their city and beyond. We address four tensions resulting from the specific chronopolitics (Felt 2016) embedded within the process of establishing scalable experiments: projectification, incongruency of time frames, socio-material persistence, and acceleration. Our analysis examines how the shared mobility spaces as initially limited measures for a few years, created a rigid temporal structure linked to funding periods and legislative cycles that were inscribed in the experimental setup. The project-like nature created pressure to get started and succeed in time to demonstrate scalable models, despite the uncertainty about the long-term viability of the emerging infrastructures. Both projects' speeds stood in contrast to the already asynchronous rhythms and routines of society that were largely unaffected by the short-term interventions, destabilizing socio-material orders of the neighborhoods and causing significant initial protest. Only through iterative participation activities, inducing a long-term learning process for all involved actors, the resistance turned into majority support for the local transformations. In both cases, it was the citizens' initiatives that maintained the shared mobility spaces beyond the project periods. In the following years, the initial scaling intentions of both models have not materialized. Instead, scaling beyond the pilot interventions was only viable through varying the nature of the interventions to account for diverse actors and asynchronous processes that stabilized the transformation pathways. The paper highlights the importance of considering the locally embedded temporal politics of scalable urban interventions and the need for a more holistic, inclusive, and power-sensitive approach for responsible transformation governance.

Assessing resilience, equity, and sustainability of future visions across two urban scales

Marta Berbés-Blázquez

Cities need to take swift action to deal with the impacts of extreme climate events. The co-production of positive visions offers the potential to not only imagine but also intervene in guiding change towards more desirable urban futures. While participatory visioning continues to be used as a tool for urban planning, there needs to be a way of comparing and evaluating future visions so that they can inform decision-making. Traditional tools for comparison tend to favor quantitative modeling, which is limited in its ability to capture nuances or normative elements of visions. In this paper, we offer a qualitative method to assess the resilience, equity, and sustainability of future urban visions and demonstrate its use by applying it to 11 visions from Phoenix, AZ. The visions were co-produced at two different governance scales: five visions were created at the village (or borough) scale, and six visions were created at the regional (or metropolitan) scale. Our analysis reveals different emphases in the mechanisms present in the visions to advance resilience, sustainability, and equity. In particular, we note that regional future visions align with a green sustainability agenda, whereas village visions focus on social issues and emphasize equity-driven approaches. The visions have implications for future trajectories, and the priorities that manifest at the two scales speak of the political nature of visioning and the need to explore how these processes may interact in complementary, synergistic, or antagonistic ways.

From urban governance experimentation to transformative change: Reflections on urban labs, politics, and alternatives to scaling.

Michael Roll

Unless urban experimentation initiatives are embedded in local government processes from the very beginning, their effects often remain locally isolated and short-lived. How can this be changed? Together with local partners, the "Transformative Urban Coalitions" action-research project has facilitated the establishment of participatory multi-actor Urban Labs (UL) in five cities in Mexico (León and Naucalpan), Brazil (Recife and Teresina) and Argentina (Villa 20 in Buenos Aires) since 2021. While the ULs also develop local catalyst projects to showcase the potential of urban sustainability innovations, their focus is on establishing a new and complementary mode of collaborative urban governance. Using this governance mode, existing structural inequalities, local developmental priorities, and climate change mitigation and adaptation necessities should be dealt with in a more integrated way. Midway through the project (which runs until 2026), the ULs have now generated some interest by other cities as well as national and international actors. However, despite this welcome interest, a purely linear idea of "scaling" this governance approach seems inappropriate. One of the reasons is that – unlike many other types of ULs which focus on technical and material innovations – these Urban Governance Labs more directly address questions of politics, power, and inequality. Acknowledging that political changes are more difficult and more complex than technical changes, we are looking for an alternative to the concept of "scaling" and try to develop a less technical and more politically aware understanding for inspiring

other actors to learn from and experiment with this approach. Rather than assuming a linear process, the idea is to proceed in ways that systematically exploit temporal and structural windows of opportunity in a given context. This approach is strategic and opportunistic at the same time which is why instead of "scaling" it could be referred to as "strategic diffusion" or "strategic scattering". Some of the key features of this approach are that it is politically savvy, locally led, network driven, and highly adaptive. The paper will present this approach in more conceptual detail and will provide empirical illustrations from the five cities as input for a critical discussion.

Imagining Futurity in Global Cities: Analyzing Imagery of Climate Change and Sustainability in Cities

Devon Cantwell-Chavez

Images and aesthetic representation tell powerful stories about the ways international actors see themselves and want to be seen by their peers. In the case of climate change, we often see dystopian images of the threats and urgency facing our global community. However, when we look to the governance documents, particularly climate plans offered by cities globally, we see a radically different and almost hopeful narrative presented through stories and images. How do cities see the future of climate change and communicate those narratives to their residents and the global community at large? To understand the narratives cities construct about their own futurity in the face of climate, I engage in two interpretive content analysis methods -- patterning and narrative text analysis —to analyze the images and narratives presented by C40 member cities (n=95) through their Climate Action Plans (CAPs). I discuss the implications of how cities construct climate futures, considering issues of who is included (and excluded) through these narratives, how these narratives align or diverge from reality, and how these narratives and images of futurity impact global city engagement on climate governance around issues including environmental justice, equity, and urgency.

Parallel Panel: Markets, market instruments and just transition

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.112 / Zoom

Chair(s):

Dize Doğan

Presentations (including names of presenting authors):

Accelerating just transitions through subsidy reforms and carbon pricing: Evidence from a novel database

Daniele Malerba

Just transitions are at the centre of the global policy agenda, as recognised (implicitly and explicitly) in the Paris Agreement and the "Glasgow Climate Pact" from COP26. In a broader sense, just transitions reconcile two critical challenges that we face. The structural, transformative efforts needed to eliminate emissions and limit warming to 1.5 degrees Celsius could also underpin efforts to meet other Sustainable Development Goals, such as those focusing on reductions in poverty and inequality. Addressing both issues simultaneously is of instrumental significance to the goal of just transitions. In fact, not considering the social dimensions of climate policies might make it difficult to implement some emissions reduction measures due to their low social acceptability. Many reforms have already been blocked for these reasons in recent years; and research has found that fairness is the most important driver of public acceptability of climate policies. Therefore, paying attention to poverty and inequality reduction both strengthens the political economy and makes more ambitious climate policies possible. The current context and the focus on just transitions also offers opportunities, as climate change mitigation and improvements in social protection can go hand in hand. For example, ambitious climate action to substantially decrease carbon emissions until 2030, requires carbon pricing policies and fossil fuel subsidy reforms that create fiscal space. Such revenues could fund social protection programmes to support households with increased energy prices, thereby benefiting the just transition process.

A systematic analysis of social protection measures in climate policies is critical, as several governments plan carbon pricing and subsidy reforms to achieve climate targets. Particularly, vulnerable households require protection as well as promoting measures to deal with the impacts of climate mitigation and adaptation policies in the coming years. To increase the understanding of the underlying policy processes and political economy factors that influence the success of such climate policies and the role of social protection, we build a database that collects data on carbon pricing and fossil fuel subsidy reform cases. These reforms cases are identified through a systematic literature review and relevant datasets. For all reforms episodes, we collect process and context variables that influence the implementation. By means of statistical analysis, we aim

Conference Stream(s): Justice and Allocation
Architecture and Agency
Democracy and Power

to establish patterns in the use of social protection in carbon pricing and subsidy reforms, and how social protection policies depend on other political economy factors.

The role of external actors in the carbon pricing policy-making process in African countries

Charlotte Debeuf

In the last two decades, countries all over the world have implemented carbon pricing policies as part of their fight against climate change. In Africa, however, no such policy was adopted until South Africa started taxing greenhouse gas emissions in 2019. More recently though, an increasing number of African countries have decided to design carbon pricing policies. Be it a carbon tax or an emission trading scheme, Côte d'Ivoire, Senegal, Nigeria, Morocco, Malawi, Botswana, and Gabon are designing their carbon pricing policy at the moment.

Research has shown that in the agenda-setting phase as well as the policy design phase, external (f)actors have been involved. In fact, as of 2010, the decision of nations to pursue a carbon pricing policy was mainly the result of international factors such as climate commitments and external influence. Next, in the policy design phase, external actors, like multilateral organizations or development agencies, are often involved by offering technical support or capacity development activities. Through these kinds of supporting activities, they can play an important role in the policy-making process by accelerating or delaying policy change. Against this background, the following question arises: which actors are engaged in the carbon pricing policy-making process, how and why do they get involved?

This paper looks at the domestic, regional, and international actors that are active in the field of carbon pricing in the abovementioned countries, uncovers the nature of their activities, and explains their motivations to act this way. Based on a document analysis as well as interviews, the analysis provides a mapping of all the actors and will explain their linkages and relationships. By doing so, this study contributes to the understanding of climate policy-making in African countries and the role of external involvement.

Extractive Accumulation And Critical Minerals: Governance, Resistance & Production

Lian Sinclair

We are currently witnessing a boom in mineral extraction driven by exploding demand for green technologies. Rare earth elements, lithium, cobalt, tungsten, nickel and other 'critical minerals' are essential components for batteries, magnets and electronic components that enable electric vehicles, renewable energy and advanced devices. Given their urgent role in addressing climate change, critical mineral extraction benefits from an assumed level of legitimacy compared to fossil fuels. Can the ethical legitimacy of critical minerals translate into stronger environmental and social conditions around extraction? Or will the climate imperative trump other ethical concerns? The answer to these questions depends on the balance of economic and political power of

Conference Stream(s): Justice and Allocation
Architecture and Agency
Democracy and Power

corporations, consumers, states and communities within governance regimes and global production networks.

Powerful actors – from multinational corporations, to powerful politicians – are harnessing the renewed extractivist drive to pursue their pre-existing interests in profitability and development. Extractive accumulation is the collection of strategies and relationships at local, national and global scales that enable corporations to first secure natural resources and then profit from their extraction. That initial acquisition of resources (resource grabbing) necessitates the dispossession of someone else, generating rapid changes in existing political, social and economic relations. These changes and their resultant conflicts are driving the creation of new governance standards and associations like the Institute for Responsible Mining Assurance and the World Economic Forum's Global Battery Alliance.

This paper reviews global social and environmental conflicts over the extraction of critical minerals before analysing emerging global governance standards. Like governance mechanisms in extractive industries more broadly, these establish standards for participation of affected communities and civil society at various sites and scales. What is new about the governance of critical minerals is mechanisms that bring together actors operating along global production networks from mine site to consumer, potentially giving lead firms more control over the conditions of extraction.

Climate Justice in the Age of Carbon Markets: A Critical Case Study of Neoliberal Climate Governance in India

Tamminaina Sunil

Market-based instruments have long become the central elements of international response to climate change, with the United Nations Framework Convention on Climate Change (UNFCCC) process facilitating the constant expansion of carbon markets, both in their geographical and sectoral scope. Apart from a brief resistance during the initial years of conceptualising these market-based solutions within the UNFCCC process, there has been broad—and enthusiastic— support from many governments of the global South to these mechanisms, including from some of those which have traditionally been flag-bearers of climate justice at the international stage. This lies in contrast to the vibrant climate justice movement from the ground up, which remains heavily critical of resorting to carbon markets for any kind of climate action. They point out how carbon markets only serve to compound the climate crisis by postponing the much-needed emission reductions at source far into the future and deepen carbon colonialism as well as potentially leading to loss of control for the local communities on their natural resources like forests. With the announcement of plans in 2022 to set up a national carbon market by the Indian government, these issues gain even more significance for the future trajectory of climate politics in the global South.

This paper seeks to interrogate the contestations between the notions of climate justice vis-à-vis the market-based mechanisms between States in the global South, taking the case of India, and

Conference Stream(s): Justice and Allocation
Architecture and Agency
Democracy and Power

those of grassroots climate justice advocates. Tracing the evolution of the domestic policy in India related to market mechanisms, including the state-level initiatives within the country to set up carbon markets along with the negotiating stance(s) of the country on the international stage over time, this paper critically examines the climate governance architecture anchored in the neoliberal free market economic framework. The paper highlights how the postcolonial elites in India have partaken in furthering the process of commodification of nature for the greater appropriation of carbon wealth, which promotes their consolidation of power. Finally, the implications for notions of climate justice and democracy in the global South due to these neoliberal climate change policies are discussed in this paper.

Power dynamics in transnational climate finance governance: the power of the Task Force on Climate-related Financial Disclosures for green capitalism?

Hyeyoon Park

In recent years, the complex system of international institutions addressing the role of finance in climate change mitigation and adaptation has grown exponentially. New transnational governance networks are created, and International Organizations (IO) launch new frameworks and initiatives each year. Particularly the G20-initiated Task Force on Climate-related Financial Disclosures (TCFD) has become dominantly influential over other climate finance governance initiatives led by different IOs, such as the UNEP Financial Initiative. The TCFD, chaired by Michael Bloomberg, provides climate-related financial disclosure recommendations to decarbonize financial assets. Many old and new transnational networks adopt or integrate the TCFD rules into their governance mechanisms. What makes the TCFD an influential agent in the current global climate governance architecture? This paper explores what constitutes the power of the TCFD, drawing on Barnett and Duvall's different concepts of power. Of note, the TCFD emphasizes climate's impact on business actors instead of companies' impact on society and nature (i.e., focusing on single-materiality over double-materiality). This characteristic seemingly represents business interests that could reinforce power asymmetries among actors that damage the legitimacy of global climate finance governance. Therefore, understanding the power of the TCFD is important for addressing the power inequalities in global climate finance governance that hinder just sustainability transformations. Based on qualitative document analysis, surveys, and expert interviews, we investigate forty transnational climate finance networks that have adopted the TCFD rules and examine what perceptions, interests, and institutional settings trigger their TCFD rule-taking and increase the TCFD's influence among various governance institutions. This issue resonates with the power-related questions of the second conference stream: democracy and power for sustainable transformations.

Conference Stream(s): Justice and Allocation
Architecture and Agency
Democracy and Power

Parallel Panel: The power of data and digitalization amidst environmental emergencies

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.116

Chair(s):

Gus Greenstein

Presentations (including names of presenting authors):

Understanding Environmental Issue Framing through the Lens of TikTok

Viola Jasmine Provost

When TikTok launched in 2018, it became one of the world's most downloaded apps and fastest-growing social media platforms. What began as an online space for dance and lip-syncing videos has now developed a large community of eco-influencers conscious of the environment and sustainability. Between March 2021 and 2022, the number of views on environmental content six folded, with the trend continuing. Videos revolve around three main trends: sustainable lifestyles, environmental awareness, and waste clean-up. Notwithstanding TikTok's rise as a means of environmental communication, there is a gap in our understanding of how environmental issues are framed and disseminated on the platform. The objective of this study is to explore how TikTok is used by activists to address two urgent environmental issues: plastic pollution and deforestation. Drawing on an original dataset containing the top 250 English-language videos tagged with the hashtags #plasticpollution and #deforestation, I conduct a quantitative content analysis using predetermined content characteristics and a qualitative inductive thematic analysis to explore how these environmental problems are framed and presented. The key dimensions I explore are: the problem definition, possible solutions, responsibility attributions, future vision, communication approach, and justice considerations. The insights of this research expand existing environmental-communication scholarship, focusing on the context of social media, and allows us to comprehend how the next generation navigates complex global developments. Given the substantial influence of this platform on public opinion and the ability to bridge science and society for sustainable change, this study has significant implications for environmental governance.

Tale of Digital Activism: Exploring Narratives of Palm Oil on Social Media

Muh Syukron

As the oil palm plantations continue to develop in a resource-dependent country like Indonesia, the current debate is focused on building a sustainable business practice in the palm oil industry due to the environmental destruction the industry has caused. With the proliferation of ICTs and social media, digital activism has gained traction to facilitate environmental movement through 'clicktivism.' Social media users have employed this medium to advocate more sustainable

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Conference Stream(s): Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

management in palm oil. However, there is a dearth in the literature documenting different narratives on and providing evidence of the critical roles of digital activism in changing business practices, especially in Twitter targeting palm oil. Thus, this research sets out to explore different narratives of social media users participating in an environmental campaign on Twitter concerning palm oil. Grounded in a qualitative approach, this study employed a textual analysis by analyzing 5,000 Tweets in 2022 through NVivo. The results of this study map out characteristics of different narratives perceived by social media users in palm oil-producing countries and consuming nations under sustainability themes related to environmental, economic, and social issues. This study contributes to understanding the debates about whether 'clicktivism' provides an alternative to traditional forms of environmental movements. Besides, it provides insights into ways businesses should promote more ethical management practices from production and consumption perspectives and workable interventions to promote sustainable practices in palm oil.

Building Trust in Digital Democratic Innovations (DDI) for Participatory Urban Governance: Evidence from the Northern Netherlands

Karsten Schulz

DDIs are digital tools and mechanisms aimed at promoting inclusive citizen participation in political processes. Digital participatory budgeting, where citizens are taking part in decisions about the allocation of public funds, is one prominent example of DDIs. However, empirical evidence regarding the relationship between political trust and DDIs remains ambiguous. Citizens who are generally distrustful towards representative democracy are also likely to distrust institutionalized participatory mechanisms based on complex digital systems. Consequently, it has been argued by some observers that DDIs need to be designed and applied in such a way that they are able to generate trust from both citizens and decision makers alike.

But what are some of the pitfalls for the design and implementation of responsible and trustworthy DDIs? Are such participatory tools simply based on the uncritical 'fetishization' of novelty and techno-solutionism? To address these pertinent questions, this paper reviews the findings of the transdisciplinary research project 'Deepening Digital Democracy' (3D). The ongoing 3D project conducts research on DDIs in the north of the Netherlands, in collaboration with the Municipality of Groningen, a successful implementer of DDIs. Initial findings from an interactive workshop with Municipal experts on digital services illustrate that DDIs can be useful mechanisms to enhance knowledge exchange and trust among citizens and decision makers. Yet, the study also highlights several limitations for the use of DDIs, such as their limited scalability, existing digital divides, political apathy and time requirements, as well as entrenched polarizations and power relations in urban governance systems.

The Power and Agency of Data in Global Climate Governance

Laura Mai

The conversion of real-world phenomena into data for processing and analysis is generally regarded as a technical, a-political and universal mode of governing in climate crisis. The emerging

reliance on sophisticated surveillance technologies and advanced data processing methods in global climate governance, however, raises urgent questions about the power and agency of data. Examples include global climate databases, such as the UNFCCC's Global Climate Action Portal; transnational data-collection efforts, for instance through cross-border alliances like the Covenant of Mayors; satellite-based emission monitoring systems, such as Climate TRACE; or platforms which have begun to explore the potential of machine learning, such as AI for the Planet. Mobilising data, and related data collection and processing technologies, each of these initiatives produces climate change as a particular governance problem. Adopting a critical perspective, this paper explores how data are mobilised in such efforts to render the climate governable: Which presuppositions make data-driven climate governance possible? How are data produced? What are the motives and means for feeding data into governance processes? And who and what do data (dis)empower? Approaching these questions, the paper offers a cross-disciplinary literature review spanning international relations, critical data studies, human geography and socio-legal scholarship. As a first step in developing a larger collaborative research project, the literature review foregrounds the social, cultural and legal dimensions of data use in global climate governance. Our aim is to explore in which ways data-driven governance may solidify existing hierarchies and problematic dynamics of in- and exclusion, and how it risks reinscribing technocratic assumptions about what it means to govern climate crisis.

Innovative Session: Play, imagination and unmaking unsustainable systems

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.120

Chair(s): Joost Vervoort

Play, imagination and unmaking unsustainable systems

This innovative session will bring together activists, game designers, creative practitioners and researchers to discuss how play and imagination can be mobilized to help unmake unsustainable societal systems. There is a widespread interest in playful and imaginative practices as a way to break out of current destructive systems. However, much of this interest in the sustainability space focuses on projects with a didactic, placid framing that do not challenge the status quo in meaningful ways. Cutting edge research in sustainability transformations clearly shows that the unmaking of many societal systems is urgent - and this includes disrupting existing power dynamics. Creative and playful practices have an important role to play in 'symbolic unmaking' The NWO Vidi project Anticiplay, the Horizon 2020 project CreaTures, and the CUCO project Playing with the Trouble have been investigating different ways in which playful and creative practices can challenge and subvert existing systems. This session will invite ESG researchers to meet with activists and game designers to learn about the potential of symbolic unmaking through play and imagination. This session will be organized as follows: 1) an introductory presentation by the session host, Joost Vervoort, on the state of the art of theory and practice around play, imagination and symbolic unmaking, plus discussion (45 minutes). 2) a showcase of different playful and imaginative practices that attendees will be able to try out (60 minutes). 3) a discussion between participants about future possibilities of exchange between activists, game designers/creative practitioners and researchers on this agenda (30 minutes)

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Innovative Session: Transdisciplinarity and the paradox of two ESGs: Co-option, Collision or collaboration?

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.125 / Zoom

Chair(s): Joanna Stanberry

Presenters: Janis Balda, Satesh Bidaisee, Peter Case, Eleftheria Egel, Hugo Gaggiotti

Transdisciplinarity and the paradox of two ESGs: Co-option, Collision or collaboration?

There currently exists a paradox between Earth System Governance (as perceived by scientists, intergovernmental organisations and civil society) and "Environmental Social and Corporate Governance" (as perceived by businesses as the en vogue reporting mechanism and investment strategy for sustainability). A discursive analysis demonstrates that concepts like stakeholders, inclusiveness, social responsibility, environment, and innovation take on dissimilar meanings in both theory and practice though both consider how risks and opportunities related to the environment and society are managed.

This innovative session engages with a reflexive transdisciplinary coproductive process directed at podcasting. Between proposal acceptance and the conference, the scholar-practitioners will engage in questioning and reflection, producing creative responses that are introduced in podcast segments. Portions of the resulting podcasts and our learnings will be shared during two innovative sessions of 4-5 presenters who engage participants in a reflective process to create participatory spaces across differences to coproduce new practices.

The contributors will draw on extensive experience in transdisciplinary research that employs participatory methods to ensure that outcomes of research inquiry and engagement are inclusive, equitable, and actionable. The innovative approaches introduced and debated will challenge assumptions regarding ontological divides between 'research' and 'practice', 'the social' and 'the material', 'hard science' and 'social science'.

As scholar-practitioners working at different scales and across disciplines and regions towards the post-2015 development agenda, we ask how experiences from practice and related research might inform an Earth System Governance that more effectively engages business in transdisciplinary approaches and corporate governance that redefines opportunity.

To that end we ask: What knowledge and consciousness of the self is needed to challenge assumptions about "leadership" that have added to the divide among social and ecological systems and bridge the operative settings - corporate, political, organisational - to advance Earth System Governance?

Conference Stream(s): Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Governing Sustainable Development

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR -1.075

Chair(s):

Eszter Szedlacsek

Presentations (including names of presenting authors):

Exploring research frontiers on the governance of the Sustainable Development Goals

Thomas Hickmann

The SDG Impact Assessment published in 2022 has shown that the political impact of the Sustainable Development Goals (SDGs) has so far largely been discursive, while the 17 goals also had some normative and institutional effects. Yet overall, there is only limited transformative force. The goals are incrementally moving political processes forward, with much variation among countries, sectors and across levels of governance. This suggests that scholars and policymakers alike need to adapt their expectations regarding the 2030 Agenda and the SDGs and more efforts have to be taken to further embed the SDGs into practice. The incremental change detected in the SDG Impact Assessment indicates that it takes time until globally agreed policy goals and norms lead to tangible effects on the ground. This paper explores the questions of where and how such incremental change is taking place, and under what conditions these developments generate and accelerate the ongoing sustainability transformation up to 2030 and beyond. The paper builds upon a web-based expert survey directed to the ESG Project community as well as discussions within the SDG Taskforce that took place from 2020 to 2022. We zoom into five areas where some effects of the SDGs are observable and point to both enabling and constraining factors of SDG implementation: (1) High-Level Political Forum on Sustainable Development, (2) national policy integration, (3) sub-national initiatives for goal implementation, (4) partnerships for the SDGs, and (5) education and learning for sustainable development. In a nutshell, this scoping paper aims to refine our conceptual approaches to governance by global goal-setting and provides novel empirical insights on ongoing efforts to achieve the SDGs.

How to approach societal impact in a heterogenous world: conceptualizing the role of context in research uptake decision-making for sustainable development

Danick T. Trouwloon

Academic and societal actors alike are seeking to optimize the ways in which scientific research may contribute to sustainable development, for which a diverse range of research uptake strategies have been developed. Yet, while the literature emphasizes that the appropriateness of research uptake strategies depends on the context in which they are applied, determining which

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Other

strategy to apply given a specific context remains challenging due to the lack of explicit conceptualization of the role of context for research uptake. In this paper, we conceptualize appropriate research uptake strategies to be those that align with the research and societal sustainability contexts in which they are applied and account for dynamics between these two contexts, enabling us to identify five contextual dimensions which we propose shape the appropriateness of research uptake strategies. With the aim of supporting the design of more appropriate research uptake strategies in a wide range of contexts, we then build on this conceptualization to offer an application-oriented typology distinguishing between four broad research uptake approaches: the knowledge transfer approach; the commissioned research approach; the direct engagement approach; and the co-production approach. The typology matches each approach to the dynamic research and societal sustainability contexts in which it is most likely to be appropriate, while accommodating nuanced understandings of how researchers may approach uptake given different contexts and aiming at parsimony. In this way, we take a first step towards conceptualizing the role of context in research uptake decision-making, thereby empowering researchers to design more appropriate research uptake strategies.

Reflexive Regulations: Can Legislative Instruments on Sustainable Development Play a Facilitative Role in the Institutionalization of SDGs?

Tarek Katramiz

Adjustments to legislative and regulatory frameworks that align national policies, plans, and programs with the United Nations' Sustainable Development Goals (SDGs) can play a critical role in the achievement of the agenda. Legal instruments provide the foundation for creating, implementing, and enforcing laws and regulations that support the attainment of the SDGs. This paper argues that regulations can facilitate actions to contribute to SDGs by setting clear goals and targets to guide government action and monitoring and protecting the rights of individuals, communities, and the environment.

This paper examines recent legal instruments of three countries; Belgium's Act on the Coordination of Sustainable Development, Canada's Federal Sustainable Development Act, and South Korea's Basic Law on Sustainable Development, to critically evaluate their readiness in promoting and delivering global goals through legal means. The study provides a comprehensive analysis of these instruments, reviewing their roles and legal framework in light of the various policy, institutional, and legal mechanisms relevant to the SDGs used by these countries.

The preliminary findings suggest that innovative and comprehensive legislative measures that directly address governance issues of sustainable development can establish concrete duties for relevant stakeholders, including the government and private sectors, to integrate the SDGs in their actions and planning. Furthermore, these legislative instruments can facilitate, rather than restrict, positive activities and interventions in SDG implementation, and establish accountability mechanisms to ensure that governments, businesses, and other stakeholders are held responsible for their impact on sustainable development.

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Other

Overall, this study emphasizes the importance of using a range of legal mechanisms to drive the necessary changes for the successful implementation of the SDGs. By aligning national policies, plans, and programs with the SDGs through comprehensive legal instruments, governments can prioritize the SDGs and ensure that the necessary changes are implemented to achieve them.

The Evolution of Macro-Institutional Coherence in Global Sustainable Development Governance

Steven Bernstein

The Sustainable Development Goals (SDGs) are the most ambitious attempt to integrate environmental, economic and social dimensions of global policy and promote greater institutional coherence across the international system. As such, governments, international organizations and stakeholders have identified coherence as crucial to address these challenges. However, they are not the first attempt to promote macro coherence internationally in global sustainable development governance. The meanings of, and arrangements to support, coherence have evolved significantly, as have the impacts and consequences of those efforts. This paper will examine the normative, political and institutional context and evolution of these efforts to understand how these meanings and arrangements have changed over time, and with what implications for which norms, values, and policy framings become dominant. Specifically, we examine three cases: 1) The largely failed 1994 WTO "Coherence Mandate" to promote macroeconomic coherence, and its evolution toward attempts to integrate developing countries into the multilateral trade regime; 2) the 1992 UN Conference on Environment and Development, which brought together environment and development agendas; and 3) the 2030 Agenda for Sustainable Development centered on the SDGs. The main method is a normative/discourse analysis of the "content" of these initiatives as well as those of relevant international institutions where the meaning of coherence has been debated and contested (e.g., UNGA, ECOSOC, WTO, UNCTAD, UNDP, OECD, World Bank). We will analyze primary hard and soft law documents, calls for coherence, and policy statements, declarations, reports, and initiatives of relevant international institutions. This information may be supplemented by interview data of those involved in these processes. The analysis will establish the normative dimension or "social purposes" of coherence policies and initiatives since the early 1990s. The paper is part of a larger project that aims to explain these repeated attempts to build macro-level coherence in sustainable development over the last 30 years, their consequences for policies and institutional arrangements, and their positive and negative effects on rules, resources, governance practices, and policies among international institutions and transnational actors expected to pursue these mandates.

Leaving some behind? An analysis of Brazilian subnational actors' SDGs Voluntary Local Reviews

Rodrigo Führ

Analyses of efforts being placed on the localization of Sustainable Development Goals (SDGs) have been a rich and fast-growing research agenda. Within Earth System Governance, this has often

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Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Other

taken the place of understanding how subnational actors have been implementing the SDGs under the influence of the global goals' steering effects. Among the array of agendas, research has been conducted on evaluating the multi-level governance architecture, its fragmentation and effectiveness; the variables influencing subnational implementation, especially seeing how power and authority shift patterns of localization; which actors and themes are most likely mobilized and which goals are perceived as a priority; and which effects can be perceived, and to what degree, within the different dimensions in which the global goals are implemented (e.g., discursive, institutional, and normative). However, this body of literature still could be complemented by more study cases from the Global South, especially if we are to interrogate how the SDGs localization is affected by the presence of historical and structural inequalities, and how its indivisible and universal agenda is translated in a local scenario. This paper aims to contribute to this task by analyzing Brazilian subnational actors' SDGs Voluntary Local Reviews. Brazil presents a relevant study case since its federal government shifted its instance around SDGs after the beginning of the SDG implementation, leaving local governments to act more independently within different contexts and governance architecture. Moreover, civil society and academia have remained actively engaging with the SDGs agenda at the local and national levels. Thus, examining how the SDGs implementation process took place in different local contexts in Brazil may show some light on SDGs steering effects in the Global South, as perceived and publicized by the subnational governments themselves. Via qualitative content analysis and codification, we suggest that subnational actors in Brazil have mobilized the SDGs as a powerful social narrative to implement actions regarding climate change and poverty alleviation, but that these are somewhat limited still since these novel discourse framing mainly aims to put already existing projects under a distinct discursive schema. While this leads to a moderate effect, we conclude that within Brazilian local politics, the discursive framing around SDGs opens a venue that still could be fostered, leading subnational actors towards the aspirational objective of the global goals initiative

Parallel Panel: Mitigating climate change

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.136

Chair(s):

Thais Ribeiro

Presentations (including names of presenting authors):

Addressing Disparities: Carbon Removal Projects in Central America

Cintya Berenice Molina Rodríguez

Eight years after the Paris Agreement, non-Annex I countries face some gaps for the continuity of the mitigation mechanisms. One of the most challenging is ensuring sufficient financing for emission absorption projects. Thus, these nations meet with an additional difficulty for setting up the adequate machinery and receiving the necessary technology for fulfilling their emission goals. In this sense, it is worth asking how small developing countries, such as those in Central America, would address these challenges while striving to meet their emission goals. Hence, can the new mechanisms address the unfulfilled promises of the Clean Development Mechanism of providing a reliable source of finance and technology transfer?

This paper will discuss the operation of carbon removal projects in Central America. These projects are as an essential pillar of their contribution to the fight against climate change. It analyses the contribution of climate governance in the advancement and implementation of these projects. It explores the extent to which intergovernmental and transnational institutions have exploited the potential of climate governance to address the obstacles and challenges related to the absorption of greenhouse gas emissions. Also, it reveals serious knowledge disparities among agents: government officials, entrepreneurs and scholars have little to no information about domestic carbon removal projects. Instead, organizations such as the IPCC have sufficient expertise, but offer almost no guidance to domestic agents. This results in poor interest on investing in carbon removal projects and in a steep path to accomplish the emission goals for these nations.

The research will be carried out as an extension of my doctoral research. It will be based on a detailed investigation on carbon removal project in Central America. Interviews with relevant actors have been conducted. The project will focus explicitly on the interaction between local institutions and international support mechanisms.

Countries' climate mitigation performance: Exploring the links between the ambition of NDC targets and effective national implementation

Paula Castro

Meeting the Paris Agreement's global temperature goal requires countries to both propose ambitious mitigation targets under their Nationally Determined Contributions (NDCs), and to implement the necessary laws, policies, and measures at the domestic level to meet those targets.

Conference Stream(s): Architecture and Agency
Democracy and Power

In this paper, we propose a conceptualization of countries' climate mitigation policy performance that disentangles these two dimensions – ambition with respect to the global temperature goal, and alignment with national policies and measures –, considering both as complementary and necessary to reach the Paris Agreements' goals. Combining the ambition and alignment dimensions leads to four country categories: those having both ambitious targets and strong national policies are regarded as real climate leaders, while countries with unambitious NDCs and insufficient policies can be considered the laggards. Two further categories are the careful countries with unambitious targets but strong national policies, and the performative countries with ambitious targets but insufficient policies.

We use existing measures of NDC ambition as well as a newly developed climate harmonization index to identify typical countries in these four categories. Preliminary results suggest that the USA is a laggard country, with an unambitious NDC and insufficient national mitigation policies; Brazil, the EU and Singapore are careful ones, with rather unambitious NDCs but middle to strong mitigation policies; Peru has an average performance in both NDC ambition and national mitigation policies; Bangladesh and Indonesia are among the performative countries with middle to high ambition but weak mitigation policies; and Ethiopia appears among the few real leader countries, with an ambitious NDC and middle to strong mitigation policies. Using qualitative methods on selected case studies, we explore potential explanations for their classification, beyond the traditional interest-based and capacity drivers, including countries' democratic and institutional quality, domestic political orientation, level of engagement in the polycentric climate governance system, targeting of climate finance, among others. We expect that particularly small and vulnerable countries with low capacity but strong interest in mitigation may profit from a stronger engagement with international and transnational climate governance initiatives and from larger finance flows, resulting in more ambitious NDCs and stronger domestic policy frameworks.

Exploring the link between climate policy narratives and institutions in a comparative case study analysis

Alexandra Buylova

Growing focus on target-setting in climate governance inevitably leads to the development of pathways on how best to reach these targets. For example, in some countries, this has resulted in the establishment of climate-specific domestic institutions, such as climate expert councils. While some research has paid attention to the formation of state-level climate institutional mechanisms, there is a lack of understanding of the link between different climate policy narratives and types of institutions that arise as a result. In other words, do certain climate policy narratives about pathways to decarbonization influence the emergence and composition of institutional arrangements? Previous research argues that states with low political polarization where mitigation is present as a dominant climate narrative are most likely to create the conditions for new purpose-built institutions to strategically achieve mitigation objectives, while in states with narratives that embed mitigation within other pressing domestic goals and with higher political polarization, climate action is more likely to occur at random through sectoral changes. In this study, we draw on these arguments, but expand on the typology of climate narratives and

investigate if and how they influence the characteristics of climate-focused institutions. As types of climate policy narratives we consider apolitical and technocratic framing vs a need for transformation of mainstream policy institutions; mitigation and adaptation as comparable with economic growth vs narratives of degrowth and a-growth. Inspired by recent studies that draw attention to the importance of climate institutions, we look at countries that have established separate climate policy institutions (e.g. UK, Germany, Sweden, and South Africa) and assess how domestic climate policy narratives influence institutional arrangements. We argue for a broader typology of decarbonization pathways and explore institutional consequences associated with them. As a part of the puzzle, we also consider how new climate institutions may, in their turn, influence domestic climate policy narratives. When we are better able to understand the link between climate policy narratives and institutions, we will be better equipped to design institutions that are capable of guiding societal transformations to sustainable living.

Community renewable energy (CRE) initiatives: democratically legitimate agents in governing the energy transition?

Nenya Willemine Roeline Jochemsen

It is crucial that the energy transition enfolds democratically, in order to increase the legitimacy of the transition and its outcomes. Practitioners and scholars increasingly point to community renewable energy (CRE) initiatives as legitimate agents in governing a democratic energy transition. In an attempt to fill the empirical knowledge gap on the often-assumed democratic legitimacy of CRE initiatives, we conduct an analysis of how and to what extent democratic legitimacy is being pursued and met by community renewable energy initiatives in their governance of energy generation projects.

We developed an analytical framework based on literature on energy democracy and democratic legitimacy, which we applied to governance practices of CRE initiatives in the city of Utrecht, The Netherlands. In a comparative case study containing four different CRE initiatives, varying in their energy source and maturity, data was primarily collected by means of interviews and document analysis. Triangulation of data sources and methods allowed an in-depth assessment of the pursuit and success of CRE initiatives in meeting democratic principles, nuanced by analytical considerations of different project stages.

Results show that CRE initiatives are democratically legitimate to a moderate to extensive degree, with transparency as a core principle. However, significant differences between principles and initiatives exist, so the assumption that CRE initiatives are by definition democratically legitimate is proved incorrect. Trade-offs are being made by decision-makers in CRE initiatives, pressured by resource limitations and based on the perceived importance of certain principles, varying per initiative. Four factors that influenced differences in democratic legitimacy between initiatives included the maturity of the initiative, the pursued energy source, the complexity of the local stakeholder arena and location-specific practicalities.

Future research could further investigate the influence of local stakeholders on the democratic legitimacy of CRE practices, while making use of our stage-specific results. By doing so, it could add a 'good governance' layer to strategic niche management in the CRE sector and safeguard democratic legitimacy in the stimulation and facilitation of initiatives' upscaling. CRE initiators are recommended to discuss a collective perception of democratic legitimacy with participants and stakeholders, and to deploy their partnerships for sharing expertise. Policy makers are recommended to consider the democratic strengths and deficits of CRE initiatives in the support they provide. These considerations are necessary to steer the ongoing energy transition in a democratic and legitimate way.

Parallel Panel: The 100 Resilient Cities Initiative, a Natural Experiment in Sustainability Governance

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR -1.070

Chair(s):

Matthew Hoffmann

Michele Betsill

Chris Gore

Sarah Sharma

Discussant(s):

Harriet Bulkeley

Session Overview: The 100 Resilient Cities Initiative, a Natural Experiment in Sustainability Governance

In 2013, the Rockefeller Foundation created 100 Resilient Cities (100 RC), a transnational sustainability initiative that engaged cities all over the world and sought to change how cities think about and pursue resilience. In July 2019, the Rockefeller Foundation abruptly shut down the program. The emergence and subsequent termination of 100 RC afford a unique opportunity to observe the impact of a transnational municipal governance initiative after it stops actively functioning and examine the potential for a philanthropically driven initiative to generate transformation. This panel session shares early results from a major research project that is exploring the philanthropic influence on transnational municipal networks, the relationship between 'urban resilience' and the climate and justice/equity efforts that cities are undertaking, and the broader question of transformation through transnational urban action. Papers for the panel provide insights on the methodology and functioning of a collaborative, multi-institutional research team, initial findings on the research undertaken, and questions that will be driving the remainder of the project.

Presentations (including names of presenting authors):

Researching a Natural Experiment in Urban Resilience Governance

Matthew Hoffmann

This paper provides an overview of the logistical, methodological, and theoretical aspects of the overall project. The project is grounded by two overarching research questions surrounding the impact of the 100 RC. First, how did the 100 RC network influence how member cities understood and pursued resilience? We are interested in understanding whether and how 100 RC-led resilience efforts connected to climate action and efforts around equity and justice at the urban scale. Second, how has the 100 RC impact been felt in the aftermath of initiative's termination?

Conference Stream(s): *Architecture and Agency*

Here we are especially interested in exploring whether and how member cities' trajectories were fundamentally altered as well as the way that the 100 RC initiative influenced the ecosystem of transnational urban sustainability networks. The paper will discuss the development of these research questions as well as the methodological choices and challenges involved in pursuing them, especially how to measure post-initiative impact. This will provide a solid foundation and introduction to the project and the substantive findings discussed in the other papers on the panel. The paper will close with a reflection on 'doing' research in a multi-institutional setting with a project team that consists of professors, a post-doc, graduate students, and undergraduates, with an advisory board of practitioners. We will discuss how we're trying to make this multi-level research team work in a way that provides benefits for all.

Building the field of 'urban resilience': The Rockefeller Foundation and 100 Resilient Cities

Emma Lacavalier

The agency of private philanthropies in global environmental governance is under-examined, though existing research findings points to their role as 'field builders'. This entails bringing together ideas, policies, actors, networks, and organizations into a new governance arena focused on a particular issue. However, the concept of field-building contains a paradox: in creating a novel political and organizational space, emerging fields are in a sense a 'legitimacy' vacuum, not yet structured around particular relations or discourses. How, then, do philanthropies come to have the legitimacy to build new issue fields? In this paper, we examine the Rockefeller Foundation and its 100 Resilient Cities (100RC) initiative. By forging new networks of relations among cities, as well as between cites and a range of 'partners', and constructing a new conceptual language around urban resilience, these actors helped shape creation of the field of urban resilience. Through interviews and document analysis, we identify four key sources of perceived legitimacy through which the Rockefeller Foundation and 100RC were able to contribute to in field building: capital (output legitimacy), cognitive "fit" (cognitive legitimacy), partnerships (throughput and output legitimacy), and expertise (output legitimacy). Existing research emphasizes the importance of foundations' financial self-sufficiency, arguing that it enables them to act with high degrees of autonomy, an almost 'hyper-agency' (Jung and Harrow 2015). However, the findings of our analysis contrast with these accounts. External actors were tapped for technical expertise (namely consultancies like Arup); norms of new public management were followed in crafting a strategic approach to resilience; associations with rational-legal authorities (World Bank) were forged, and cities with global reputations as pioneers were selected as grantees. Rather than displaying a hyperagency, the sources of legitimacy which the Rockefeller Foundation and 100RC drew on in building the field of resilience were highly relational. Analytically, the findings of this paper refine our understandings of philanthropic actors in global governance, highlighting how their agency can take on hybrid- rather than hyper- forms as they develop their legitimacy to build new fields of governance.

The Impact of the 100 RC I: How Cities Understood and Pursued Resilience

Marlene Terstiege

This paper explores whether and how the 100 RC initiative influenced the ways member cities understood and pursued resilience. It begins with an analysis of all urban resilience plans that the

initiative mandated from cities as a criteria for membership. It then examines how this mandate was operationalized by assessing how 100 RC members expressed their understanding of resilience in in developed policy action plans. This large n analysis specifically focuses on variation across the network in how resilience policies were linked to climate action and equity and justice concerns. The analysis reveals distinct clusters of cities that shared similar approaches to resilience/climate/equity and we discuss the origin and ramification of this pattern, as well as propose possible explanations for the clustering. The paper then continues with a discussion of the initiative's impact on the functioning of cities in relation to resilience. Through a discussion of case vignettes of individual cities, we analyze how 100 RC altered the trajectory of cities' form and functions in the pursuit of resilience. We conclude with a discussion of the implications of the 100 RC impact on its members for broader questions of sustainability governance through and within transnational urban networks.

Impact of the 100 RC II: The Legacy of the Initiative

Chris Gore

This paper asks what happens when a transnational network ceases to function? Does the influence and impact of the network disappear or can we observe and trace the legacy of a transnational initiative after its demise? Under what conditions did the 100 RC mandate and resources 'stick' in cities? Did some aspects of the Initiative become institutionalized or catalyze change more than others? We explore these questions from two perspectives in this paper—member cities and the broader ecosystem of transnational urban sustainability networks. First, we analyze what happened in member cities after 100 RC shutdown and assess whether/how the practices and approaches prompted through network membership continued or changed. Analyzing case studies of individual cities, we will discuss patterns in how member cities responded to the end of the 100 RC initiative. Second, we analyze the legacy of 100 RC in the broader context. Through both a case study of the successor network to the 100 RC, The Resilient Cities Alliance, and analysis of how resilience thinking has evolved in the transnational urban sustainability sphere, we assess the impact that the 100 RC network had on the broader sustainability agenda. The paper concludes with a discussion of initiative 'death', measuring the legacy impact of transnational networks broadly, but also explaining whether the initiative 'death' had an unequal impacts on cities, both within and across cities in the Global North versus South, or between global climate leaders versus laggards.

Parallel Panel: Science and knowledge production in environmental policy

Date & Time (Amsterdam Time): October 24th 8:30:00 AM - 10:00:00 AM

Location: GR 1.143 / Zoom

Chair(s):

Carlos Korassi Téwéché

Presentations (including names of presenting authors):

The role of institutional design and power relations in knowledge co-production for sustainability transformations: Evidence from the UNCCD Science-Policy Interface

Sara Velander

It is widely acknowledged in the literature and society that expert advice is necessary for policymakers to devise effective, evidence-based solutions. The position of expertise is especially delicate within the global environmental governance sphere, where values, worldviews and epistemological standpoints can accumulate and breed conflict between stakeholders aiming to address sustainability challenges. However, there is limited substantive evidence on the extent to which expert advice really matters in environmental politics and under which conditions expert knowledge actually leads to action. Scholars from Science and Technology Studies and International Relations have focused at length on these questions yet struggle in providing definitive answers. At this scale, academic discussions range from positions assigning a crucial role to expertise to understandings that view science as epiphenomenal. Supported by evidence from the United Nations Convention to Combat Desertification (UNCCD) and its Science-Policy Interface (SPI), this paper approaches these questions by examining the institutional design of advisory processes and power dynamics between science and policy to understand how crucial contextual factors contribute to expertise influencing global environmental governance.

Based on data collected from 2017 to 2022, including participant observation at the 14th and 15th Conference of the Parties to the UNCCD and 28 semi-structured interviews with members of the UNCCD SPI and Committee on Science and Technology, our findings identified key aspects of the institutional design that enabled the SPI to successfully inform policymaking on land degradation and desertification. Firstly, the institutional design helped experts to understand policy needs while not compromising the scientific credibility of the reports provided to policymakers. Secondly, it encouraged innovation by including early-career scientists, practitioners from civil society organizations and SPIs for other environmental conventions in their regular meetings and allowing them to participate in or contribute to the preparation of the policy reports. Thirdly, the small size of the expert body was cited as both a way for more voices to be heard and a barrier limiting their capacity. However, the UNCCD SPI overcomes this barrier by hiring external experts to contribute to the preparation of reports. In conclusion, although factors such as institutional design and

active expert agency can be enabling factors for expertise to matter, international environmental decision-making and its national-level implementation are ultimately and inevitably subordinated to states' power and influence. Against this backdrop, international expertise for sustainable development can only take advantage of the rare 'windows of opportunity' that intergovernmental processes concede.

The Institutional Design of Boundary Organizations: IPCC and IPBES

Jen Iris Allan

Organizations that bridge the scientific and policy-making communities are often called boundary organizations. The concept has been helpful in explaining their legitimacy, authority, and relevance. Yet, the institutional design of boundary organizations has been neglected to date. States negotiate these organizations' designs: their rules, procedures, and outputs result from contested, power-laden bargaining. This paper applies the institutional design framework to two prominent boundary organizations, the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES).

The institutional design literature can offer several insights into the function of boundary organizations. The literature starts with aspects of the problem, such as the distribution of costs and benefits, and uncertainty about other states' preferences and the state of the world. It connects this problem structure to institutional design choices, including members, centralization of authority, scope, and flexibility mechanisms. Many of these variables are relevant to boundary organizations. They vary in the centralization of authority (experts versus states) and the membership of authors and states. There is varied flexibility to pursue issues of scientific and policy concerns and to scope the assessments.

The study of boundary organizations can add to the institutional design literature. These organizations address the nature of the problem and the gap between science and policy. Boundary organizations address both a real-world problem and also a governance problem. Governance problems, namely the gap between science and policy, may have unique effects on institutional design.

This paper's comparative method has an additional advantage: it can help separate functional and diffusion mechanisms. Using the institutional design framework, the paper can trace which institutional options appear to be functional responses to the challenges of building science-policy connections for climate change and for biodiversity, respectively. But, the IPCC and IPBES are not entirely separate cases. IPBES negotiators drew from the experiences of the IPCC when negotiating the biodiversity science-policy interface. There may be a case for diffusion. The institutional design framework can help identify which design features may be tailored to the needs of a biodiversity science-policy interface, and which functions may be "borrowed" from its counterpart in climate governance. There may also be implications for the ongoing negotiations for a science-policy interface for chemicals, wastes, and pollution.

Conference Stream(s): Justice and Allocation
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

The Unbearable Lightness of Justice in the IPCC AR6

Juan Antonio Le Clercq

The IPCC has integrated a set principles of justice to his AR6 working group II report on impacts, vulnerability and adaptation. The recognition of the relevance of principles of justice in AR6 (distributive justice, procedural justice and recognition) is understood as a condition for effective, plausible and fair adaptation processes, as well as a key element of a resilient ecological transformation model. Regardless of the importance of the conceptual innovation presented by the IPCC and of the recognition of justice for the definition of solution spaces to avoid catastrophic risks and impacts, the approach raises important questions about the normative nature of climate justice, the meaning and content of the principles of justice and its relation with the development of institutional capacities to operationalize and evaluate national climate change strategies and policies. This paper analyzes the climate justice approach developed in the AR6 to identify its conceptual limits and for establishing an analytical basis for a more integrated model from a multilevel governance perspective. Among the main problems that emerge from the IPCC climate justice approach, the following will be the central concern for our argument: 1) confusion between types and principles of justice; 2) limited definition regarding the specific normative content of climate justice principles and their reach; 3) decoupling of the principles of justice and the development of institutional capacities and flows of financial resources to developing countries; 4) lack of clarity to identify how local and indigenous knowledge should be integrated into risk management and adaptation strategies and the limits of this process; 5) non reference to global justice obligations; 6) absence of principles of restorative and retributive justice, particularly in relation to adaptation, losses and damages; 7) relevance of previous injustices and victimization; 8) disconnection between the principles of climate justice and the broader socio-ecological demands, expectations and conflicts expressed through the conception of environmental justice and the right to a healthy environment, which can explain the preexistence of must of the risks and vulnerabilities that could be multiplied as a consequence of climate variations and impacts in the Anthopocene.

The Organizational Structure of Global Gene Drive Research

Florian Rabitz

Gene drives are a proposed biotechnological intervention that could provide unprecedented biological control for addressing key challenges in global sustainable development by providing an effective countermeasure to invasive alien species, agricultural pests or disease vectors. Gene drives also raise complex biosafety challenges and face scrutiny due to an allegedly-outsized involvement of certain philanthropic- and military funders. Against this background, this text is the first to provide a systematic account of the organizational structure that underpins global gene drive research. Applying social network analysis to data on co-authorship and research funding, I show that global gene drive research has limited organizational and geographical diversity and is firmly dominated by elite US-based organizations, with organizations from developing countries either playing marginal roles or being excluded altogether. Additionally, a tentative analysis of

Conference Stream(s): Justice and Allocation
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

financial transfers suggests that an overwhelming share of global research funding passes from the Bill and Melinda Gates Foundation to Imperial College London; and from the US National Institutes of Health to various first- and second-tier US research universities. Overall, the organizational structure implies a considerable legitimacy deficit in global scientific collaboration on a controversial novel biotechnology with significant biosafety risks yet potentially transformative impacts on key challenges of sustainable development.

Purpose-driven innovation ecosystems and sustainability transformations

Frederik Dahlmann

Researchers interested in steering mechanisms for a sustainability transformation call for new governance models that recognise the role of different actors, including specifically the private sector in leading impact and change. One example exists in form of various sustainability and clean-tech innovation networks and start-up accelerators. These innovation ecosystems are designed to pursue a broader purpose of supporting the creation of businesses that define their existence based on addressing social and environmental sustainability issues beyond returning a profit.

Key questions, however, are whether such networks intentionally target multiple, interconnected sustainability challenges, or whether they instead rely on "silo-based" thinking by focusing only on solutions for specific sustainability issues and concerns? To what extent do these networks and their ventures recognise the interlinkages, synergies, tensions, and tradeoffs between different sustainability issues?

This paper aims to develop understanding and insight into whether and how "purpose-driven innovation ecosystems" are steering new business activities towards addressing complex interconnected sustainability issues. Based on research conducted through 36 semi-structured interviews, of which 12 were with members of clean tech incubators and accelerators, and 24 with CEOs and entrepreneurs of various sustainability start-ups and ventures located in the Metro Vancouver regional district, this research examines the different driving forces and barriers, assumptions, and limitations of such informal governance mechanisms among private sector actors.

Findings suggest respondents acknowledge the strong socio-economic, cultural, and ecological environments as critical factors in shaping people's interests and motivations for developing new businesses designed to address critical sustainability issues and challenges. While there is a clear emphasis on addressing particularly climate change and other environmental issues in the resource-based sectors of the province, respondents are also aware of the need for tackling social issues and challenges, e.g., by driving equality, diversity and inclusion of women and indigenous communities. Therefore, nexus thinking of socio-ecological concerns is typically either implied or an explicit concern for many start-ups and the innovation ecosystem supporting them.

However, respondents also raised concerns about barriers and challenges affecting the success chances of this wider ecosystem, including a lack of funding certainty, weakening access to skills,

Conference Stream(s): *Justice and Allocation*
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

staff, finance, and regulatory barriers as well as competition and duplication of efforts. Mindsets and expectations also differed between entrepreneurs and financiers, regarding the timeframes, scale, and returns on investments targeted.

Knowledge of these factors contributes to literature on sustainability transformations, earth system governance, and purpose-driven business models.

Parallel Panel: Innovative Governance Solutions for Resilience Against Climate, Nature, and Health Crises: Advancing Planetary Health in Africa

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR -1.070 / Zoom

Chair(s):

Idil Boran

Presentations (including names of presenting authors):

Pathways to water resilience? Exploring the narratives framing Nature-based Solutions climate action pathways in Cape Town and Johannesburg

Patience Mguni

Experimentation with Nature-based Solutions (NbS) has emerged as a well-documented avenue of climate action for transformative urban futures with multiple benefits, such as supporting nature, climate, water security, and human health and wellbeing. In this article, we seek to give a view into the different narratives underpinning nascent NbS climate action pathways in the Global South cities of Cape Town and Johannesburg. We explore examples of city-directed experimentation, community-level scientific demonstration, private sector-led NbS initiatives as well as others. We find that while both cities exhibit vibrant NbS-supportive policy mixes, implementation of NbS in pursuit of water resilience lacks sustained momentum and remains difficult to amplify. Each alternative pathway towards water resilience through NbS is underpinned and framed by different narratives and values, each subject to contestation, whilst other imagined pathways such as NbS in informal areas remain difficult to resolve and therefore unseen. With these findings, we consider whether and where opportunities for disruptive and enabling decolonial transformations through diverse pathways of NbS may be found in post-colonial cities.

Transboundary collaboration governance as key factor in responding to emerging health crises: the case of Greater Virunga Landscape (GVL)

Fidele Ruzigandekwe

The Greater Virunga Transboundary Collaboration (GVTC) is an intergovernmental framework in place for the conservation of wildlife and tourism development within the Greater Virunga Landscape (GVL) shared by the Democratic Republic of Congo, Rwanda, and Uganda. Within this landscape, and situated along international borders, are contiguous Conservation Areas that contain key biodiversity resources, including world's only two populations of Endangered mountain gorilla, an important endemic subspecies with significant cultural and economic value.

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Two emerging viral diseases have appeared over the last three years in the countries sharing the GVL, namely: the Ebola Virus in DRC and Uganda, and COVID 19 in all the three countries. These viral diseases were declared among human populations, while scientific evidence on their potential cross transmission between humans and wildlife species, most notably the primate populations such as the mountain gorilla, the chimpanzee (and other wildlife species that dwell in the GVL) was established. However, the effects of such viral diseases among the wildlife, especially the primate populations, are not yet known and apprehended. In this regards, and relative to its mandate, GVTC facilitated the development and the implementation of Emergency Plans for both diseases, and whose key objective was to, protect wildlife primate species (emphasis on mountain gorillas), conservation personnel, tourists and communities adjacent to the parks from acquiring viral diseases and avoid as much as possible the potential virus cross transmission between human and wildlife populations. Both plans are complementary to the National Emergency Plans established at national level for human health populations in the three countries. They also recognize this critical intersection between these two types of populations and advocate for a holistic approach to preparedness, prevention, and detection, and response related to the plans' objective.

This paper presents key insights as to how the GVL Transboundary Governance has been a key factor in responding to both emerging viral diseases of Ebola and COVID 19, while demonstrating how it can support the long term resilience of the ecosystem and human society within the GVL. We shall highlight the key lessons drawn from the GVL experience and pertaining to theory and practice for one health system. Finally, we will discuss how the specific attributes of the transboundary collaboration governance can frame the required conditions to solutions for planetary health issues.

Household Risk and Vulnerability Indices: Novel Approaches to Assessing Governance Programs and Solutions for Planetary Health

Godfred Boateng

Extreme weather conditions, with more frequent and intense precipitation, extreme heat and intensity in tropical storms, and increase in sea levels, have detrimental consequences for the poor and marginalized in society, particularly, those in poor resource settings. These climatic events coupled with human activities are disrupting the planet's ecological systems with concomitant effects at the micro-level. Particularly, the poor and marginalized often suffer from frequent or more intense flooding, drought, heatwaves, wildfires, recurring infectious diseases, with consequences such as poverty, food, water, and housing insecurity, and poor health. The ability to quantify these measures and effects have been critical in understanding the multiple pathways, by which changes in climatic conditions and environmental degradation impact on the sustainable livelihoods. However, few studies, if any, have explored the application of these indices to assess governance programs, policies, and solutions aimed at mitigating the effects of climate change at the household level. Without the ability to assess the veracity of these interventions and programs, it is difficult to determine whether these solutions are effective. It is also difficult to assess the ability of households to adequately anticipate, prepare, and adapt to these vulnerabilities. In this

presentation, we will discuss 1) the need to integrate such indices in informing and assessing governance programmatic interventions and policies, 2) the need for more tailored indices, 3) the assessment of top-down approaches to governance structures in comparison to a bottom-up and/or co-creative approaches that are sustainable, 4) the value and downside of nature-based solutions for the poor and marginalized, and 5) possible steps to building resilience, reducing risk, and enhancing sustainable adaptive practices, in the face of cascading crisis. In sum, this presentation aims at changing our mental models and introduces a planetary health perspective that highlights interdependencies between environment, social vulnerability, and human health to inform efficient and innovative governance programs and solutions in addressing the effects of climate change at the microlevel.

Transdisciplinary insights in climate change mitigation action for planetary health equity: a rapid realist review

Megan Arthur

Planetary health equity (PHE) is defined as the equitable enjoyment of good health in a stable ecosystem. An important challenge in the pursuit of PHE is in the intersecting relationship between climate change, social inequities, and health inequities. The impacts of a changing climate on health are wide-ranging and involve multiple pathways, which are often mediated by social inequities such that they compound health inequities. The governance challenge created by multiple and intersecting impact pathways between these three outcomes is further exacerbated by the complex upstream governance structures and dynamics that contribute to planetary health inequities through social, political, economic, commercial, cultural, and environmental determinants of health.

PHE represents a 'wicked problem' that necessitates inter- and transdisciplinary approaches to knowledge generation. This study therefore aims to bring together and synthesise knowledge of different types from across disciplines and institutional settings, which are focused on understanding complex upstream and downstream impact pathways shaping the problem of PHE. In particular, the review investigates what is found in existing academic and grey literature that answers the question: What are the social and health equity impacts of climate change mitigation policies for socially marginalised and disadvantaged populations in different contexts? This involve both: a) substantive, technical elements of the impact pathway related to intersecting outcomes across climate change, social inequities, and health inequities, and b) upstream structural, procedural, and ideational factors that shape the social and health equity implications of climate change mitigation approaches.

This study is pursued through a rapid realist review, which is designed to be problem-focused and to identify policy-relevant implications and generate knowledge and strategies for ways forward. Reviews that are systematic and adopt a wide scope create an important opportunity to bridge disciplines and institutional settings, bringing together a range of types of knowledge and fostering mutual understanding focused on a shared area of concern. Our review involved a wide search strategy including electronic databases capturing academic literature across a range of disciplines, as well as grey literature from international organisations, government, and non-governmental

sources. Knowledge synthesis is also conducted across inter-disciplinary norms, including both quantitative citation network analysis and descriptive statistics methods, as well as qualitative narrative synthesis. Transdisciplinary methods pose a challenge in integrating different bodies of knowledge, therefore mixed approaches create opportunities for meaningful synthesis.

Parallel Panel: Public perspectives on carbon removal

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.143 / Zoom

Chair(s):

Sean Low

Miranda Boettcher

Session Overview: Public perspectives on carbon removal:

Carbon removal – the proposed creation, enhancement, and massive upscaling of carbon sinks to help contain the causes and impacts of climate change – has become a pillar of national and corporate commitments towards Net Zero, as well as pathways towards the Paris Agreement's ambitious temperature targets. Public engagement is essential to gauging the feasibility and governability of these heterogenous – and often immature and radical – options. Though growing, this literature – public surveys and a lesser number of small-N workshops – has been concentrated in a handful of Northern countries, and on single technologies or small groupings. In this panel, we aim to build this literature in four ways. First, we expand the geographies and range of approaches that has thus far been covered in survey and engagement work. Next, we innovate mixed methods that emphasize deliberation and mutual learning. Third, we place a focus on expanding and including new types of actors and expertise, and on uncovering political and policy contexts that inform public and other 'situated' – or organization-, sectoral, or polity-driven – perspectives. Finally, we highlight the role of publics and other actors as more than passive recipients of information, and engage with their own self-conceptions and limits as drivers of (novel) assessment, civic and consumer activity, and (democratic) oversight of governmental and corporate activity in carbon removal across the global North and South.

Presentations (including names of presenting authors):

Societal aspects of industrial decarbonization using carbon capture and storage

Senni Elisa Määttä

The energy intensive industry is a major contributor to carbon emissions. Emissions in this industry are notoriously hard to abate because of its energy intensity, high temperature requirements and process emissions. One option for combating climate change in this industry is through carbon capture and storage (CCS). CCS research has been driven mainly by technical and economic considerations. However, this narrow focus is not appreciative enough of the systemic nature of climate change challenges and the diverse societal considerations.

This paper provides a review of the literature on CCS with a systems thinking approach, to assess the extent to which it has addressed the societal implications of CCS implementation. The review identifies significant gaps in the current research, particularly with regard to democracy and participation. In many pathways towards Paris-compatible futures, CCS is a crucial component of

achieving a net-zero future. Yet, despite the collective significance, the public has a limited role in these processes. The discussion on the public has so far mainly focused on opposition and gaining acceptance, and the research has largely focused on the project-level.

Based on the literature review, the paper argues for a more active role for the public in industrial decarbonization. The paper highlights the need for greater attention to be given to the social dimensions of CCS and the importance of fostering public participation in these processes. This approach will help to ensure that the implementation of CCS is more inclusive, democratic, and sustainable in the long run.

Straddle the gap between feasibility and desirability: public perception of net-zero energy scenarios with and without large-scale CDR

Shinichiro Asayama

A debate around the role of carbon dioxide removal (CDR) in energy decarbonisation is conflicted. While CDR is largely seen as a necessity to balance out residual emissions from the so-called 'hard-to-abate' sectors in energy systems, CDR is at the same time viewed as an excuse to delay near-term emission reduction. In the scenario produced by integrated assessment models (IAMs), CDR is often assumed to be deployed on a massive scale for achieving net-zero CO_2 emissions in a 'least-cost' or 'cost-effective' manner. However, such an assumption of large-scale CDR deployment in IAM scenarios has been widely criticised and its feasibility in the real world has been called into question. There are now new emerging scenarios in the IAM literature which explore alternative pathways to achieving net zero but minimising the use of CDR methods by focusing on the demand-side transformation of energy systems through lifestyle change and widespread electrification. Although these new IAM scenarios with little reliance on CDR broaden out the policy scope of achieving energy decarbonisation, they too face the same problem of feasibility as does the scenario with a heavy reliance on CDR. Since these net-zero energy scenarios have widely different social and political implications for energy systems in the future, it is important to explore how people make sense of different IAM scenarios as the 'narrative' of possible societal futures.

In this study, using qualitative focus groups with Japanese ordinary citizens, we analysed the public perception of three different net-zero energy scenarios in the IAM literature: (1) the continued use of fossil fuels with a heavy reliance on CDR; (2) energy demand reduction through lifestyle change and electrification; and (3) the production and widespread use of zero-emission synfuels through carbon capture technology. In particular, we looked into the perceived feasibility and desirability of different scenarios with and without relying on large-scale CDR deployment. Our result shows that there are a few broad themes that are commonly shared across different groups of people—that is, a sceptical view on geological CO_2 storage, a strong reluctance to changing the current energy-intensive lifestyle and a blind optimism for technological breakthrough. More importantly, however, we find that the public conception of net-zero scenarios straddles the gap between what seems 'feasible' and 'desirable'. In other words, people are actively struggling to find a middle-ground option that may not be necessarily socially desirable but more politically acceptable.

National publics and Net Zero: Deliberative focus groups on carbon removal governance in 22 countries

Sean Low

Carbon removal is emerging as a pillar of governmental and corporate commitments toward Net Zero. Ranging from agriculture, forestry, and ecosystems management to large-scale engineering systems, spread across terrestrial and marine environments and urban and rural communities – carbon removal at scales projected for Net Zero targets would implicate polities, geographies, and sectors across the global North and South.

Public engagement is essential to gauging the feasibility and governability of these heterogenous – and often immature and radical – carbon removal options. We conduct focus groups in 22 countries worldwide: 1 in North America, 3 in Central and South America, 8 in Europe, 2 in the Middle East, 3 in Africa, and 4 in the Indo-Pacific. Each country had 2 focus groups, in rural and urban settings. We analyze contextually rich understandings of benefits and risks and corresponding governance arrangements regarding five major types of carbon removal: (a) Afforestation, reforestation, ecosystems management (marine and terrestrial); (b) Soil Carbon Sequestration; (c) Direct Air Capture; (d) Enhanced Weathering; and (e) Bioenergy with Carbon Capture and Storage

We highlight a multi-scale, actor- and locale-focused approach to deliberations, in which participants were encouraged to think of carbon removal in the most local context possible, and expand to national, regional and global levels. This revealed differences not only in scale, but in geopolitical, cultural, ethnic, technological, and economic dimensions. We map key technical and societal questions that national publics have on particular approaches, and how these translate to preferences – and varying degrees of trust – for named actors (expert networks, civic organizations, countries, and intergovernmental frameworks) and mechanisms (kinds of assessment, funding, and policy). We highlight public deliberation and sense-making under conditions of deep uncertainty, where carbon removal is diversely contextualized by awareness or personal experience of climate change, lived experience, political context, and imperfect analogical reasoning.

Ocean alkalinity enhancement as socio-technical system: combining life-cycle assessments (LCA) and open-ended scenario making in expert deliberations of ocean liming

Jose Maria Valenzuela

In this paper, we discuss a practice to combine life-cycle assessment (LCA) and open-ended scenarios to explore the full range of implications of carbon dioxide removal (CDR) technologies. The paper discusses ocean liming as a speculative technological system embedded in social, regulatory, and economic systems, and identifies critical uncertainties about its development in the European context. LCAs are used as a prompt for structured consultations with experts across industry, government, academia and non-governmental organisations, who engaged in deliberation over the potential implications of ocean alkalinisation in light of technical, political and material constraints. This deliberation highlights the land-based consequences of ocean

liming, including mineral extraction and the need to sequester emissions generated in the lime production process. Methodologically, the paper stresses the importance of creating engaged publics, willing to consider the relevance and implications of CDR technologies that still exist, primarily, as hypothetical constructs.

Between knowledge deficit and upstream engagement: What role for the public in the governance of climate interventions?

Livia Fritz

While in post-Paris climate assessments and governance emerging technologies for carbon dioxide removal (CDR) as well as controversial proposals around sunlight reflection methods (SRM) have received growing attention, decisions on which approaches to pursue at large scale and how to govern them are only in formation.

In response to past controversies about science and technology and embedded in what some observers labelled a "participatory turn" or a "deliberative turn", some sort of public engagement in this process is called for – be it for instrumental, normative, or substantive reasons. In contexts of high uncertainty, interconnectedness, and value plurality, who should be involved, in what way and when in the process, however, is contested. So what do diverse publics think about their own role when it comes to decision-making about complex and highly technical issues and which formats of engagement with CDR and SRM technologies do they consider meaningful and desirable?

This contribution is based on a qualitative study of public perceptions of CDR and SRM in 22 countries of the Global North and Global South (44 focus groups in urban and rural environments) that forms part of a wider mixed-methods and multi-technology study conducted in the ERC project "GeoEngineering and Negative Emissions Pathways in Europe" (GENIE). Grounded in constructivist Science and Technology Studies (STS) perspectives on participation and engagement, we trace (i) how publics in diverse socio-political settings conceive of their own role, (ii) how conceptions of the public's role vary in relation to scale and technology and (iii) what conditions for meaningful engagement and context-sensitive formats members of the public identify.

On this basis, we reflect on how accounting for diverse perspectives and local experiences can complement techno-scientific assessments and contribute to just, ethical and effective governance of emerging climate intervention technologies.

Parallel Panel: Futures for just sustainable transformations: anticipating (un)just futures

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.170 / Zoom

Chair(s):

Chen Zhong

Presentations (including names of presenting authors):

Democracy for the Anthropocene? Future imaginations in the Swedish Climate Parliament

Joost de Moor

Environmental politics have long been depicted in terms of a tension between what is ecologically necessary and what is politically possible. Climate movements that engage in imagining alternative futures seek to overcome this tension, and ultimately the contemporary 'crisis of imagination' in relation to envisioning alternative futures. Yet how they define and negotiate what is necessary and/or possible has long been overlooked. Through the case of the 2022 Swedish Climate Parliament, which brings together 150 proposals for addressing the current climate crisis, we explore how environmental organizations as well as engaged individual citizens define the desirability and plausibility of their and others' proposals in terms of necessity and possibility. If we consider being able to imagine as a first step toward creating certain futures, analyzing these articulations and processes presents important spaces of hyperprojectivity in which the social production of futures can be observed. We explore various elements that activists draw on in articulating the necessity and possibility of proposals, including the temporality of climate change and climate politics, political and discursive opportunities, and collective political efficacy. We furthermore compare the discursive legitimization of narratives focusing on either possibility or necessity, hypothesizing that each reflect reformist and radical politics, respectively, and that both will come with distinct discursive strategies to define their desirability and plausibility. The paper aims to provide a basis for identifying and analyzing competing clusters of future imagination in the climate movement.

In this paper we focus in particular on the role of democracy in activists' imaginaries. Democracy faces a dual crisis in the Anthropocene: Democratic states seem unable to address climate change while resulting climate disruptions threaten the foundations of modern democracies. Climate movements tend to express support for more (radical) democracy, which may be unsurprising given the outsider position they themselves occupy by definition. Yet they are also keenly aware of the obstacle that 'the will of the people' poses to the radical changes they wish to see, thus creating an often tacit ambivalence to values of democracy as well. We explore how the dual crisis of democracy is dealt with by contemporary actors. We focus on the way in which futures are imagined, and how this reflects, challenges or reproduces current power relations, presents what

are considered (un)desirable and (im)possible futures, and as such, shape the social field of imaginations that produce actual futures.

Justice and time: futures in Loss and Damage

Maria Kaufmann

Our starting point for bridging time and justice is a discourse approach focusing on justice and futures in sustainability transformations. Transformations are socially and politically complex with competing interests representing (disputing) discourses. A topic where this becomes especially clear are the discussion on loss and damages, which has been a key concern at the last COPs. It emphasizes how the climate crisis is related to competing justice conceptions and differing ideas on how future transformations should look like. Futures are not neutral but represent particular desires, values, assumptions and worldviews, including ideas on fair distributions of burdens and benefits (distributive justice), ideas on fair decision-making (procedural justice), accepted knowledge systems (epistemic justice) and the issue of respecting agents' rights and positions (recognition justice). To unpack the reciprocal relationship between justice and time, i.e., presents and futures, we distinguish two angles, which are overlapping and interacting: 'making of futures' and 'using of futures'. First, 'making of futures' focuses on understanding the creation of (un)just futures in the context of loss and damages, working from the premise that the actions resulting from present negotiations create different futures. The second angle refers to 'using of futures', where futures might be (strategically) anticipated when actors construct and legitimize particular visions/ scenarios on the distribution on loss and damage. We conduct a comparative media analysis between the Netherlands and Germany on how the discussion on Loss and Damages was reported on in the media and commented on by citizens.

Spatializing green energy futures: sociotechnical imaginaries and just transitions in the High North

Benno Fladvad

This contribution discusses the question how different future imaginaries of green energy and related justice claims spatialize and collide in a particular geographical context – Finnmark in northernmost Norway. Conceptually, it draws on [citation of authors removed]'s framework of the 'futures of sustainability' and extends this approach with the notion of 'sociotechnical imaginaries', coined by [citation of authors removed]. Building on these elaborations, it discusses how different sociotechnical imaginaries serve to legitimize competing justice claims, and influence spatial imaginaries and space-making processes. Empirically, it draws on semi-structured qualitative interviews gathered in the Finnmark in October 2022, and shows, how the current political ambitions to turn parts of the region into centers for renewable energy and hydrogen production are interlinked and justified with declining demographics, security politics and global visions for ecological modernization. Moreover, it interrogates how these visions collide with a counter-hegemonic spatial imaginary which builds on Indigenous rights and knowledges. In doing so, the contribution aims at revealing how energy transitions in the High North are not only profoundly

political in character, but also how they co-produce and are shaped by fundamentally different normative visions of the future.

Deliberation through mapping assignments: exploring energy justice in citizen mapping assignments

Simone Haarbosch

Major recurring themes in energy transitions revolve around questions of energy justice: how burdens and benefits are distributed, how processes of energy choices are organized and who is recognized as a legitimate voice in these choices (and how). The inclusion of citizens in the decision-making process is suggested to increase social learning and influence of citizens; to harness local and experiential knowledge; and to generate legitimacy of policies or solve conflicts. However, literature also demonstrates that often policy or academic jargon is imposed on participating citizens. In this research, we experimented with deliberations with diverse groups of citizens, that we facilitated with two different artefacts: maps and sketches to explore if this raised new perspectives in justice dilemmas in the energy transitions. The question was of visualized information would contribute to (1) the deliberative quality of the conversation, and if the deliberations (2) led to new insights in elements of justice overlooked in the literature and by policy makers. This paper therefore discusses: What dilemmas are raised during a mapping assignment in a deliberative session with local stakeholders and citizens to create a more just energy transition? The aim of the paper is to apply the concept of energy justice and broaden it, by involving citizens in these considerations of justice. This paper is based on in depth interviews (N=8), a survey (N=1270) and 4 Deliberative sessions (N=64). Through the three tenets in energy justice (i.e., distributive, procedural, recognition, Jenkins et al., 2016) we analyze how citizens use elements of justice to design a just energy transition.

Climate risks and the cost of capital: compounding challenges of justice and allocation in earth system governance

Steffen Bauer

Anthropogenic climate change and associated risks are posing increasingly profound challenges for justice, equity and allocation. Indeed, addressing losses and damages resulting from global heating is now squarely on the agenda of multilateral climate governance. Corresponding discussions of 'climate justice' respond to the profound mismatch whereby those who contribute least to the causes of climate change are most vulnerable to its consequences. This paper addresses the interdependencies between anticipated impacts of climate change, defined as climate risks, and global financial structures. Recent empirical research analysed how vulnerability to climate risks affects the conditions for borrowing on global capital markets. Specifically, assessments of climate vulnerability drive up the cost of sovereign debt for climate vulnerable developing countries. Yet, within the given structures of the global economy, the economic prospects of developing countries depend (among other factors) on access to financial markets at reasonable conditions. The plight of climate vulnerable developing countries is thus compounded

by a global financial system that braces itself against the costs of climate risks at the cost of those who are already disproportionally burdened by these risks. This contradicts the polluter pays principle, if unintentionally. Multilateral climate governance is increasingly under pressure to respond to such challenges through the mobilization of climate finance, advancing comprehensive risk management and developing climate risk insurance schemes. The decision to establish a distinct 'Loss and Damage Fund' by the recent UN climate change conference 'COP27' is a strong case in point. Yet, its eventual expedience will be contingent on the negotiation of specific funding arrangements and the level of supply that developed countries are willing to provide. The borrowing of capital, however, is a straightforward expression of developing countries' demand. Inhibiting their access to capital markets through issue-linkages with climate risks is a further manifestation of inequity as resulting from climate change. Ultimately, it needs to be addressed in the realm of global financial governance rather than through multilateral climate policy. To this end, this paper seeks to advance a policy-relevant understanding of issue linkages between climate policy, risk management and the global financial system. It argues for a better reflection of global financial structures in climate justice discourse and to developing strong institutional interlinkages between global climate and global financial governance as a prerequisite to targeting one of the major blind spots of justice and allocation in earth system governance.

Panel: More-than-human perspectives: transforming earth system governance

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.109 / Zoom

Chair(s):

Cebuan Bliss

Susan Boonman-Berson

Session Overview: More-than-human perspectives: transforming earth system governance

Given the need for transformative change to address sustainability challenges including biodiversity loss and climate change, there is a necessity to envision and create radically different societies. In such societies, humans are not the only relevant actors. Currently, the perspectives of other animals and non-human entities are largely neglected in exisitng institutions and governance arrangements. However, with concepts such as the 'rights of nature' gaining traction and already adopted in the national constitutions of Ecuador and Bolivia, posthuman perspectives are a reality. Yet, there is still limited exploration of the form such governance could take. Ideas such as multispecies justice have been discussed theoretically but explored in only a limited way empirically. How do we anticipate living in multispecies communities in future? The biopolitics and governance of such communities will require innovation and imagination. This interdisciplinary panel brings together insights from the fields of law, geography, political ecology and tourism to explore posthuman perspectives for sustainability. The panel will critically reflect on the transformative governance required to create truly just and sustainable societies beyond the Anthropocene, where the interests of other-than-human entities are also taken into account.

Presentations (including names of presenting authors):

Multispecies Justice in Climate Adaptation: From Biopolitical Concerns to Possibilities for Mutual Aid

Katinka Wijsman

The onset of the Anthropocene sparks imagination and discussion about desirable futures, shared fears, and visions of social progress; in turn shaping practices of governance. That space needs to be shared between species is an old yet pressing concern in fields such as planning and ecology, yet how cohabitation of species is given shape is rife with contestation and questions about implications for justice. This paper starts from the phenomenon that more-than-human species have become a central part to the planning of climate adaptation through the design and implementation of natural and nature-based solutions, such as oyster reefs and wetlands. It asks: how should we understand this move theoretically? Drawing from empirical materials from coastal resiliency planning in New York City, this paper considers two possibilities for theorising multispecies involvement in the planning and governance of climate adaptation: (1) as an

extension of biopolitical governmentality; and (2) as a practice of mutual aid. The paper lays out the characteristics of these different interpretations of multispecies participation, discussing their limits and possibilities while paying attention to justice dimensions, and considering their implications for climate governance.

Gorillascapes: a more-than-human analysis of governing gorilla tourism at Bwindi Mgahinga Conservation Area, Uganda

Christine Ampumuza

In human geography, landscapes have been predominantly studied as cultural productions governed by humans, leaving almost no imagination of the role of animals in such processes. Using insights from Actor Network Theory, ethnographic observations, mapping, a review of documents and key informant interviews conducted between 2014 -2019 at Bwindi-Mgahinga Conservation Area (BMCA), this paper conducts a more-than-human analysis of how gorilla tourism has been steered over the years to show how animals have been included or not in governing gorilla tourism. The analysis reveals that despite the formal exclusion, animals - through their behaviour – have still played a central role in these processes by reconfiguring the physical, political and policy landscape. The Conservation Area is made up of multiple networks of more-than-human relations where gorillas, their changing behaviour, movements and activities play a central role thus, the term Gorillascapes. The rules, policies, and practices around these parks relate to the mobilities and behaviours of the gorillas. And, the gorillas have turned out to be a brand for almost all products, places and establishments both within and outside the geographical confines of BMCA. This perspective highlights the more-than-human governance of gorilla tourism of the Conservation Area and challenges all human policy makers to explicitly acknowledge the role of animal agency in governance processes.

Considering animals in the achievement of sustainability goals among African nations?

Mo Esan

When considering the governance of the earth system, there is limited consideration of the interests of animals other than humans. This is probably because of animals' legal status as property and the economic benefit derived from them, sometimes leading to disregard for their welfare. Nevertheless, states cannot achieve sustainability transformations without considering animals. This is particularly the case in Africa. Many states here have made strides in improving animal welfare by combating factory farming and cruel treatment. This paper focuses on the continent of Africa and existing initiatives on animal welfare. I analyze the response of selected states to the action plan contained in the Animal Welfare Strategy for Africa (AWSA) and the viability of existing initiatives. The AWSA is perhaps the most comprehensive document that indicates a serious commitment by the member states of the African Union to improving animal welfare at the regional level. Using a document analysis of the AWSA, I seek to answer two questions. First, how sufficient is the proposed action plan in achieving sustainable governance among African nations? Second, to what extent can the activities of other nations provide guidance for the effective implementation of the AWSA strategy as a whole? For Africa, the prospects are promising. The AWSA envisions a continent in which animal welfare is enhanced as part of the 2030 Agenda for Sustainable Development. By unpacking the AWSA, I bring to light the

fundamental role that animals play in earth system governance and explore implementation strategies that lead to sustainability transformations.

The UN animal welfare nexus resolution: a milestone step towards an animal welfare revolution?

Elien Verniers

What do One Health, sustainable development, the environment and animal welfare have in common? They have all been addressed in the recent UN Environment Assembly's 'resolution on the animal welfare-environment-sustainable development nexus', which was adopted in March 2022 in Nairobi. This resolution connects the dots which have been overlooked for too long. We cannot strive for 'harmony with nature' if we continue to exclude nonhuman animals, their intrinsic value and their welfare. It is vital that animal welfare is no longer approached separately but in connection with the environment and sustainable development. Integration is key as is illustrated by the One Health discourse which emphasizes the interlinkages between environmental, human and animal health. The COVID-19 pandemic, which is in its origin a zoonotic disease (animal health-human health) that is fueled by deforestation (environmental health), is a textbook example of how all three health angles interact. The One Health approach is also one of the central approaches that is reflected in the animal welfare nexus resolution. Will this anthropocentric approach help to address the interests of nonhuman animals? What can we expect from this resolution and from the sustainable development angle for animal welfare? This pioneering resolution might be a unique milestone and will produce a firm scientific basis which leaves room for transforming from this soft law approach to a hard law approach. Moreover, it is the first time that the UN(EA) has adopted a resolution with explicit and in verbatim reference to animal welfare, indicating that animal welfare is finally gathering momentum at UN level. This paper discusses whether this long-awaited breakthrough will ultimately enable harmony with nature, including human and nonhuman animals.

Parallel Panel: The footprint of a low-carbon future: connecting supply chains, governance and socio-ecological justice

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.112 /Zoom

Chair(s):

Carlijn Hendriks

Presentations (including names of presenting authors):

The Extraction of Critical Minerals in the Global South: from a Material Bottleneck to a Question of Climate Justice

Karolien van Teijlingen

Current policies and initiatives for the transition towards a decarbonized future largely lean on the replacement of fossil fuels by renewable energy sources and the rapid electrification of transport and industry. While these technologies will most likely effectively reduce carbon emissions, they will also lead to a dramatic increase in the demand for particular minerals, such as lithium, cobalt, copper and rare earth elements. The availability and supply of these so-called critical minerals is therefore increasingly acknowledged as a major bottleneck for the energy transition, urging (mainly Western) governments and corporations to find ways to secure access to these resources.

In this paper, I propose that critical minerals should not only be understood as a 'material bottleneck' for the energy transition, but also as an issue that implies fundamental questions of justice. Most reserves of critical minerals are located in the Global South, were their extraction is widely associated with tremendous environmental impacts, growing inequalities, social conflicts and ill-development. When mineral demand will grow threefold or even sevenfold, this will push new commodity frontiers and mining projects ever further into the resource-rich regions of the Global South. Here, they concomitantly redraw landscapes and life-worlds in ways that reproduce global and local colonial relations, curtailing a truly just global energy transition.

This presentation aims to explore the impacts and questions of climate justice that arise from the demand for critical minerals through a case-study of the Ecuadorian Amazon. In this region, oil reserves are on decline but copper mining is booming. In this context, I will map the spatial and socio-ecological implications of the mining frontier. Drawing on literature on critical geography and green colonialism, I will analyze the power structures and (racial) injustices that undergird the ways in which mineral extracting unfolds in this region. Lastly, I will explore the ways in which people and collectives across the Ecuadorian Amazon are imagining and putting into practice pathways to both decarbonize and decolonialize our future. With this I aim contribute critical insights to both academic and societal search for a truly just global energy transition.

Conference Stream(s): Justice and Allocation
Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

The unbearable lightness of "critical" minerals governance: Lithium extraction for a just energy transition

Craig Johnson

Historically used as an industrial lubricant, a fixing agent for ceramics, a treatment for bipolar disorder, and a coolant for nuclear fusion, lithium has recently emerged as a "critical metal" whose role in the production of lithium-ion batteries is quickly re-shaping the political economy of extraction and development for a low carbon energy transition. However, concerns have been raised that soaring prices, public subsidies, and growing demand for batteries and electric vehicles are fuelling a model of extraction that is quickly degrading some of the world's most fragile ecosystems and communities. This paper explores the transnational forces that are driving and governing the contemporary surge in demand for the world's lightest metal. It makes the case that transnational mechanisms for governing renewable energy are embedded in a multilateral system that has systematically prioritized the energy needs of western capitalist economies over commodity-bearing frontiers. However, unlike oil or uranium, the securitization of lithium has occurred in a context of deep global integration that exposes battery and EV manufacturers to the uncertainties of transnational manufacturing and the reputational risks of selling a product that is associated with degrading lives, livelihoods, and the living world. The paper makes the case that voluntary standards and third party certification schemes have been used as "proxies" for managing the reputational risks of extracting surplus from lithium frontiers. However, by circumventing public systems of authority and accountability, their ability to regulate and mitigate the harmful effects of lithium extraction remains limited, and light.

Anticipating the Future of Mobility in Just Transitions: Electric Vehicles and the Role of Nickel Commodity Chains in Indonesia

Rini Astuti

Recent scholarship underlines the importance of analysing the nature and impact of anticipatory visions and processes in earth system governance (Burch et al 2019). Projections of the future are especially critical in relation to climate change governance. However, as scholars in science and technology studies (e.g., Beck and Mahony 2017) have shown, climate scenarios and pathways circumscribe the future along particular directions while effectively foreclosing others. Anticipations of the future may also work in less explicit, but nonetheless powerful, ways that 'lock-in' (Leach et al 2012) specific climate solutions that come to be taken for granted as the obvious way forward. In this paper, we seek to extend these insights to mainstream frameworks for a 'just transition'.

At first sight, arguments for just transitions in the course of decarbonisation promise to marry traditionally technical perspectives with a concern for inequality and social justice. For example, electric vehicles (EVs) are being imagined not just as a matter of changing one type of car for another, but as a mechanism to promote equity in access to 'clean mobility' (Syal 2023). Yet, this

Conference Stream(s): *Justice and Allocation*
Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

scenario of the future renders invisible the politics and socio-environmental impacts of resource extraction – notably, of nickel - on which EVs rely (Dall-Orsoletta et al 2022).

The paper's central objective is to address this gap by examining how nickel-based decarbonisation practices and discourses for EVs are designed, implemented, and contested and their implications for future mobilities. Drawing on documentary analysis conducted as part of the ANU UNESCO Chair in Science Communication for Public Good, we explore the ways in which imaginations of the future shape the work of key actors across nickel commodity chains and legitimise or challenge EV agendas. We aim to unpack power dynamics and social disparities along these chains in Indonesia which is responsible for the bulk of global nickel extraction. This will deepen our understandings of how particular models of the decarbonised economy and transformative sustainability are being imagined, anticipated, and pursued, and how particular social and environmental (in)justices are accepted and normalised. Our analysis highlights the limitations of framing justice in 'just transitions' as "a formalised and preconceived 'thing' to be delivered or applied" (Velicu and Kaika, 2017, p. 305). Instead, we argue that such anticipatory visions of just transition must engage with the conflicting dynamics of everyday power, precarity, and the inherently cross-scalar nature of earth system governance.

The serpent's egg: REDD+ in the Brazilian Amazon from the perspective of indigenous territorial autonomies

Fábio M. Alkmin

The Amazon biome is comprised of nine countries and represents a third of the remaining tropical forests, storing around 20% of all carbon in the world's terrestrial vegetation (Baccini et al., 2012). In the Brazilian part of the forest, at least 27% of this carbon is found in Indigenous Lands (ILs) (Walker et al., 2020). These ILs combined host over 173 distinct indigenous ethnic groups, totaling 87 million hectares, equivalent to the territories of France and Germany combined (Crisostomo et al., 2015). These ILs have distinct sociocultural characteristics, and thanks to the organization and actions of indigenous peoples, they have the lowest rates of deforestation and degradation compared to other types of properties in the Amazon (Nolte et al., 2013). From 2000 to 2014, the forest loss in these areas was less than 2%, while the average in the entire Amazon region was 19% (Crisostomo et al., 2015).

With the expansion of "Nature-Based Solutions" and the subsequent escalation of voluntary carbon markets, pressure for the implementation of REDD+ projects in ILs has been growing. Proponents argue that such projects are essential for mitigating the climate crisis. They also argue that REDD+ can finance not only the preservation of carbon in forests but also the autonomous development of indigenous communities, valuing culture, sustainability, and territorial governance (Hacon, 2018, p. 127; p. 169). However, in practice, this promise hides problems and contradictions, including violations of indigenous socio-territorial rights (Kill et al., 2015; Bonilha, 2014).

Conference Stream(s): Justice and Allocation
Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

At this moment there is no hegemonic position on REDD+ among Amazonian indigenous movements. Some groups advocate that safeguards can be established for the mechanism, allowing funding for indigenous territorial governance that guarantees autonomy, development, and territorial protection. An example of this is the "Amazonian Indigenous Redd+ (AIR)" proposal (COICA, 2014). Other organizations have strongly criticized REDD+, pointing out its neoliberal and expropriatory character. They point out that it is a form of "climate colonialism" that will lead to the loss of autonomy and violations of indigenous socio-territorial rights (Declaration of Xapuri, 2017). Centered on the perspective of indigenous organizations and taking the right to autonomy and self-determination as an analytical element, the research seeks to present an overview of the current debate in the Brazilian Amazon.

Conference Stream(s): *Justice and Allocation*
Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

Panel: Local and regional environmental policy making

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Marc Calabretta

Presentations (including names of presenting authors):

A failing environmental state? The strange non-death of the hydraulic mission in Berlin and Brandenburg

Thomas Vogelpohl

The impacts of climate change on water bodies, freshwater supply and precipitation patterns are massive and require a comprehensive reappraisal of existing water infrastructures and institutions. Historically, these are heavily influenced by the paradigm of the 'hydraulic mission', i.e. the endeavor to control and valorize water and to secure supply and drainage via (large-scale) infrastructure, which co-evolved with a specific way of governing water through technocratic institutions, 'hydraulic bureaucracies' and hydrological expert knowledge. In the wake of the challenges that climate change presents to water governance, however, this 'hydraulic mission' and its institutions seem to be failing in the sense that they do not seem to be capable of dealing adequately with these new challenges.

To get to grips with this hypothesis, this paper conceptualizes the 'hydraulic mission' through the lens of recent political science literature on the environmental state, which recognizes the management of the environment and socio-ecological interactions as an imperative state function to which a significant set of institutions and practices are dedicated. By bringing political science literature on the environmental state into dialogue with water-specific literature from other social science disciplines, we firstly map the contours of the environmental state in the water sector along the categories of the system of rules regulating it, the apparatus administering it, the ideas and expert knowledge guiding it as well as conflicts and processes negotiating it, showing the rather continuous and seamless evolution from the 'hydraulic mission' of the 1960s to the eco-modernized version of today's environmental state.

Secondly, by investigating water governance issues in three case studies from the heavily climate change-impacted and water-scarce region of Berlin-Brandenburg (a lake system at the border of Berlin and Brandenburg, the river Spree and heavy rainfall in Berlin), we show on a more empirical level that this incarnation of the environmental state resp. the 'hydraulic mission' currently fails to effectively address the systemic challenge of climate change, because its conciliatory configurations are not able to pacify the socio-ecological conflicts that come along with it anymore. Recognizing that the state, however, is dependent on doing so in order to maintain its imperative functions of environmental conservation and social order, we close by discussing which ruptures and continuities with the previous path we already see and which ones would be needed to

achieve a more adaptive and reflexive water governance able to handle the current systemic challenges.

Structure, agency and local climate governance: How do individual actors shape policymaking in smaller cities and towns?

Peter Eckersley

A growing literature has emphasised how structural factors shape levels of ambition in local climate policy. Specifically, cities that have larger, wealthier, highly-educated and younger populations, are supported by local universities and research institutes and in which civil society organisations and green parties are strong and active, are more likely to be 'leaders' in climate mitigation and adaptation. Conversely, smaller towns, with less wealthy and older populations, which are more reliant on heavy industry and with weaker civil society organisations and green parties, are more likely to be 'laggards'.

Such studies are informative from an academic perspective (because they identify the key factors that contribute towards more ambitious policymaking), and instructive for policymakers (who can pinpoint where additional support and funding schemes may be necessary to ensure that all cities keep pace with the leaders). However, they neglect to take account of agency and the likelihood that individuals in some municipalities can pursue ambitious climate policy despite operating in less favourable local conditions. At the same time, the actions of key individuals in cities where socioeconomic and political conditions are more favourable could hinder the adoption of ambitious policies.

Given these considerations, how can we incorporate both structure and agency into analyses of local climate governance? This paper presents a framework to conceptualise the role of both dimensions in policymaking, and suggests how they could contribute to cities becoming leaders, followers or latecomers in climate policy. We then apply this framework to a qualitative study of eleven cities in Germany. Following [author removed for anonymous review process], we anticipate that the role of agency and the strength of policy entrepreneurs may be particularly profound in smaller organisations and therefore we restricted our case selection to municipalities with between 50,000-100,000 inhabitants. We show how those places with active climate managers were able to push forward ambitious policies despite unfavourable local conditions, and set out the factors that can help them exercise greater agency in policymaking processes.

A cross-city comparison of urban climate governance networks

Robert Hobbins

Traditionally, city government agencies have been charged with protecting their citizens from environmental hazards and extreme climate events (e.g., drought, heat waves, and floods). As climate change threatens to increase the intensity, frequency, and impacts of extreme climate events, the demands on city agencies to fully comprehend the complexities and uncertainties in urban and climate systems are growing in tandem. City decision-makers must take decisive action

to adapt and even transform urban systems to become more resilient to climate events. However, individual organizations – such as city government agencies – often lack the comprehensive knowledge of urban systems needed to take unilateral and decisive climate action. As a result, the urban resilience literature argues that resilience decision-making processes are opening-up (i.e., beyond government agencies) to include private, non-profit, and academic actors in governance processes due to the complexity and the high stakes of climate resilience decisions; a more diverse urban governance network is argued to improve the comprehensiveness and quality of knowledge, diversify problem framings, increase collaboration, and generate more robust planning and successful implementation of urban climate solutions. However, there is a lack of empirical studies that have mapped and analyzed urban governance networks for climate resilience, and even fewer that have compared networks across cities. There is also a lack of studies of urban resilience governance networks in the Global South. Our study addresses these research gaps. In this study we ask: (1) what is the structure of urban climate resilience governance networks?, (2) how do various actor attributes lead to the formation – or lack of formation - of network structures?, and (3) what are the implications of these unique network structures on urban resilience processes and outcomes? We surveyed resilience professionals in seven cities in the United States and three in Latin America between 2016 to 2020 to map both their knowledge and collaboration networks for urban climate resilience. We then analyze each city's governance network to identify points of intervention to improve climate knowledge co-production, and resilience processes and outcomes by catalyzing and promoting desirable network structures. Results of this study will help urban resilience professionals to strategically map and intervene in their local climate governance network to promote urban resilience to extreme climate events.

Tracing the Impact of Urban Experimentation in Water and Energy domains

Wikke Novalia

Globally, urban experimentation has proliferated across many cities to address sustainability problems. Whilst experiments can serve different functions, including to test new technologies, enable learning, or diffuse best practices, there remains questions about how experiments ultimately generate sector-level transformative impacts beyond the individual projects. Limited systematic efforts have been put towards capturing how experimental lessons feed into policy processes. In this paper we ask how can we systematically capture the sector-level impacts of urban experimentation while considering their place-based influences?

Rather than seeing place as a mere territorial 'container' for experiments, here we conceive place as a structure that is open and yet bounded, constituted through the interplay of multiple social and material elements. We build on a framework that has been tested in a large N-study of experiments across 100 cities. They emphasise the following place-based conditions: governance & stakeholder networks, policy visions and plans, localised learning processes, financial resources and funding structures, localised informal institutions, natural endowments and resources, and urban materiality. We complement this with an operationalisation of impacts in terms of how experiment generates new discourse, institution, resource, and relationships which may feed into sector-wide policy shifts. Employing a desktop approach, we develop a database that captures

these place-based conditions and sectoral impacts across forty cases of water and energy experimentations across two Australian cities.

The database captures the diversity of urban experimentation approaches (in terms of degrees of novelty and types of intervention) while facilitating comparison across the two sectors. We could discern specific governance patterns, presence/absence of policy drivers, funding patterns, learning extents, and variable influences of informal institutions. Material conditions, such as resource problems and availability lands, appear as important determinants behind many experimentations. Evidence of sector-wide impacts can be systematically presented; however, it remains difficult to establish the causal relationships between impact and experimentation. Despite this, we have advanced research by providing a useful operationalisation of the sector-wide impacts. Future development is needed to complement the database with in-depth studies to further unravel these transformative relationships in terms of a multi-causal phenomenon, involving direct/indirect influences of experiment(s) but also other plausible factors. Practically speaking, we hope that this database approach could be further developed as an evidence-based tool that is oriented towards policymakers. In this regard, its design could be updated with more user-friendly features, functionalities, and interface to facilitate a systematic exploration of lessons to support decisions in scaling sustainability experimentation.

Climate-proofing urban agglomerations in a dual crisis: Expanding the Solution space for Temporal tension Areas

Dries Hegger

To ensure proper climate change adaptation (CCA), low-lying countries should prioritize the biophysical interests of the delta and plan decades ahead to cope with land subsidence, sea-level rise, and extreme weather events. But these long-term considerations often collide with short-term interests (e.g. housing/project development). We call such collisions temporal tensions (TTs), playing out in temporal tension areas (TTAs).

Recently, various approaches have emerged to better address TTs, including the dual (acute and creeping) crisis perspective (public administration); mainstreaming of CCA, and work on foresight and imagination. These approaches help to engage with and transform real-world planning, but efforts risk becoming fragmented. We, therefore, propose to bring these various contributions together into one coherent framework.

As a point of departure, we turn to the Solution Space approach (SoSp), referred to as 'the space within which opportunities and constraints determine why, how, when, and who adapts to climate risks'. The SoSp takes the biophysical characteristics of areas as its point of departure and from there illustrates the changing bandwidth for CCA measures. While biophysically inspired, the SoSp has incorporated social dimensions, allowing the identification of a variety of factors that shape the solution space: a.o. sea level rise; change in discourse/national mood (climate awareness); take-up of novel technologies (floating homes). The SoSp enables different CCA pathways, but decision-makers should recognize which pathway they are on and what routes they are closing off.

Conference Stream(s): Anticipation and Imagination
Adaptiveness and Reflexivity

We propose to, first, enrich this approach through a more explicit incorporation of the representation of different futures. We adopt the concept of 'imaginative logics', referred to as 'the set of principles underlying or constituting an imaginative intervention, by means of which an abstract phenomenon is made present to the audience'. Our central premise is that we need a broader and more in-depth understanding of imagination in order to expand the SoSP. More concretely: we hypothesize that imagination is key to developing more possible and plausible future pathways, e.g. by redesigning land development instruments, the financial tool that municipalities and project developers use, or involving actors with a radically different temporal perspective on land use. Second, the SoSp should be better tailored to the needs of different actors in TTAs, responding to the critique of the implicit cockpitisim of the SoSp. In conclusion, we reflect on the next steps in its development as well as an outline of a research agenda.

Parallel Panel: Ending Plastics Pollution

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.120 / Zoom

Chair(s):

Valeria Zambianchi

Presentations (including names of presenting authors):

Plastics treaty: A key leverage or yet another piecemeal approach?

Aleke Stöfen-O´Brien

The negotiation of an international treaty on plastics and litter, including in the marine environment is underway, with the aim of addressing the issue of plastic pollution. However, the focus on plastics presents both opportunities and challenges. On one hand, the treaty has the potential to address a multitude of interrelated issues and become a key lever in addressing the complexity of plastic (pollution) management. On the other hand, the treaty's design could contribute to the fragmentation of earth system governance and result in unintended consequences, such as problem shifting. For example, a ban on plastic items may lead to the use of unregulated and potentially more harmful substances or a significant impact on biodiversity and land use as a consequence of the use of alternative materials. A focus on circular economy approaches of plastics may shift the burden of pollution to secondary effects, such as legacy pollution in secondary plastics after recycling. This study seeks to analyze the negotiation of the plastics treaty to date, identifying its potential and risks, with a focus on the issue of problem shifting. Drawing from existing literature on institutional design and key design elements, the study critically assesses the negotiation process and provides recommendations for moving forward. The ultimate goal is to ensure that the treaty's design addresses the issue of plastic pollution and its interconnected challenges, without creating new sustainability problems.

Alternative plastic economies between the local and the global

Jacob Hasselbalch

While global climate politics evolved predominantly through an intergovernmental process that was complemented with a wide range of transnational and subnational governance 'beyond the state', plastic politics might be described as a movement in the opposite direction, from the local to the global. This raises fundamental questions about the scalar politics of plastics, and how the direction of travel between local and global plastic initiatives can be understood.

A recent materialist turn in the field of environmental politics has seen a marked attention to everyday life as a site of activism and resistance to unsustainable flows of goods, resources, and energy. Departing from this literature, we reflect on the potential of alternative plastic economies

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

to advance our understanding of global plastic politics. To do so, we synthesize theoretical developments across three interrelated themes of study: sustainable materialism, prefiguration, and scaling of post-growth alternative organizing. Our contributions in this article are primarily theoretical, and we aim to articulate a research agenda for sustainable materialist research on the plastic crisis that traverses the local-global divide.

By alternative plastic economies, we mean diverse and non-growth oriented forms of exchange and circulation of plastic materials. We contend that such examples of 'living well with plastics' are overlooked in the now emerging global politics of plastics, epitomized in the currently negotiated United Nations Treaty on Plastic Pollution. This is not surprising in itself, but we further argue that the study of alternative plastic economies opens up unexplored avenues for engaging politically with plastics while revealing certain shortcomings of mainstream plastic governance paradigms such as the circular economy.

Plastics pollution and youth communities: shaping ownership through adaptive legal tools

Tiago de Melo Cartaxo

The absence of a sense of collective ownership and responsibility for environmental and climate problems can be especially problematic in the field of pollution. Plastics waste pollution, exacerbated by reliance on single-use plastics, is one such example of a problem marked by a lack of community ownership and responsibility for it. Young people are often habituated to using plastics in daily life without considering the negative impacts of single-use plastics for both the environment and the climate, and/or without access to sustainable alternatives.

This study examines impacts caused by plastics waste pollution in local communities and explores how more adaptive legal and policy tools can contribute to ownership and sense of responsibility within populations, supporting the objectives of protecting the environment and minimising the effects of climate change. Having designed intervention tools based on citizen participation, our three case studies in Kenya, Jamaica, and Malawi allow us to evaluate governance tools to support the objective of reducing single-use plastics within schools (Jamaica), youth groups (Kenya) and universities (Malawi).

Building on existing research on plastics ownership and engagement initiatives and case-study results, this paper identifies governance tools that can: (i) build ownership and a sense of responsibility over the problem of plastics waste; (ii) engage citizens; and (iii) drive action to minimise plastics use in local communities and its negative effects in the environment. The results are used to compare legal and policy frameworks and to suggest recommendations and guidelines to optimise governance frameworks in the field of single-use plastics. We suggest that community engagement and adaptive legal and policy instruments can contribute to the reduction of the use of plastics and their adverse impacts on the environment and climate change.

Ready to change: the new global plastic treaty and its challenges

Leandra R. Gonçalves

Currently, more than 11 million metric tons of plastic are flowing into the ocean each year from different sources. Plastic waste has been found in all areas of the globe, from the deepest seas to the most remote mountains. It causes harm to wildlife and ecosystems, but also disrupts the livelihood of millions of people, as well as posing major risk to human health and the world economy. It is a challenge to deal with this type of global and complex problem under the sphere of national countries, which calls for a great effort of cooperation among nations globally, especially its entry in the ocean and coastal zones. In March 2022, UN Member States agreed on a mandate to negotiate a legally binding global instrument to end plastic pollution, including the marine environment. This framework will be negotiated throughout a series of meetings across the globe, and is expected to be in place by the end of 2024. The first Intergovernmental Negotiating Committee meeting, INC-1, took place at the end of 2022 in Punta del Este, Uruguay, and an upcoming meeting is expected to happen in May 2023 (INC-2), in France. Thus, drawing on process tracing (i.e. observations, interviews, and literature and documental analysis), we will highlight several critical issues in the emerging institutional design of a future agreement for addressing plastic pollution in the marine ecosystems. Using the architecture and agency lenses, these analyses will include the polarization between countries and coalitions in the negotiating process, the uneven participation of scientific and industry stakeholders, and the challenge of formulating a legal and binding instrument that relies on cooperation across levels. The conclusion will contribute to the next Intergovernmental Conferences, and assess the potential of reaching an effective agreement before the negotiations are scheduled to conclude by 2024.

Influencing Plastics Governance: Law and Communications Perspectives

Rosalind Malcolm

How agents of change - policy-makers and regulators - define solutions to environmental problems is connected to how such problems are framed. The prevailing narrative around plastics pollution was shaped by increased public awareness of the impacts of releasing plastics into the environment. This was informed by scientific findings on plastic flows and accumulation, especially in oceans, as interpreted in arresting images and footage - notably in Attenborough's Blue Planet II series. The 'Attenborough effect' had a galvanising impact on law and policy and caused 'durable shifts' in audience perceptions of the environmental impacts of plastics waste. There is growing scientific recognition that plastics production and its resulting pollution drives the exceeding of the planetary boundary for novel entities.

It is a paradox that plastics are integral to modern society; a world without plastics is unimaginable. Features rendering plastic an environmental problem (durability, stability, persistence) also make it a valuable commodity. Therefore, regulating plastics to preserve their social utility while reducing or eliminating damaging pollution is important.

Translating this 'wicked' problem into a coherent narrative which can drive effective governance solutions is the essence of the puzzle this paper addresses. Presenting findings from the project

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

'The Wicked Problem of Plastics Waste' (AHRC/GCRF), case-studies from selected countries in Africa and the Caribbean aimed to identify links between the narratives around plastics, the salience of stakeholders aiming to influence plastics law and policy, and resulting governance instruments. We take a multidisciplinary approach with the synthesis of communications and governance central to the analysis. Our findings on the communications-governance nexus, offer scope to strengthen future plastics governance, and by extension, to restore planetary boundaries.

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: Green on green conflicts in energy transitions: a transdisciplinary roundtable

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.125

Organisers: Neelakshi Joshi, Fritz Kleinschroth, Christine Milchram, Georgia Savvidou

Presenter(s): Charles Warren, Carla Freund, Viktor Walter, Richard van Gemert

Green on green conflicts in energy transitions: a transdisciplinary roundtable

As the realisation of renewable energy projects has accelerated over the past years, their impact on local landscapes and biodiversity has also come into focus. These impacts have led to what are called green on green conflicts, with conservationists positioned against renewable energy planners and state institutions proposing renewable energy projects. A key-challenge for research on green on green conflicts is initiating a dialogue between the interest groups and understanding multiple perspectives on energy transitions.

The objective of this innovative transdisciplinary roundtable is to bring together experts from research, energy planning and environment protection directly engaged with the issue to discuss and deliberate upon conflicts. The session is an opportunity to understand the potential and challenges of a transdisciplinary roundtable as a method for addressing conflicts embedded within the sustainability transformation processes.

Format: A 2 hours hybrid roundtable discussion will be held as part of the ESG conference. We will open the discussion with a short introduction on green on green conflicts followed by a 5 minute impulse by the invited speakers. This will be followed by a 30 minutes discussion structured on how the initial impulses reinforce or challenge other speakers', as well as the participants', perception of the conflict. In the final part of the session, we will present a case of green-green conflict and invite inputs from the speakers and the participants on developing potential pathways out of the conflict. We will wrap up the session by identifying priority areas and future directions for both research and practice.

Outcomes: The session will produce insights into the multiple perspectives that drive green on green conflicts as well as test the capacities and limitations of transdisciplinary roundtables as means of advancing dialogue on energy transition conflicts. We aim to publish these as a perspective piece in the ESG journal.

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: New models for science-policy interfaces – towards transformative biodiversity policy in Europe

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.129 / Zoom

Chair(s): Kaisa Korhonen-Kurki, Ben Delbaere

Presenter(s): Johanna Kentala-Lehtonen, Jessika Giraldi, Camino Liquete

New models for science-policy interfaces - towards transformative biodiversity policy in Europe

The world and earth systems are faced with multiple crises, of which the biodiversity crisis is recognised as perhaps the most severe and complex, in combination with the climate and pollution crisis. For many decades, society has responded to these crises by developing policies and legislation to reduce the threats and pressures that are associated with them. The 2019 EU Green Deal calls for a more radical response namely to transform the EU in a just and inclusive way into a fair and prosperous society. The EU Biodiversity Strategy for 2030 (BDS2030) reinforces the need to take measures to address the main drivers of biodiversity loss. In this facilitated dialogue session, we will discuss how science policy interfaces can foster transformative change and what kind of new working methods are needed in this task? We will provide examples and experiences from BioAgora project which is developing the Science Service for Biodiversity to support the implementation of the Biodiversity Strategy. To ensure the transdisciplinary collaboration with scientists and decision makers, there is a need to develop new ways to collaborate in science policy interfaces to achieve the targets of the strategy. This work will be done in close collaboration with the Commission and the science community. This Science Service is the first thematic one and it anticipated that there will be other "science services" in the future for the other policy fields. The panel starts with a short presentation on BioAgora and continues with discussion with the panelists.

Join us to discuss how to work in the science-policy interface to foster transformative change! There will be possibilities to participate in the discussion both in person and online!

Program of the session

- Opening and introduction
- Developing the EU Science Service for biodiversity. Short presentation of BioAgora and how it aims for transformative change. Interventions by the panelists and the audience
- What should the Science Service do? How can stakeholders support or engage in the Science Service? Interventions by the panelists and the audience
- Pitfalls, aspirations and opportunities

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: The Social Sciences on social transformations towards sustainability in higher education

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.133 /

Chair(s): Barbara Müller, Saskia van Schaik

Presenter(s): Sandra Klaperski - van der Wal, Rozalia Toth, Jan Bransen, Barbara Müller, Saskia van Schaik

The Social Sciences on social transformations towards sustainability in higher education.

One common definition of sustainability is care for life, more specifically care for all forms of life, human and non-human. However, caring for all forms of life brings about individual and ethical dilemmas, and care for human life might harm non-human life. Higher education institutions play a pivotal role when it comes to fostering sustainability in our society.
To be able to handle these ethical dilemmas within society and support deliberate decisions, a transdisciplinary approach is highly needed. Thereby, the difficulty is to not only develop suitable policies but to guarantee that people are able to understand and evaluate these policies and adapt their behaviour if necessary. For too long, this individual level was neglected, falsely assuming that proper policy and the provision of information automatically lead to behaviour adaptation. However, numerous studies have highlighted problematic knowledge-action gaps for sustainable behaviors. So how can and should universities, as knowledge institutions help to overcome this gap? What kind of competences and transformational learning activities on an individual level are needed to achieve sustainable action?
In this innovative session, we try to answer some of these questions. We will discuss how transdisciplinary collaborations can accelerate sustainability transformations and how Social Sciences can contribute with their focus on the micro-level of our society. From different disciplines, psychology, education, and communication, we will share our experiences on learning to care for life. Participants are invited to join us in this dialogue on how to reach that goal, and to literally leave institutional walls behind. After exchanging first ideas on building learning communities that focus on caring, we will take a walk outside, and engage in transformational learning activities. While exploring biodiversity on campus and participating in different transformational exercises, we will further reflect on how universities can promote care for all forms of life.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Governing urban transformation: Scaling experiments, matching cities and city archetypes

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.139

Chair(s):

Elisa Kochskämper

Matteo Roggero

Discussant(s):

Kristine Kern

Session Overview: Governing urban transformation: Scaling experiments, matching cities and city archetypes

For more than two decades, scholars and practitioners have stressed that cities are drivers for local action that leads to sustainability and climate transformations. However, questions remain around how cities can actually advance transformations on the ground. For example, local action is mainly implemented through place-based and temporary experiments. The underlying causal mechanisms of successful scaling across space and time are underexplored, despite the fact that this knowledge could help to facilitate the expansion and diffusion of policies, programmes and projects. In addition, scaling processes are spatially and institutionally heterogeneous, raising the question of the most suitable unit of analysis within cities (locally), beyond cities (regionally) and across cities (nationally and internationally). Third, can scaling proceed by matching cities with similar preconditions? Perhaps because most research has focused on forerunner cities, we do not know enough about the mix of conditions that can frame and enable the "matching" process between different localities. Should matching be based on demographic, socioeconomic and infrastructural conditions, on problem structures, governance modes or policy instruments? Does matching require similarity, or would some differences also be beneficial? This variety of potential preconditions means that archetypes of cities that combine different contextual aspects might constitute more apt analytical grounds to study matching. This panel aims to bring together both conceptual and empirical contributions that explore the link between scaling and urban transformation, as well as the role and conditions and criteria for matching cities. Insights will contribute to the ongoing discussions on the agency of non-state actors within the broader architecture of the global climate regime.

Presentations (including names of presenting authors):

Realization of living labs and role of university: A comparative study of South Korean living lab cases

Taedong Lee

Conference Stream(s): *Architecture and Agency*

Living Labs (LL) have become influential approaches for innovation and have received growing attention among scholars and practitioners. They are a forum for innovation, applied to the development of new products, systems, services, and processes, employing working methods to integrate people into the entire development process as users and co-creators. LL has an ad hoc nature in the sense that the projects are usually implemented in the form of a specific problem-based experiment. When the project is completed, in some cases LL projects yield just one-time solutions and do not have a stable setting for the continuation of the innovation effect. Thus, the following question arises: Why, in some cases, are the outcomes of experiments utilized in more systematically and applied to similar problems more quickly than others? In this study, we use the term "realization" of LL to investigate the conditions under which the outcomes of LL experiments become available in a stable manner. We define realization as maintenance (prototypes in action), deepening (betterment of the prototype through running experiment), and diffusion (practical application of the experiments to other regions or users) of the outcomes of LL experimentation. These three attributes can appear in tandem or as part of progress. We select seven cases of LL projects that have been successfully implemented in South Korea and examine specific mechanisms by which LL is realized in three of them. We find that universities play a key role in the realization of LL projects in all three cases. Universities support LL projects in the post-experimental stages by assisting them acquire patents and/or establish a start-up company based on their LL results. We also explain that other participants such as local governments and firms can help in the realization of LL projects in their own ways. This study makes three contributions to LL research. First, while existing literature has addressed many key issues and topics in LL, the post-experimental stage has yet to receive academic attention. Second, this study offers theoretical implications by suggesting the term "realization" and illustrating at least three specific mechanisms in which LL projects are realized in post-experimental stages. Third, it adds to the existing literature on LL by illustrating the Korean cases. Although there is abundant research on LL, most of them are based on Europe and North America. The study of LL in the context of non-Western areas, especially East Asia, is still nascent.

Cites as transmission belts? Exploring the success conditions of local sustainability experiments

Thomas Hickmann

In 2015, the Sustainable Development Goals (SDGs) have been adopted by the United Nations General Assembly as global visions to attain sustainable development worldwide. While recent studies have shown that the overall political impact of the 17 SDGs remains so far rather limited, cities are often portrayed as progressive actors in the global endeavour to implement and realise the SDGs. Several local governments have adopted strategies and policies to localise the global goals and render urban areas more sustainable. Against this backdrop, this paper explores how local actions to achieve sustainable development in urban areas are embedded in complex interactions between public and private actors operating at different levels and scales. Building upon a multi-level governance approach, the paper analyses how local governments are vertically entangled with regional and national governments as well as international institutions; how they interact horizontally with civil society; and how they organise themselves transnationally in networks. While cities have an advantageous position to conduct governance experiments and engage actors at other levels into a policy dialogue, they depend on steady political support,

constant funding flows, and peer-to-peer learning. In a nutshell, this paper aims to enhance our understanding of the success conditions of local sustainability experiments and investigates how cities are embedded in multi-level dynamics of sustainability governance.

Scaling successful urban climate action with city matching and archetype analysis

Klaus Eisenack

City governments around the world are taking actions (strategies, experiments, measures, institutions) to mitigate and adapt to climate change. However, our understanding of the common patterns, city characteristics or governance arrangements that drive successful action remains limited. Moreover, we lack knowledge of how effective actions in one city can be successfully applied in other cities. Thus, van der Heijden has proposed the need of a science of scaling, i.e. the systematic study how successful actions can be multiplied, accelerated, deepened or broadened. Here, we argue that research on horizontal scaling will benefit from studying matching between pairs or clusters of cities, based on shared attributes (like size, cultural heritage, national context, economic structure). This raises fundamental research questions: What attributes are commonly shared by (pairs of) cities that effectively engage in urban climate action? Does horizontal scaling work better between cities that match well in such common attributes? Can scaling be successful between cities that do not match but have complementary attributes? The paper showcases how such questions can be addressed by archetype analysis. Archetype analysis investigates recurrent patterns of a phenomenon of interest by identifying multiple archetypes, each explaining the phenomenon under particular conditions. This comparative approach enables us to identify patterns in cases where general regularities that apply to all cases cannot be expected. When applied to research horizontal scaling, archetype analysis generates multiple city types, each with a particular configuration of attributes and a mechanism that supports or hinders successful climate action. A single city can exhibit several archetypes. We can then study whether scaling works between cities with matching archetypes. We can also assess whether scaling is more effective between cities with specific combinations of non-matching archetypes. The paper concludes by proposing several pairs of matching or non-matching archetypes that may facilitate or impede horizontal scaling. These are based on a thorough literature review and a synthesis of a research workshop. For instance, scaling from "leader" to "follower" cities might not be as straightforward as some suggest, while scaling among cities with matching social problem configurations might scale well. We think that empirically testing such pairs will contribute to the scaling of successful urban climate action.

Institutionalizing urban experimentation: experiences from three cities

Joop de Kraker

A decade ago the first Urban Living Labs emerged, as spaces for multi-actor experimentation with novel approaches to the complex challenges that cities are facing. Experimentation in Urban Living Labs was seen by scholars as a way to generate sustainable innovations that stood the test of real-life conditions, and as a novel approach to urban governance of sustainable development. From the beginning, scholars were interested in scaling, mainstreaming and institutionalization of both the outcomes (sustainable innovations) and the process (governance by multi-actor experimentation and learning). In this paper, we focus on the second issue and address the

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question: to what extent have successful Urban Living Labs been institutionalized and become part of the sustainability governance repertoire of local governments? We answer this question based on a comparative case study of the Urban Living Labs in Antwerp (Belgium), Maastricht (Netherlands) and Heerlen (Netherlands), with particular attention to the institutional mechanisms determining the outcomes in the three cases.

Parallel Panel: Multistakeholder Partnerships and Sustainable Development

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR 1.160

Chair(s):

Melanie van Driel

Presentations (including names of presenting authors):

Linking the Sustainable Development Goals: Examining the Alignment of Multi-Stakeholder Partnership Supply and Interaction Governance Demand

Oscar Widerberg

The Sustainable Development Goals (SDGs) aim to transform interdependent ecological, social, and economic systems. Climate change, for instance, affects the world's poorest populations and exacerbates problems like severe floods and droughts, as well as biodiversity loss. Achieving the Agenda 2030 requires a holistic approach to governance that considers the impact on multiple SDGs. Multi-stakeholder partnerships (MSPs), which bring together public, private, and civil society organizations to achieve shared goals, are often advocated as effective vehicles for addressing multiple SDGs. Consequently, this paper evaluates whether existing MSPs are connecting SDGs with the greatest leverage points, in other words, whether the supply of governance is meeting the demand for connections between the SDGs.

In more detail, the paper first identifies the demand for governing SDG interactions by reviewing literature that models the relationships between the SDGs. Then, it compares the demand to the supply of interaction governance provided by MSPs. The study utilizes a new dataset of nearly 200 MSPs targeting multiple SDGs and distilled from nearly 7,000 entries on the UNDESA Partnership Platform. The MSPs are analyzed through descriptive statistics and network analysis, which demonstrates the formation of clusters around SDGs related to climate, nature, land, health, and energy. However, weak connections to SDGs related to innovation, inequality, and peace and justice are exposed.

The results indicate a mismatch between the supply and demand of interaction governance, particularly between environmental and economic SDGs. The study suggests that MSPs should pay more attention to targeting production and consumption patterns to address this mismatch and enhance their effectiveness. In addition, achieving synergies between SDGs should receive more attention in both research and practice.

Multi-Stakeholder Partnerships' Potential to Govern Nexuses: Mapping SDG 13 on Climate Change and Its Connections

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Conference Stream(s): Architecture and Agency
Democracy and Power

Cornelia Fast

Climate change is perhaps the largest threat to sustainable development globally. In addition to the amplifying negative environmental effects such as air pollution and biodiversity loss, it may also exacerbate social inequalities. Consequently, tackling SDG13 on Climate Action more effectively could help to both keep the temperature rise below 1,5 degrees as stipulated in the Paris Agreement and accelerate the implementation of the 2030 Agenda. To this end, the nexus literature suggests tackling interlinkages between the environmental, social and economic domains of society by harnessing synergies, managing trade-offs and mitigating conflicts. Multi-stakeholder partnerships (MSPs), recognized through SDG 17 on Partnerships for the Goals, offer a complement to existing international institutional arrangements to address climate change using a nexus approach. Due to their capacity to coordinate stakeholders, and combine resources, MSPs may have the potential to accelerate action. This paper explores the question: to what extent are MSPs effective in implementing SDG13 through a nexus approach? Under the assumption that MSPs' own goals and targets are fundamental to how they govern interlinkages between issue areas, together acting as a starting point and benchmark for measuring their output, outcome and impact effectiveness, we map (1) which SDGs the MSPs connect, (2) whether interlinkages are addressed, and (3) whether potential governance effects are addressed. The paper studies goals and targets of 74 MSPs from the Transform2030 dataset who indicate that they facilitate SDG13 and at least one social and/or economic SDG. The mapping exercise is carried out through an automated text search in R and qualitative content analysis in Atlas.ti. In turn, the results contribute to initial conclusions about MSPs potential to effectively harness synergies, manage trade-offs, mitigate conflicts. The paper makes an empirical contribution by providing a first account of existing efforts against which the effectiveness of MSPs can be measured at the output, outcome and impact level. The theoretical contribution to the field of global sustainability governance is the enhanced understanding of MSPs effectiveness in the context of a nexus approach.

International institutions and best practices on multi-stakeholder partnerships

Felicitas Fritzsche

Next to intergovernmental negotiations and commitments, multi-stakeholder partnerships have been established as crucial governance mechanisms in global earth system governance. In particular multi-stakeholder partnerships are an interesting meeting point of practitioners from different disciplines and sectors, bringing together various forms of expertise – for example from civil society, governments, the private sector or academia. They also operate across different territories, and governance levels, from the global, to the national, and the local level, creating transnational governance spheres. This makes them highly complex, and zooming in on the role of specific types of practitioners worthwhile. Working with a database of transnational multi-stakeholder partnerships for the 2030 Agenda, this paper reaffirms that international institutions are the most common directly involved partner. In addition to this, international institutions also act as conveners for transnational multi-stakeholder partnerships, organizing conferences and summits to leverage them in addition to inter-governmental commitments. International

institutions and their bureaucratic staff thus play a crucial role in actively and passively shaping multi-stakeholder partnerships. This role warrants further scrutiny, as this paper finds that no overarching standards on multi-stakeholder partnerships exist amongst international institutions or on a global scale. Instead a governance realm characterized heavily by best practices and loose, individually funded exchange formats has emerged. This includes fora such as the High-level Political Forum on Sustainable Development, which has a central role in global follow-up and review of the 2030 Agenda, and whose reviews are supposed to offer a platform for partnerships. Based on these empirical observations, this paper investigates the best practices and loose exchange formats put forward by international institutions more closely, focusing on their practices and discourses in an inductive manner. How do these governance approaches differ from other governance modes? Whose expertise is heard and what role do power disparities play? And in how far is mimicry and norm diffusion possible in such a loosely tied transnational governance sphere? It finds that in substantive discourses best practices formats surpass other governance modes. At the same time, existing exchange formats favor expertise coming from international institutions, and tend to replicate power disparities. They constitute carefully choreographed instances of different legitimation claims, making mimicry and norm diffusion unlikely. This architecture around multi-stakeholder partnerships for the 2030 Agenda has implications for their accountability and scalability.

Can increased sustainability awareness lead to increased stakeholder participation in Multistakeholder Partnerships? A Case study on Nigeria

Okechukwu Enechi

Multistakeholder partnerships (MSPs) for the SDGs are promoted as a critical avenue for achieving an inclusive sustainability transformation. In Sub-Saharan Africa, however, inclusive sustainability transformation through MSPs is lagging behind due to limited local stakeholder participation. A lack of sustainability awareness has been identified as a key factor for limited stakeholder participation. While MSPs have been extensively researched as an agency for achieving inclusion in general, few studies have examined awareness of sustainability commitments and policies as an enabler for stakeholder participation. This paper bridges this gap by surveying MSP stakeholders about their awareness of Nigeria's climate change commitments and policies. We designed and electronically distributed a questionnaire to a diverse sample of stakeholders from various sectors. The survey results show that stakeholders are highly aware of climate change, which is encouraging and will potentially increase stakeholder participation in local climate actions. However, the findings indicate that awareness of climate change commitments and policies among stakeholders is fragmented and may be inadequate to empower and facilitate effective participation in MSPs. This highlights the importance of policymakers developing a deliberate institutional arrangement to leverage the roles of local stakeholders through targeted sustainability advocacy and awareness strategies. In the context of Sub-Saharan Africa, it also points to a need for future research to interrogate the theoretical assumption that stakeholder 'participation' in partnership arrangements automatically promotes and stimulates inclusion in sustainability transformation.

Conference Stream(s): Architecture and Agency
Democracy and Power

Facilitating SDG Synergies through Multi-Stakeholder Partnerships: Does Design matter?

Montserrat Koloffon Rosas

Multi-Stakeholder Partnerships (MSPs) have gained relevance among the architectures of earth system governance, with the 2030 Agenda for sustainable development endorsing them as ideal governance arrangements in its SDG 17: "Partnerships for the Goals." Given their popularity as a governance tool with capacity to bridge agency from different sectors, the effectiveness of MSPs has been studied as a function of their structural characteristics, such as their degree of institutionalization, the involved actors, the different functions they perform, their inclusiveness, the geographies where they operate, to name a few.

The 2030 Agenda explicitly recognizes the interconnected nature of the 17 SDGs, and calls for an integral implementation that breaks down the silos responsible for creating the illusion that global issues can be solved in isolation. In this context, one crucial, but until now unexplored aspect beyond MSP effectiveness has been their potential to connect multiple SDGs simultaneously, and thus facilitate the emergence of synergies for sustainability transformations. This paper builds upon the existing literature on MSP effectiveness by exploring how different structural characteristics of the MSPs are related to the SDGs they connect in their work, or SDG connectivity. Different dimensions of SDG connections are explored, such as absolute degree of connectivity (total number of SDGs), sectoral connectivity (connections across different areas of sustainable development), and nexus connectivity (connections of popular nexuses in the literature, e.g. the water-energy-food nexus).

The study utilizes a new dataset of nearly 200 MSPs targeting multiple SDGs (based on nearly 7,000 entries on the UNDESA Partnership Platform). Exploratory factor analysis is used to check for correlations and identify patterns between the MSPs' structural characteristics and SDG connectivity. The results of this paper will contribute to a better understanding of the MSPs structural design, and the facilitation for SDG synergies by MSPs. Furthermore, the results fill an existing gap in large-n studies of MSP effectiveness and will serve as a stepping stone to further analyze the pathways to create SDG synergies and avoid trade-offs.

Conference Stream(s): *Architecture and Agency*
Democracy and Power

Parallel Panel: Norm collisions, backlash and and public perceptions in transformative change

Date & Time (Amsterdam Time): October 24th 10:30:00 AM - 12:00:00 PM

Location: GR -1.075

Chair(s):

Jen Iris Allan

Presentations (including names of presenting authors):

Volatile pushback to domestic climate policy action: A conceptual framework

James Patterson

Domestic climate policymaking, especially 'hard'/coercive policy (e.g., regulation, taxes/pricing, phase-outs) risks triggering volatile pushback from mass publics. This is challenging in contemporary democracies given political gridlock, heterogeneous public preferences and values, and reactionary populism. However, our knowledge of what drives volatile pushback – or backlash – to climate policy action in specific settings remains fragmented. Sometimes minor policy actions prove highly controversial but major policy actions do not. Moreover, conceptual approaches to policymaking often underestimate the potential for volatile pushback by focusing on policy design/adoption but not post-adoption politics (e.g. policy process theories), or on mostly gradual and endogenous feedbacks (e.g. policy feedback) which obscures relations with the wider context. In recent years, both climate politics scholars and contentious politics scholars have begun to examine volatile pushback to climate policy, usually in small-N cases. What is now needed is a more systematic basis for studying the emergence of volatile pushbacks to climate policy action comparatively across contexts.

In this paper, we develop a conceptual framework to analyse drivers of volatile pushback to hard/coercive climate policy action by mass publics. The framework spans attributes of both policy action and socio-political context, across three dimensions: interests, values, and embeddedness. Interests are foregrounded by distributional conflicts over climate policy, values are foregrounded by conflicts over meaning, and embeddedness is foregrounded by place-based dependence of people on spatial configurations of infrastructure (or lack of it) in everyday life (e.g., work, access to services). All three dimensions are likely to be important in explaining grievance formation, and thereby volatile pushback. We argue that volatile pushback arises through clashes between policy action and socio-political context in one or more of these dimensions. We illustrate the framework with recent cases of volatile pushback to hard climate policy in several countries (i.e., Australia, Canada, France, UK). Altogether, this suggests a need for systematic configurational analysis across both small-N and large-N scales to study how and under which conditions various drivers interactively produce volatile pushback against certain forms of hard/coercive policy. The approach also helps to bridge debates among climate politics scholars examining contention from

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Conference Stream(s): *Architecture and Agency*

different angles (e.g. political economy, culture, geography), which risk becoming fragmented, by examining volatile pushback as a dependent variable of common concern.

Overall, the paper contributes to understanding the nature and dynamics of domestic policy contention at the interface of 'Architecture and Agency' and 'Democracy and Power' within transformations in governance and society.

Bureaucratic agency in climate policy backlash: types, effects and legacies

Jasmin Elizabeth Mary Logg-Scarvell

Climate policy backlash is of increasing concern to earth systems governance scholars and policy practitioners. Such abrupt, forceful and often transgressive negative policy reactions not only test policy durability, interests and beliefs, but more deeply question the underlying socio-political legitimacy of domestic climate policies [citation removed] . In particular, policy backlash undermines efforts by policy practitioners– such as bureaucrats– who are constrained by trying to bridge volatile societal demands and the need for urgent and science-based climate policies. How do bureaucrats navigate this contention in the pursuit of good public policy? Classic public administration theories suggest that– within institutional bounds and despite various constraints– bureaucrats in advanced industrialised countries often use 'little p' political practices to successfully steer policies. But the use and impact of these bureaucratic practices have not been tested in the face of climate policy backlash. More broadly, bureaucratic agency has been under-studied and its potential impact in countering contestation has been under-appreciated.

This paper addresses this gap by building on public administration and policy feedback studies. It first outlines a set of propositions about how the inherently political practices of bureaucrats affect and are affected by climate policy backlash in the immediate and long term. These propositions are tested in application to two national-level cases of contentious climate policy-making: Australia's Clean Energy Future package (immediate effects 2011-2014 and legacy effects 2014-2023) and Canada's Greenhouse Gas Pollution Pricing Act (immediate effects 2018-2021 and legacy effects 2021-2023). Case data draws on semi-structured interviews with key policymakers (N≈30 per case), supplemented by document analysis. These cases reveal how both the architecture and agency of bureaucracy are essential to understanding the dynamics of climate policy backlash– especially the longer-term policy legacies of backlash events. The relatively stable careers of bureaucrats compared to other policy actors enables them to take a longer view, identifying with clarity the ongoing effects of past contentious events on subsequent policies. Such findings support a call for scholars of backlash (and contentious politics more broadly) to better consider wider timescales of policy effects. In turn, the paper provides a fresh application of bureaucratic politics theory in public administration, demonstrating how bureaucrats undertake 'little p' politics despite– and often because of– the extreme situation of policy backlash. Finally, this paper offers insights into how public administration can contribute to the field of environmental governance by re-visiting the importance of bureaucracy in supporting effective, durable and fundamental societal transformations.

Conference Stream(s): Architecture and Agency

Communicating Extreme Risk is not Bad Messaging: The Role of Climate Tipping Points on Public Risk Perceptions in Norway

Christina Nadeau

Over the last 25 years, climate tipping points (CTPs) have emerged as a research topic of growing concern and interest in the climate. Current anthropogenic warming sits at ~1.1°C above preindustrial levels, and recent research suggests that several tipping points may be triggered within the Paris Agreement temperature range of 1.5 to <2°C, making the subject CTPs a relevant and important topic in climate change communication. This growing relevance has been reflected in more frequent appearances of CTPS in the media to warn of dangerous climate change. This study investigates the current state of knowledge about/familiarity with CTPS among Norwegians and compares the effects of communicating about CTPs on climate risk perceptions compared to standard communication about climate change in general. CTPs differ from traditional climate change information as it introduces large-scale system dynamics where thresholds can be reached, resulting in non-linear changes that are irreversible on human timescales. There has been little investigation on the level of understanding of CTPs and the effect they may have on climate change communication, despite the growing scientific literature and media coverage on the topic. In order to investigate this, we conducted a survey with 851 respondents in Norway, in which the respondents were randomly presented with a scientific text, either about CTPs and non-linear climate change, or containing more general information about climate change. The results show that information about tipping points does not lead to a significant increase in concern about climate change compared to the effects of traditional climate change information and misconceptions of CTPs were analysed in order to build upon this research in future studies. Extended results, limitations of the study, implications for climate change communication and directions for future research will be discussed.

Norm collisions in the governance of food security: the discursive strategies of non-state actors in context

Laure Gosselin

How do non-state actors (NSAs) adapt their discursive strategies across the regime complex on food security? The governance of food security is characterized by increasing normative overlaps between the international regimes on food and agriculture, climate change, biodiversity and even trade. Non-state actors see these overlaps as opportunities to engage in a "battle of ideas over the future of food systems" (IDS & IPES-Food 2022). Using competing discourses such as "agroecology", "nature-based solution" or "climate-smart agriculture", they seek to influence normative trajectories and strategically engage in norm contestation.

The literature has only started to document how non-state actors problematize norm collisions in their discourses. For instance, norm collisions may need to be activated by advocacy coalitions intervening at the interface of these regimes. In this paper, I go one step further and argue that

NSAs' discursive strategies vary from one regime to another, as actor constellations and the discursive power that actors can wield evolve according to the institutional context.

This paper seeks to document (1) how NSAs position themselves in discourse networks and (2) how they adapt to the increased complexity of global governance. I use discourse network analysis to track the evolution of discursive strategies throughout time and across the regime complex on food security. I specifically target norm collisions between food security and three other issues areas (climate change, biodiversity, and trade) and a diverse range of NSAs (NGOs, agrifood corporations, philanthropic organizations, expert and scientific groups).

This study shows that (1) NSAs strategically exploit institutional overlaps in the governance of food security but their influence is relative to their position in discourse networks and therefore varies depending on the institutional context; (2) normative inconsistencies may appear when some NSAs seek to align their discourses with dominant frames in a particular forum, while they are continuously challenged in other venues; (3) in the regime complex on food security, norm collisions increasingly give rise to vague terms that, while raising the suspicion of a number of NSAs, are difficult to effectively oppose.

This paper is of interest for a broad audience interested in normative trajectories in global (environmental and trade) governance, as well as scholars interested in competing visions of sustainability in food systems.

Parallel Panel: Just Energy Spaces

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.125 / Zoom

Chair(s):

Konrad Guertler

Jeremias Herberg

Discussant(s):

David Hess

Presentations (including names of presenting authors):

Infrastructuring environmental (in)justice: on the political geographies of energy technologies in planetary crises

Benno Fladvad

In recent years, the ambivalent role of material infrastructures, especially energy technologies, in planetary crises has attracted increasing scholarly attention: on the one hand, they are seen as the "production mills of the Anthropocene", and as means by which social exploitation and environmental load displacement is enabled, sustained and legitimized. On the other hand, they can be important leverage points for socio-ecological transformations towards sustainability and alternative energy futures. Under certain conditions, energy infrastructures can therefore also be understood as promises, as possible starting points for justice, re-democratization and a stronger orientation toward the common good. Originating from this paradoxical, two-faced characterization, this contribution discusses the relevance of infrastructures for debates on energy transitions, not only as a research object but also as a specific conceptual lens that provides deeper insights into their spatialities and justice dimensions. In a first step, it theorizes the fundamental political and normative character of energy infrastructures and their role in transition processes. In a second step, drawing on Science and Technology Studies and Anthropology, it introduces the notion of 'infrastructuring' and discusses the benefits of an infrastructural lens for research on energy-related environmental justice issues. Finally, reflections on 'convivial infrastructures' are presented, which aim not only to overcome and decolonize control-oriented sociotechnical imaginaries of Western modernity, but also to achieve greater autonomy and environmental justice directly through infrastructures.

Governing a 'spatially just' transition in the UK

Alice Garvey

Spatial justice is a theoretical framework which is increasingly used, both implicitly and explicitly, to explore issues of equity in the low carbon transition (LCT), particularly in how the benefits and

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burdens of transition are distributed geographically. We synthesise insights from three pieces of recent research to highlight the value of 'spatially just transitions' as a conceptual approach.

We first present insights from a 'semi-systematic review' (n=75) on spatial justice, as it relates to issues of equity in regional decarbonisation pathways. This review of the academic literature suggested that there is an ongoing research gap in exploring the fairness implications of the LCT beyond the issue of regional employment impacts. It also found that administrative fragmentation and a lack of coordination of net zero emissions policy risk introducing new, or exacerbating old regional inequalities. We also outline the value of this novel interdisciplinary review approach. The review provides a broad framework for the study of spatially just transitions, as well as a number of policy recommendations, with transferable application to many country contexts.

Secondly, we operationalise the concept of spatial justice in a case study of the UK's transition to net zero greenhouse gas emissions. The UK is the most regionally unequal of all large developed states. We identify how delivering the LCT could work synergistically with other policy agendas, particularly those concerning regional development, including the recent political commitment to 'Level Up' the UK's regional inequalities. In this vein, we present results from a quantitative analysis of net zero targets set by local government in England (n=311), assessing variation in regional mitigation ambition. We develop composite indicators of 'ambition' and 'capability' to explore whether regions are taking action proportionate to their capabilities. This analysis provides insight into the equity of burden-sharing of mitigation efforts at the subnational scale.

Finally, we present a series of insights from interview research with stakeholders (n=33) from across the countries and regions of the UK, and across scales of government, on how net zero could be more fairly and effectively coordinated. The UK presents a singular case in terms of subnational governance, given its noted lack of a 'regional level' of government. We draw out policy and governance insights specific to the UK context, as well as reflecting more broadly on how transitions to net zero can be rendered spatially just in any jurisdiction.

Policy (in)coherence in Germany's Energiewende: synergies, trade-offs and the role of political inequality

Alexia Faus Onbargi

The policy coherence literature has become increasingly criticized for being apolitical, and for assuming a rather technocratic approach to policy-making, coordination and integration. Indeed, new studies are employing comparative politics concepts – such as those around ideas, interests and institutions (the 3 I's) - to assess the inherently political nature of policy (in)coherence. Missing from this focus are the political inequalities that may arise between individuals and actors that lead to policy trade-offs to begin with. These, in turn, may present negative consequences, particularly inequality-reinforcing outcomes. This paper's framework links political inequality – as manifested by inequality of voice, treatment, representation and influence - with policy (in)coherence, and applies it to the energy transition in Germany, also known as the Energiewende. To this end, the paper analyses key interactions between 20 relevant policies through a policy matrix approach, and presents insights collected from 25 interviews with policy-makers, civil society and other experts, on the political nature of policy (in)coherence.

As a first step, the policy matrix explores some of the major synergies and trade-offs in the Energiewende, focusing on policies at the federal level, and, regionally, in the state of North Rhine-Westphalia. The paper analyses 400 interactions between policies seeking to reduce greenhouse gas emissions, increase energy availability and affordability, reduce social inequalities and protect biodiversity. Half of these interactions are centered around new policies rolled out as part of the 'Easter Package', which was enacted in May 2022 due to rising energy insecurity and to implement Germany's climate goals. In this regard, the matrix reveals some important discrepancies, for example, between climate policies and renewable energy restrictions (especially on-shore wind) that threaten the entire Energiewende process.

As a second step, the 25 semi-structured interviews explore the political nature of such trade-offs, many of which have been exacerbated by Germany's new energy situation compounded by Russia's invasion of Ukraine. The interviews demonstrate that political inequality is apparent in Energiewende-related policy processes (in coal, wind, and also biodiversity) and at various stages of decision-making. Furthermore, the speed at which the 'Easter Package' has been developed and passed into law has left many civil society actors out of consultation processes. Other insights include the temporal and interpretative nature of policy (in)coherence; where one actor might see incoherence at one point in time, another might not. In addition, the interviews reveal that policy incoherence can deepen inequalities, particularly spatial, economic and inter-generational ones.

A fair and effective energy transition? Changing social practices and conceptions of justice

Simone van Wieringen

In many countries the renewable energy transition is getting up to speed because of the urgency of mitigating climate change. Especially in Europe, this transition is accelerated because of the war in Ukraine combined with energy policies at domestic and European level. In the Netherlands the energy crisis overall leads to greater societal and political legitimacy for renewable energy policies, however, underprivileged households become extra vulnerable for changes in energy supply and the energy market. These households often reside in less energy efficient housing, and high energy prices affect them more, while they have problematic access to solutions and lower degrees of participation. People cannot reap the benefits of these transitions, while still having to bear the costs. The focus in this research is revealing (in)justices within (changing) household energy practices in sight of realizing a just energy transition.

In this paper we look more closely at considerations of justice in different dimensions: distributive, procedural, recognition and intergenerational justice. What consequences do certain technical interventions (e.g. district heating networks, renovating/ retrofitting measures) and related policy measures (e.g. adjusted tax systems, subsidies, compensation schemes etc.) have for changing social practices of households and how would this in turn affect conceptions of justice? This is placed in light of a 'just and effective' energy transition. Especially relevant is the spatial configuration of infrastructures, appliances, and systems of provision. Although the research is situated at homes, the social practices shaped by material arrangements inside the home stretch into the neighborhood and far beyond. This means taking into account the social-spatial distribution of practices.

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

While referring to established theories of energy justice, we keep an open mind to encounters and interpretations of energy and justice on the ground. In the Dutch city of Nijmegen and the village of Gemert (North-Brabant), we will take an inside out perspective: starting at a household level and then zooming out – from the bottom-up. The project will use ethnographic and participatory methods to explore the needs and in-house practices of residents (in cooking, laundering, keeping warm and cool) in relation to new technologies, including their design, and investigate the conceptions of justice of residents, policy makers, housing associations and installers.

Disparate or integrated climate actions? Synergies and trade-offs between non-state adaptation and mitigation initiatives

Mishel Mohan

Non-state and subnational climate action could lead to unintended outcomes, including higher greenhouse gas emissions. The broad spectrum of climate action, ranging from emissions reductions to efforts to help communities adapt to climate change impacts, begs the question of how disparate interventions interact and whether they result in synergies and tradeoffs. This study examines synergies and trade-offs between adaptation and mitigation efforts by International Cooperative Initiatives (ICIs) in the agriculture, forestry, and land use (AFOLU) sector. A combination of quantitative, interpretative, and qualitative techniques is used sequentially to gain a systematic understanding of synergies and trade-offs between adaptation and mitigation efforts by ICIs. We propose an assessment framework that proceeds in five steps. First, we sample a subset of ICIs that seek to take climate action in the AFOLU sector. Second, we disaggregate these initiatives by their activities and cluster these into broader intervention categories. Third, we conduct a review of the literature to determine potential trade-offs and synergies between mitigation and adaptation associated with these intervention categories. Results of the review are systematically captured in a matrix rendering theoretical synergic and conflicting outcomes between adaptation and mitigation by types of intervention. Fourth, we return to our sample of ICIs and relate their activities to potential synergies and trade-offs, producing an overview of possible synergies and trade-offs per initiative. Fifth, we revisit individual ICIs to understand to which extent they take efforts to maximize synergies and avoid trade-offs. This five-step method can help systematically gauge the effectiveness of ICIs as well as strengthen their interventions.

The application of our framework shows how interventions have both synergistic linkages and trade-offs for adaptation and mitigation. For instance, interventions that are primarily focused on mitigation can have synergistic adaptation effects by improving adaptive capacity through better access to electricity and reducing dependence on centralized energy systems, but they can also reduce labor demand and result in the loss of livelihoods. By linking these potential synergies and tradeoff effects to specific activities, ICIs can better integrate approaches towards synergies and avoid conflicts between adaptation and mitigation.

Parallel Panel: Project N-SaFE: NGO-State Fisheries Enforcement (new modalities of maritime governance)

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.143 / Zoom

Chair(s):

Patrick Cullen

Discussant(s):

Teale Phelps Bondaroff

Session Overview: Project N-SaFE: NGO-State Fisheries Enforcement [new modalities of maritime governance]

This panel represents the first series of research papers from a multi-year, interdisciplinary and multi-national research project. This project focuses on the NGO Sea Shepherd and its evolving worldwide efforts to fight illegal, unregulated and unlicensed (IUU) fishing. This research project (and this panel proposal) studies the innovative partnerships Sea Shepherd has developed with various Northern and Southern states to jointly patrol their maritime exclusive economic zones (EEZ), and examines how these public-private partnerships impact maritime security governance. Drawing on fieldwork and embedded participant observation across Europe and Africa, our panel's researchers use various interdisciplinary methodologies to investigate the following issues: Drawing on fisheries management literature, paper one asks in what ways can Sea Shepherd impact the deterrent and legitimacy of a state's fisheries management system, and thus increase compliance amongst fishers? Using elite interviews and process-tracing, paper two asks what has caused Sea Shepherd to move away from radical and violent direct-action campaigns that caused hostile confrontation with states, towards a more moderate approach, focused on state collaboration and partnership? Paper three uses social movement, organizational studies, and public administration literature to examine how and why the European Union impacts and restricts the operations of the subsidiary Sea Shepherd Italy to a purely information-sharing role with Italian officials, relative to the more aggressive Africa campaigns of Sea Shepherd Global. Paper four explores how market mechanisms are driving cooperation between governments and NGOs like Sea Shepherd in the domain of sustainable fisheries management, and identifies the political and financial trade-offs involved in market-based joint enforcement versus purely public enforcement.

Presentations (including names of presenting authors):

Private enforcement and compliance in fisheries

Geir Hønneland

In the literature on fisheries management, compliance with regulations has received increased attention over the past few decades. There are two main approaches to the understanding of why

Conference Stream(s): *Architecture and Agency*

fishers comply (or not), building on wider traditions in economics and sociology. In the traditional economic literature, often referred to as the instrumental perspective, compliance with the law has largely been viewed as the result of cost-benefit calculations on the part of individuals, and of deterrence on the part of the public authorities. In the sociological tradition, or normativeperspective, compliance is more often seen as reflecting personal moral and the legitimacy enjoyed by public authorities. Legitimacy is viewed as a political capital that the authorities can draw on in ensuring compliance with public regulations. Enforcement is considered necessary in both perspectives, but in the sociological tradition effective enforcement has a function beyond deterrence. It contributes to the legitimacy of the system and hence has the potential to increase compliance with regulations. The role of communication is also emphasized in the sociological perspective. Fisher compliance is believed to increase if the rationale behind the regulations, and the science underlying it, is properly communicated to the fishing fleet. Likewise, compliance is assumed to increase if inspectors are viewed by fishers as competent (having adequate fisheries knowledge), fair (not discriminating between fishers) and reasonable (listening to their explanations of non-compliant behaviour and with a margin of tolerance to make individual expert judgements of the severity of a violation). In a traditional deterrence perspective, the inspector performs the duty of the policeman/-woman, while in the alternative approach he/she takes the role of a consultant, whose main role is to assist the fishers to operate in compliance with the regulations. The paper discusses the potential effects in a compliance perspective of private actors taking over enforcement of fishing regulations at sea, partly or in full, as Sea Shepherd has done in several African states and in Italy. In what ways can private enforcement increase deterrence and the legitimacy of the management system, and hence increase compliance, among fishers?

Shepherding Interests: The Contentious Politics of Interest Group Issue Prioritization

Howard Ernst

Scholars have focused considerable attention on the problem of interest group formation and

maintenance. Grounded on the seminal work of Mancur Olson (1965) and the considerable scholarship that his ideas inspired, the existing research suggests that interest groups that pursue collective goods (goods that are enjoyed by all people even if they do not contribute to the expense of forming or maintaining the groups that pursue these goods) face significant organizational hurdles. Environmental groups that aim to protect public goods, like our oceans, are believed to be particularly vulnerable to this problem, which is commonly referred to as the free-rider problem. The scholarship in this area suggests that groups often overcome the free-rider problem when a single entrepreneur invests time, energy, and resources into the initial formation of the group. The "interest group entrepreneur" bears the initial organizational burden as an investment in the future of the group. Much less has been written about the role of the interest group entrepreneur after public interest groups have formed, during the

maintenance stage of a successful group. Due to resource limitations, groups have to make strategic decisions related to which issues they prioritize. This raises the question, do key decisions about issue prioritization continue to reflect the preferences of the entrepreneur, who was vital to the group's founding, or, as the group becomes more established, do countervailing influences

begin to override the central role of the founder? Whose voices are heard, whose are ignored, and what happens when there are substantial disagreements among key stakeholders of an interest group? For the most part, these questions remain unanswered by the existing interest group scholarship. This paper explores this issue through a case study of the Sea Shepherd organization, an environmental group that was founded by

environmental activist, Paul Watson, for the purpose of implementing confrontational direct-action techniques to protect whales and other marine species. In recent years, the group has moved away from its radical direct-action methods toward a more moderate approach that focuses on collaboration with marine resource managers of developing nations. Using a series of elite interviews, this study explores the decision-making process that led to this substantial change to the group's approach to ocean conservation.

From Pirates to Quasi-Governmental Actors? NGOs against Illegal Fishing in Italy

Jutta Joachim

Over the past decades, NGOs such as Sea Shepherd have joined forces with governments to combat illegal, unreported, and unregulated (IUU) fishing. While such private-public partnerships are quite a common form of addressing global governance problems, it is a rather radical shift for the involved NGOs to shift from outward opposition and militant actions against states toward close cooperation with individual governments. Also, cooperation varies significantly across regions. Compared to Africa, where off the coast of, for example, Gabon or Liberia, Sea Shepherd partners with the coastal police and provides fully-equipped vessels as well as professional crews for the public guards to conduct armed inspections of suspected illegal fishing boats, partnerships are still the exception in Europe and are limited to information exchange. What accounts for these differences? Based on the case of Italy, where Sea Shepherd conducts campaigns against illegal fishing in the South Tyrrhenian Sea and in the Liguria region and works together with law officials, this paper examines the reasons for the variant patterns of cooperation as well as the effects. Drawing on social movement, organizational studies, and public administration literature, I argue that the more limited engagement we observe between Sea Shepherd Italy and public authorities is reflective of the European Union's fishery regime as well as the self-understanding of the organization which differs from its global counter-part which conducts the missions in Africa.

The Political and Financial Tradeoffs of Privatized Fisheries Management

Mette Eilstrup-Sangiovanni

In this paper I explore how market mechanisms are driving cooperation between governments and nongovernmental organizations (NGOs) in the domain of sustainable fisheries management. Nongovernmental actors perform a variety of functions in environmental governance, from agenda-setting and norm diffusion to holding governments and corporations accountable through 'naming and shaming,' and enhancing states' implementation capacity through supplying technical and scientific expertise. Lately, NGOs have also assumed a growing role in enforcement of environmental laws and regulations, through both independent 'vigilante enforcement' and by working jointly with states and sub-state public authorities to enforce fisheries regulations in coastal as well as international waters. For example, since 2016, the NGO Sea Shepherd

Conservation Society (SSCS) has formed fisheries protection partnerships with the governments of Gabon (2016), Sao Tome Principe (2016), Timor Leste (2017), Mexico (2018), Tanzania (2018), Namibia (2019), and Gambia (2019) which focus on enforcing local fisheries regulations. Such public/private enforcement agreements have emerged next to efforts to address the problem of illegal, unreported, and unregulated (IUU) fishing through pure market means, such as voluntary standards or certification schemes aiming to regulate the behaviour of fishing corporations, or the introduction of tradable permit programs for fisheries. My paper seeks to answer the question, what leads governments to favour joint enforcement over either purely public enforcement or reliance on market mechanisms. In doing so I seek to illuminate the political and financial trade-offs as well as the relative effectiveness of each mode.

Parallel Panel: Taming Tech for Sustainability Transformation: digitalization and the challenges of equity and justice in global environmental governance

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.170 /
"https://radbouduniversity.zoom.us/j/88997247295?pwd=Z1podFRDVzdubHdOMTY2TldoTjFaQT09

Meeting ID: 889 9724 7295

Passcode: 353983"

Chair(s):

Vinícius Mendes

Discussant(s):

Eduardo Viola

Session Overview: Taming Tech for Sustainability Transformation: digitalization and the challenges of equity and justice in global environmental governance

Scholars are increasingly aware of how emerging technologies have been changing (or disrupting?) the social fabric of life, both in the global North and South, in political, economic, and cultural realms. Digital technologies in particular have been a focus of attention. Digitalization has introduced positive dimensions to humankind's evolution, as has happened with technologies such as fire, language, and agriculture. However, digitalization has also sparked negative dimensions. Research has found that it is associated with: (i) alienation of poor people, particularly in the global South (e.g., ridesharing drivers tend to support far-right politics in countries like Brazil and Indonesia); (ii) racism, reproducing colonialist and misogynist logic of decision-making (e.g., facial recognition technologies trained with data from Western white males); (iii) propelling new logics of accumulation, extraction, and discrimination (e.g., low-to-mid-skilled workers threatened to be excluded from the job market by AI).

Taking this process as a background, this panel brings light to how digitalization is affecting global environmental governance. To date, few scholars have taken this avenue, mostly addressing the potential of technology to improve environmental governance through techno-fixes, satellite imagery, or Nature 4.0 solutions. Yet, there has been a limited emphasis on how digital technologies might negatively impact global sustainability governance, either influencing practical, political, and personal worldviews and decision-making toward environmentally conservative directions or pushing new arenas of socio-environmental exploitation, discrimination, and unsustainable growth. Thus, this panel proposes a critical discussion on techno-driven sustainability governance, including its transformative potential to drive inclusive, participatory,

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Conference Stream(s): Justice and Allocation

and bottom-up environmental governance, but emphasizing, in particular, the challenges and limitations for that.

- What is the transformative potential of digital technologies to foster participatory models of sustainability governance?
- Which technologies might help vulnerable and minority peoples to protect their ways of life, community-based knowledge, local food, and productive systems, improving socio-ecological relations with nature?

Presentations (including names of presenting authors):

Digital technologies and transformative environmental governance in agriculture: the Landless Workers' Movement use of the Arvoredo app in Brazil

Estevan Coca

The 4th Industrial Revolution brought about a new agricultural paradigm called 'Agriculture 4.0', which is primarily characterized by the widespread use of digital resources. Critical scholarship has drawn attention to how such developments intensify industrial agriculture's concentration of power across food systems and the challenges this poses for environmental governance. While this is certainly the case, efforts to document and explore how family-based agriculture has also been using digital technologies have received far less attention. This paper analyzes how the Landless Workers' Movement (MST) in Brazil has adopted digital technologies to further its struggle for Popular Agrarian Reform (PAR) through reforestation and sustainable food production. Proponents of PAR strive to go beyond the classic notion of agrarian reform, mostly centered on access to land, towards the production of healthy foods and the promotion of sustainable practices more broadly. In pursuit of such goals, since 2021, MST has encouraged members to use an app called Arvoredo (see mst.org.br/2021/02/10/conheca-o-arvoredo-o-app-do-mst/) to record tree planting, agroforestry, the construction of nurseries and seed collection efforts, in addition to various formative and activist activities. We document MST's use of Arvoredo and explore the app's challenges and opportunities in furthering RAP as part of transformative environmental governance in agriculture. This hypothesis-generating case study is informed by interviews with 10 MST leaders from across different regions of Brazil. We find that Arvoredo has proved to be an important tool in producing and mobilizing spatialized knowledge of MST's struggle to implement RAP. Yet, precarious internet access and difficulties in handling the app impede widespread adoption and greater effectiveness. In drawing attention to the potential of digital agriculture beyond the sole focus on industrial agriculture we seek to expand the scope of critical inquiry toward the use of digital technologies for emancipatory and ecological ends. MST's experience with Arvoredo illustrates the benefits of digital agriculture for small-scale and family-based farming beyond the dominance of digital agriculture. Such an approach furthers our collective understanding of the complex dynamics among agriculture, land use, digital technologies, and environmental governance.

Seeing From Above: Automated Monitoring of the Rainforest as Threats to the State

Anthony Calacino

When does technology and specifically automation hinder state capacity? There is growing scholarly attention to how digital technologies, and especially automation, interrupt political processes and state activities. The consensus is that technology is a double-edged sword, equally capable of promoting development, or in the wrong hands, strengthening authoritarianism. Still, it remains unclear under what conditions digital technology adoption like automated monitoring can lead to negative outcomes. This paper investigates the conditions under which technology adoption undermines state capacity by using the case of automated satellite enforcement of the Amazon Rainforest. In brief, I find this digital technology generally failed to reduce deforestation rates and has instead led to state-societal tensions and reduced state capacity. By comparing the cases of rainforest management in Brazil, Peru, and Colombia along with over 30 interviews with elites and NGO actors, I analyze the case of satellite technology adoption from the 1990s until 2020. By leveraging the socio-political differences and variation in state capacity in each country, this paper demonstrates that the same factors led to similar outcomes. In each country, satellite monitoring led to enhanced knowledge of illegal activities, but failed to translate into significant reductions in the rate of deforestation. This technology also garnered political backlashes by local populations and powerful interest groups. I present a novel argument to explain these results. Specifically, I argue that two factors explain the similar outcomes in Brazil, Peru, and Colombia: a) understaffing and inefficient distributions of state agents/bureaucrats, and b) a lack of companion changes to legal systems. For factor a), I argue that in the case of Peru and Colombia, a lack of bureaucrats and agents meant satellite monitoring had limited on-the-ground impact. In Brazil, which is better staffed with agents, the state did not efficiently distribute its agents and inadvertently moved areas of impunity deeper into the Amazon. For factor b), the three countries - especially Brazil and Colombia - did not train judges to understand this technology and also failed to resolve long-standing legal disputes of land ownership which complicated the effectiveness of satellite monitoring in the judicial system. My argument and findings point to the risks of digital technology adoption by highlighting the embedded nature of state capacity. Changes in technology need companion and adequate changes in human labor and legal systems to be effective.

Big Tech firms' prophecy to "save the climate": green digitalization and vested interests in global climate governance

Vinícius Mendes

The global political arena is becoming more fragmented and disputed as regards climate governance. States and markets have deployed distinct methods to advance this agenda (multilateral, plurilateral, and bilateral negotiations, carbon markets, renewable energy technologies, nature-based solutions, etc.), yet the climate crisis is far from being solved and has become more acute. Moreover, climate justice literature has pointed out that climate governance has not only been ineffective, but also problematic when it comes to issues of equity, justice, and participation. Recently, scholars have delved into the potential of digitalization to tackle these challenges, for instance, low-carbon technologies, business-society coalitions, and online platforms to strengthen participatory climate governance. Big Tech firms have been key in these developments. For example, Alphabet's Nest Renew provides a service for thermostats that makes it easier to support clean energy at home, and Meta's Climate Science Information Center helps

share information about the impacts of climate change, aiming to strengthen climate action, while Apple's Racial Equity and Justice Initiative propose to merge the racial equity with climate justice debates across its businesses. Yet, so far, few scholarly works have investigated the transformative potential of these initiatives, particularly for making climate governance more effective, participatory and diverse. Contributing to this debate, our research has focused on how four Big Tech firms (Alphabet Inc., Amazon.com, Apple Inc., and Meta Platforms, Inc.) have been framing digitalization as a transformative driver for low-carbon development, and which vested interests are involved in that. What kinds of green technologies and initiatives have these firms introduced to tackle climate change? Which vested interests and economic dimensions are involved? How do these firms advocate for the transformative potential of their technologies toward more participatory and diverse climate governance? To address these questions, we conducted seven months of field research in Silicon Valley/USA, participant observations in meetings of local NGO Citizens Climate Lobby, visited some of these firms' headquarters and performed semi-structured interviews with data scientists, software engineers, and energy and sustainability analysts. Secondly, we collected primary documents from these firms (Diversity & Inclusion Reports and Sustainability Reports) covering 6 years (2016 - 2021). Such data were subject to qualitative interpretation and in-depth reflection on the potential and, particularly, the flaws and vested interests ingrained in these firms' discourses and practices towards climate governance. Our results advance the argument that the "digitalization of climate governance" provides only very limited, not transformative, solutions to climate change

Green Conservative Modernization? The socio-economic dilemmas of AI for low-carbon agriculture in Brazil

Niels Søndergaard

From the late 20th Century, Brazilian agriculture underwent a profound transformation towards industrialized agricultural production models which spread throughout most of the country's interior. This development dramatically raised outputs and external revenues, but also spurred a broad array of sustainability challenges. This process of technical modernization, without corresponding social inclusion, became known as "Conservative Modernization" as it perpetuated exclusionary historical models of rural development. In response to domestic and international critique mainly directed towards the climate and biodiversity impact of large-scale agricultural production, Brazilian agriculture has gradually begun to incorporate a range of production changes with the potential to significantly lower its environmental footprint. However, while technological innovations and the capital-intensive nature of Brazilian agribusiness may provide the means to substantially improve its environmental performance, the sector appears much less capable of spurring rural social inclusion. This raises the need to critically scrutinize the application of low-carbon technologies within Brazilian agriculture in order to assess the wider socio-economic repercussions. In this paper, we specifically focus on the implementation of AI with the goal of spurring sustainable transformation through innovations such as precision agriculture, soil sensor application, pasture restoration, carbon flow measurements, and monetization, as well as big data processing and weather and climate modeling. We ask whether digital technologies can improve rural livelihoods, or whether they should be viewed as the latest step in a continuous

process of exclusionary Brazilian rural development with technological innovations mainly benefitting large-scale operations, akin to a sort of "Green Conservative Modernization".

In order to answer the overarching question regarding whether "sustainable AIs" are fundamentally distinct from a contemporary process of Green Conservative Modernization, the paper addresses a range of important questions related to the political economy of AI within Brazilian agriculture.

- Can AI applications for low-carbon agriculture spur labor inclusion and local income generation?
- Are the technologies and production models based on AI accessible to less capitalized operations?
- To which extent do traders and seed giants dominate Ag-tech production chains within the field of AI in Brazil?
- Which players define the technological path dependency of Ag-tech AI development in Brazil?

The paper treats these questions through a meta-analysis of existing literature supplemented by expert interviews. The aim is to conduct a broad discussion of structural trends of technological evolution/application, and their social reverberations.

Parallel Panel: The consumptogenic system and governance for planetary health equity

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.139 / Zoom

Chair(s):

Sharon Friel

Discussant(s):

Kathryn Bowen

Session Overview: The consumptogenic system and governance for planetary health equity

Climate change contributes to compounding crises of social and health inequities. Underlying these intersecting problems is a global consumptogenic system of institutions, actors, norms, policies, and commercial activities that incentivise excessive production and consumption of fossil fuel-reliant goods and services with negative environmental, social, and health impacts. Low- and middle-income countries, and socially disadvantaged groups are most likely to bear the brunt of global failures to reign in the consumptogenic system. In order to promote planetary health equity (PHE) – the equitable enjoyment of good health in a stable ecosystem – this panel contributes inter-disciplinary approaches to understanding the structures and actor-dynamics that constitute and maintain the consumptogenic system, as well as parameters for coherent governance to improve planetary health equity outcomes.

The panel draws on emerging work from the [Project name removed for anonymous review process], which seeks to provide a roadmap for PHE. [Project name removed for anonymous review process] is an initiative [Affiliation removed for anonymous review process] on 'Governance for planetary health equity'. With perspectives from political economy, public health, networks and systems science, this panel will present new conceptual thinking and empirics around the complexities, dynamics, and trajectories of the global consumptogenic system in the 21st century.

Panellists will tackle the following questions:

- What is the PHE crisis and the contributing governance failures therein?
- How can we understand the networked architecture of institutions and actors in the global consumptogenic system?
- What is needed for coherent governance for PHE?
- What new lines of research flow from an enquiry into the governance of the consumptogenic system and planetary health equity?

Presentations (including names of presenting authors):

The Consumptogenic System and Planetary Health Equity

Conference Stream(s): *Architecture and Agency*

Sharon Friel

Planetary health equity (PHE) is the equitable enjoyment of good health in a stable ecosystem. PHE is a concept that recognises the impact of climate change on social and health inequities. It also recognises the importance for health equity of considering planetary systems. PHE therefore embodies the common drivers of climate change and health inequity.

PHE is in crisis. Human-made climate change is devastating global populations through hotter temperatures, wildfires, and more severe and frequent storms, flooding, and landslides. A tsunami of health inequities will result from this. People and nations who are poor, the elderly, people with disabilities, and those who are socially marginalised are the least able to adapt to the changing climate, unable to escape the floods, fires and heat, and live in dwellings and environments that amplify its effects. All of this climate change-exacerbated social inequity adds to existing inequities in disease burdens and premature mortality.

Here we argue that addressing this PHE crisis demands understanding and action on the structural drivers of social inequity and climate change. These drivers come in the potent form of the global consumptogenic system of institutions, actors, norms, policies, and commercial activities that incentivizes the excessive production and consumption of fossil fuel-reliant goods and services regardless of the environmental, social and health costs. From existing global evidence, it is clear that to reduce health inequities requires inter-sectoral action focused on reducing social inequities and mitigating climate change. To address global environmental degradation requires a rethink of economic models, and progressive policy and business activities that value the environment.

Yet, despite the unfolding catastrophe, little effective political and policy attention is given to transform the consumptogenic system and act in the interests of PHE. Arguably, nothing will change unless entrenched power inequities are addressed. Powerful consumptogenic interests work hard to prevent necessary structural interventions and maintain the status quo that serves them well. For decades, these interests have controlled the narrative, set the rules of the game and underwritten social and political rights and norms. In this paper, we discuss a research agenda seeking to understand how to transform the consumptogenic system, and with a focus on power through structures, institutions, and ideas driving major change in policy and business activities we explore the implications for governance and PHE.

Architectures of Planetary Health Equity Governance

Nicholas Frank

International institutions are key building blocks of planetary health equity (PHE) governance. Individual institutions are components of clusters of institutions which, in turn, form elements of larger governance systems. The architecture or structure of governance systems has important implications for their performance. Enhanced PHE requires globally effective and equitable governance. In order to understand the governance system for PHE, we must move beyond analysis of its constituent parts and engage in macro and system-level analysis. Identifying sites of governance intervention and enhancing governance performance is contingent on understanding the macro structures of the PHE governance system.

PHE touches on at least three different macro governance superclusters – economic governance, climate change, and public health. Using tools from network science and drawing on system of systems analysis, this paper explores the structure of these superclusters and the potential relationship between system architecture and system dynamics. More specifically, we describe the formal governance 'supercluster complex' for PHE at the global level, explain its emergence, and explore its implications for policy and action.

Coherent Governance for Planetary Health Equity

Megan Arthur

Tackling planetary health inequities is fundamentally an intersectoral problem. Climate change, social inequities, and health inequities are interconnected and compound each other, as downstream impacts of complex intersecting upstream political, economic, social, and cultural drivers. On the part of governments, these challenges require a holistic approach and solutions, in line with Target 17.14 of the Sustainable Development Goals, to "enhance policy coherence for sustainable development" as part of the means of implementation of the sustainable development agenda. Beyond the state, transforming the consumptogenic system and addressing planetary health inequities requires action across governance levels, multilateral organisations, policy sectors, and among state and non-state actors. Scholarship and practice to develop and achieve successful Governance for Planetary Health Equity (GfPHE) must consider these multiple dimensions of coherence.

This research agenda requires a process-oriented approach to the issue of policy coherence, examining the political and institutional contexts that shape coherence within policymaking processes. The normative approach articulated by [Author removed for anonymous review process] is based on the rationale that policymaking processes that challenge dominant power structures and reflect norms of human rights, equality, and democracy, are more likely to contribute to strategies for development that promote social justice. In their latest report, the Civil Society Reflection Group on the 2030 Agenda for Sustainable Development argue that policy coherence requires governance coherence, namely providing the institutions responsible for the implementation of the SDGs with effective political and legal instruments necessary for achieving development goals.

This conceptualisation of governance coherence will be presented in relation to its implications for developing a Planetary Health Equity Impact Assessment framework to support coherent action for climate change and health equity. It provides the parameters for a research agenda to analyse the multiple relevant dimensions of governance, their inter-relationships, and attributes of coherence between them, such as the ideas, interests, and institutional norms shaping governance environments. A governance coherence approach, therefore, enables both analyses required for understanding the complexity of drivers of climate change, social inequities, and health inequities – as well as generating useful insights for identifying ways forward in addressing these intersecting challenges.

Parallel Panel: Community engagement and decision-making in energy and adaptation governance

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.112 / Zoom

Chair(s):

Okka Lou Mathis

Presentations (including names of presenting authors):

Individual consumers or collective agents: exploring the potential for inclusion in new forms of energy governance

Marie Claire Brisbois

As renewable energy technologies evolve and energy systems adapt, opportunities for active citizen participation are rapidly developing. However, these opportunities are constrained by top-down governance structures that are suited to centralised energy resources that treat citizens as passive consumers. Even under these conditions, there is considerable hope that smart, decentralised, and local energy systems will support deeper inclusion of citizens in energy system governance, more equitable distribution of the benefits of energy ownership, more sustainable and efficient energy systems, and – potentially – a transformation of energy systems to support formalised multi-level governance activities. This paper examines claims regarding the depth of inclusion, distribution of outcomes, and potential for wider governance transformation in empirical applications of smart and local energy systems in Brighton, UK; Trento, Italy; and, Bergen, Norway.

Using theory on inclusion in decision-making, participation in technological systems, and power, we first developed a framework for understanding the potential for participation in smart and local energy system governance (paper currently under R&R). We then explored this understanding with key energy system and energy access actors in each of the three case study regions using Gaventa's "power cube" methodology. Through this approach, we were able to support actors in reflecting on the spaces (i.e. closed, invited, claimed), levels (i.e. local, national, international), and forms of power (visible, hidden, invisible) they are able to mobilise in pursuing more inclusive and equitable energy outcomes.

This approach yielded both theoretical and practical results. Theoretically, we found that opportunities for greater participation in energy systems are strongly limited by the institutional structures, governance logics and power relationships that characterise existing centralised energy systems. Benefits are limited to those available to citizens as consumers (i.e. benefits as individualised economic savings), not citizens as active decision-makers (i.e. citizens as collective agents with power in energy systems). Potential for transformation is limited under these centralised approaches, however civic and citizen energy actors continue to find new ways to try

to claim energy agency beyond the programs and trials sanctioned by existing energy companies and regulators. Practically, participants were able to actively identify opportunities, spaces and fora where they may increase their chances of achieving normative energy goals.

This paper fits naturally under the ESG Democracy and Power theme as we explored, in a partly co-creative setting, the opportunities presented by evolving Anthropocene conditions to return more equitable and just energy governance outcomes.

Learning process in participatory governance and its influence on the cost of participation

Mustika Anggraeni

A learning process functions as a bridge between research and society, which improves governance processes by including many actors; the degree to which learning is significant to policy outcomes is examined. In addition, learning is necessary for meaningful engagement. People participating in the participation process, for instance, do not just receive new information; they need to interpret the facts, define problem, and discuss solution. Regarding earth system governance, learning is intended to promote Anthropocene sustainability.

Theoretically, the type of learning process differs based on the number of iterations required to adjust or enhance governing performance for various problem types, such as single, double, and triple-loop learning. The individual-collective level and factual, experiential, and constructivist learning are also used to classify learning. This categorization is well-established; nevertheless, the literature seldom discusses how the learning process differs from the viewpoint of the government and the participant and the analytical technique used to determine this. Referring back to the goal of learning on participation to create better governance, the literature lacks evidence on the learning process and its effects on the cost of the process.

Consequently, this study generates two research questions: (a) how are learning processes in local participatory governance? (b) What effects does the learning process have on the costs of participation?

The research was conducted in four flood-prone communities in Surakarta, Indonesia. This study was mostly done by document analysis, interviews, and triangulation.

The results of this study indicate that the learning processes of the government as an organiser of the participation process and the community vary with respect to the types of knowledge (factual learning) and experiential learning. From the viewpoint of the government, double loop learning has been achieved in a number of areas, but constructivist learning that can alter beliefs has not yet been attained. Participation levels in the communities varied, and thus, so did the learning processes. The community with greater degree of involvement was able to extend its learning beyond a single loop. However, more engagement must be encouraged, and the learning process must be facilitated. This pertains to the second question, which reveals that the learning process is not automated in some instances, and that this is costly. To achieve meaningful engagement, the learning process between government and communities must be bidirectional. While

Conference Stream(s): *Justice and Allocation*
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

conducting this study, each community has its own characteristics that effect inequality in terms of participation and learning opportunities.

In and Out: What shapes the decisions of intended beneficiary communities to opt-in or opt-out of adaptation projects?

Yamini Yogya

Critical reviews of formal adaptation intervention outcomes, particularly in the Global South, have found that planned adaptation efforts often underdeliver, redistribute vulnerability or even create new sources of vulnerability. Community stakeholder engagement in project design and implementation has been found to lead to efficiency, effectiveness, equity, and legitimacy as compared to constitution-oriented, top-down approaches. With a global proliferation of adaptation projects that now focus on community involvement and action, it is imperative to inquire into factors that enable or hinder participation in adaptation projects. Why do intended beneficiaries decide to participate in climate change projects, and more importantly why do intended beneficiaries decide not to participate?

In this paper, we explore farmers' explanations for why they opt out of participating in adaptation initiatives and contrast these explanations with what beneficiaries describe as the benefits of opting in. Using case study methods like focus group discussions and semi-structured interviews, we explore the relationship between formal strategies and the socio-political context that shapes decision-making for beneficiaries of an internationally funded climate change adaptation project in Uttarakhand, North India. In total, we conducted 7 key informant interviews and 30 focus group discussions (in groups of 5-8 farmers) across 10 villages in the study site (divided along the axis of gender, 16 focus groups were conducted with farmers who opted into participating in the adaptation project and 14 focus groups were conducted with farmers who opted out of participating in the adaptation project). This analysis highlights ways in which small and marginal farmers experience adaptation interventions, means of access to adaptation resources that are available to different farmers, and in what ways, if any, can future adaptation projects be designed for regions with similar geographical and livelihood dispositions. We argue that reasons for opting in or opting out of projects will significantly shape our understanding of adaptation project design, mechanisms of implementation, impact, outcomes, and effectiveness of adaptation projects.

Building on existing evidence of how social and power dynamics determine vulnerability and access to public goods, including adaptation resources, findings from this paper will contribute to emerging conversations about downscaling state action plans and mainstreaming of adaptation concerns in the Global South. The results from this paper will contribute to understanding the differences between how the implementation of policies is typically hypothesized as opposed to how they are in fact executed.

Policy capacities for delivering just adaptation

Meghan Alexander

Conference Stream(s): Justice and Allocation
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

The impacts of climate change are unequally dispersed across spatio-temporal scales and socio-demographic groups, intersecting and exacerbating existing social inequalities. Simultaneously, societal responses to climate change have the potential to create or reinforce emerging injustices. However, while the literature presents an extensive commentary of these distributive, procedural, recognitional and intergenerational injustices, considerably less attention has been directed towards the pragmatic delivery of just adaptation and the enabling vs constraining features of policy settings. Thus, fundamental questions remain about the policy capacity (or lack thereof) for delivering just adaptation and how this can be assessed in practice.

This paper aims to establish an analytical framework for examining these policy capacities (in its plural form); defined as the package of 'skills, competences, resources, and institutional arrangements and capabilities with which key tasks and functions in policy process are structured, staffed and supported'. Building off the work of [citation removed to anonymize abstract], we address the analytical, operational and political facets of policy capacity, operating at organizational and systemic levels. Drawing from a review of the literature (policy capacities, public participation, inclusive and deliberative governance, compensation, and environmental justice), we identify a set of justice indicators to formulate a policy-capacity-justice framework.

This framework is validated through an empirical case study of flood and coastal erosion risk management in England (UK), drawing from stakeholder interviews and policy analysis conducted as part of the [citation removed to anonymize abstract]. We document the presence and absence of key policy capacities for achieving just adaptation, noting high levels of technical and knowledge system analytical capacity. We also observe growing levels of political resource and legitimation capacity with the emergence of the Coastal Transition Accelerator Programme, which is currently exploring innovative approaches of coastal erosion. Whilst procedural and recognitional justice are well supported, the implementation of adaptation continues to suffer from a lack of both organizational and systemic operational capacity, with significant implications for distributive justice. Although further operationalization is required in different adaptation contexts, the policy-capacity-justice framework provides a pragmatic means for identifying these capacity gaps that could, in turn, inform the design of interventions to bolster capacities for delivering just adaptation under climate change.

Does stakeholder participation improve environmental governance? Evidence from a meta-analysis of 305 case studies

Jens Newig

Participation and collaboration of citizens and organized stakeholders in public decision-making is widely believed to improve environmental governance outputs. However, empirical evidence on the benefits of participatory governance is largely scattered across small-N case studies. To synthesize the available case-based evidence, we conducted a broad case-based meta-analysis across 22 Western democracies, including 305 individual cases of public environmental decision-making. We asked: How do 'more' participatory decision-making processes compare against 'less' participatory ones in fostering – or hindering – strong environmental governance outputs, (i.e.

Conference Stream(s): *Justice and Allocation*
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

environmental provisions in plans, agreements or permits)? Which design features make a difference? What role does the decision-making context play? How do results change if we control for the intentions of the leading governmental agency? To capture the central design features of decision-making processes, we distinguish three dimensions of participation: the intensity of communication among participants and process organizers; the extent to which participants can shape decisions ("power delegation"); and the extent to which different stakeholder groups are represented. Our regression analysis yields robust evidence that key design features of participation impact upon the environmental standard of governance outputs, even when controlling for the goals of governmental agencies. Power delegation is shown to be the most stable predictor of strong environmental outputs. However, communication intensity only predicts the conservation-related standard of outputs, but not the environmental health-related standard of outputs. Participants' environmental stance was another strong predictor, with considerable variation across different contexts. While our results remain broadly stable across a wide range of contexts, certain contextual conditions stood out in shaping the relation between participation and environmental outputs. Overall, our findings can inform the design of participatory processes that deliver governance outputs of a high environmental standard.

Parallel Panel: Future imaginaries and translocal dynamics of democratic grassroot experiments

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Julia Tschersich

Kristiaan Kok

Discussant(s):

David Schlosberg

Session Overview: Future imaginaries and translocal dynamics of democratic grassroot experiments

In light of today's multiple, interlinked crises, new visions of democracy are needed that can stimulate sustainability transformations, while allowing for more inclusive and empowering processes. A diversity of democratic grassroots initiatives is already experimenting with alternative ways of thinking and practicing democracy. These range from transition towns and ecovillages, alternative food initiatives, commons-based initiatives, social movements, urban squats or protest camps. Also described as 'real utopias', democratic experiments show that alternative ways of organizing society, economic and human-nature relationships and practicing more collective forms of governance are possible. They counter narratives of 'there is no alternative', which are strong mechanisms for keeping dominant structures and power hierarchies in place. Promoting inspiring stories and imaginaries can be an effective way in mobilizing change and affecting policies, as well as challenging dominant narratives of growth. Yet, wider justice and sustainability implications of often local experiments require more in-depth evaluation.

This panel invites theoretical and empirical contributions that review forms of democratic experimentation at various scales and how they relate to wider sustainability transformations.

We invite contributions that explore one or several of the following questions:

- Which alternative visions are promoted by democratic (grassroot) experiments? How are alternative visions embedded in the practices of democratic experiments?
- (How) Are alternative democratic practices challenging dominant unsustainable logics and narratives?
- What are conditions for democratic experiments to contribute to sustainability? (How) Can such bottom-up democratic experiments promote more sustainable practices and materiality?
- What are wider justice and power implications of democratic experiments?
- How do alternative democratic practices relate to one another, how can (and should?) they be connected and promote more democratic systems across (translocal) space and scales?

- How can we link democratic experiments to policy domains?
- What can be learned from democratic grassroot initiatives for governance at global or state levels?

Presentations (including names of presenting authors):

Grounded Imaginaries in Response to Climate Crises

David Schlosberg

Conventional responses aimed at the mitigation and adaptation to socio-environmental destabilisation too frequently reinscribe unhelpful, disempowering, and alienating imaginaries for collective action. The dominant social imaginaries of a climate-changed future currently circulating in capitalist societies fail to afford the ways of thinking and feeling that will encourage and enable effective action, rather engendering disengagement, apathy, fantastical thinking, hopelessness and inaction. In the face of climate change and its immediate impact on communities globally, we examine how communities' praxes might contribute to shifting the dominant imaginaries for a climate changed future. In an initial examination of grassroots community responses and renewals in both India and Australia, this paper seeks to present some of our empirical fundings about how communities are responding to the effects of climate change on the basic systems that support their lives, and reflect on how those praxes are altering the communities' own future imaginaries and how they might contribute to shifting climate imaginaries more broadly. The paper begins with an analysis of the weakness of three key contemporary climate imaginaries – business as usual, doomism, and technofix – and our discussion of the concept of 'grounded imaginaries' of lived practice. After a description of our field-based research methodology, we present some examples from the field of a range of communities that are imagining and practicing material transformations in everyday life. Finally, we reflect on some of the key themes emerging from our examinations of community efforts, and their implications for how communities' praxes might alter future climate imaginaries.

Conditions for real-utopias of radical democracies to contribute to sustainability transformations

Julia Tschersich

Democratic processes are often perceived as conflicting with the need for rapid and fundamental transformations. Scholars argue that central aspects of liberal democracies hinder their ability to effectively address environmental challenges, including short-term electoral cycles and the lacking representation of non-humans. At the same time, political satisfaction and trust in representative, party-based democracies are declining, while nationalist populism and authoritarian rule are rising. This calls for new visions of democracy that can stimulate sustainability transformations, while enhancing inclusion and empowerment.

This paper studies 'real utopian' visions and practices of experiments in radical democracy that combine autonomous, community-based self-governance and direct, highly inclusive forms of decision-making with a strong emphasis on ecological considerations. 'Real utopias' bring potential visions of future democracies into the here and now. By living the change that they want to see in the world, these initiatives show that egalitarian ways of organizing society and human-nature

relationships are indeed feasible and already in place. However, their relationship to wider state structures and implications for wider transformations are not yet well understood.

To tackle this research gap, this paper explores the relation between radical democracy and sustainability transformations and between radical democracy and the state, by conducting a meta-study of cases of radical democratic experiments on the basis of a systematic literature review. A focus is on how these initiatives contribute to shifts in dominant logics or paradigms, from materialistic culture and growth toward post-capitalist perspectives, from control of humans over nature toward reconnecting human-non-human relationships, and from expert to pluralist understandings of knowledge.

This paper derives hindering and enabling conditions for radical democracies to contribute to sustainability transformations, and hypotheses on the role of the state in these processes. Moreover, it reviews proposals and implications from the literature for transforming state-level democracies to be more supportive of radical democracies, as well as proposals beyond the state.

In doing so, this research also bridges literature of ecological and radical democracy. Ecological democracy proposes transforming state democracies toward less anthropocentric forms of governance, for instance by granting legal rights to nature or assuring representation of future generations in decision-making. It also shows the positive impact radical democracies can have on sustainability. Radical democracy literature emphasizes the decisive, but highly ambiguous and contentious role of the state for the preservation of radical grassroot democracies. Connecting these approaches and embedding them a wider meta study can serve to address respective blind spots.

Co-producing Power Production Futurities in Saskatchewan, Canada: advancing democratic practices

Margot Hurlbert

Solving climate change has never been more urgent, illuminating the need for social science and involvement of people in addressing socio-technical barriers in decarbonization of energy and power production systems. Renewable energy, new technology (including carbon capture utilization and storage (CCUS) and next generation nuclear technologies), and innovative combinations of existing technologies (distributed systems of prosumers) provide a smorgasbord of possibilities and choices in effecting mitigation. Solving the puzzle of decarbonization and achieving zero carbon emissions in power production systems at the scale and pace needed to achieve Paris commitments is stymied not only by barriers relating to built vested? Infrastructure of power plants and their transmission and distribution system, but also the practices and expectations of people and their communities (thus a socio-technical system problem). Promising methods of addressing this problem involve community engaged co-created visions and action based futurities that consider the problem holistically.

This paper reviews methods of engaging with the public in solving climate change and achieving net zero GHG emissions. Results reported focus on a province in Canada that achieved the first post combustion CCS power production facility and where nuclear power production does not currently exist but an increase in support for next generation nuclear technology of Small Modular Reactors (SMRs) has occurred over the past few years. This paper reports on results from eight

citizen juries, numerous focus groups, and experimental survey designs conducted since 2017 co constructing imagined net zero power production futures. Aspects of these methods including virtual versus in person, values versus technology discussions, focus groups with industry and mining, and survey with business are described and their results provided. Over the last several years providing information to people about innovative technology and practices has improved people's perceptions and resulted in social learning and increased participation in discussion and expectations of involvement in decision making. However, as awareness increases it is not a given that this approach will continue to have these results. Important consideration of context or geography (how people earn their livelihood), the method of engaging with people including the research questions, and the industry and sector make a difference.

Dealing with translocal dynamics in democratic and experimental governance for sustainable transformation

Kristiaan Kok

There is an urgent need to accelerate transitions toward sustainable futures in a wide range of societal systems. Such endeavors beg for transformative governance approaches that are pluriform, adaptive and experimental in nature. In addition, scholars have argued that governing transformation in deeply democratic ways (beyond mere representative democracies) is crucial in addressing and articulating different societal perspectives and voices in the development and implementation of transition pathways. This requires governance strategies to be both directive in light of urgency for transformation, as well as pluriform and open-ended through deliberative practices. At the same time, however, recent scholarship has increasingly pointed out the different ways in which transition dynamics (and relatedly: governance efforts) are connected across space and scale through translocal dynamics. While such dynamics are considered valuable in light of translocal diffusion of innovations, and translocal empowerment of sustainability initiatives and movements, or in connecting transition experiments across space and scale, scholars have also stressed that translocal dynamics can reinforce unsustainable and unjust dynamics across space and scale. In addition, the translocal character of transition dynamics and governance raises questions on legitimacy, accountability and responsibility of governance interventions across space and scale. In this paper, we thus set out to further explore the opportunities and challenges for democratic and experimental governance approaches in light of translocal transition dynamics. After introducing the turn towards and the promises of democratic and experimental governance approaches, as well as the translocal nature of transition dynamics, in our analysis we highlight (1) challenges; (2) opportunities and (3) governance implications of institutionalizing and implementing deeply democratic governance approaches in translocal times. While our contribution is mostly conceptual, throughout our work we draw on empirical insights from several transition-oriented (policy) programs in the Netherlands and the EU in the field of food and agriculture. By concluding our work with implications for policy we hope our work can also help policy actors to navigate the (political) challenges involved in governing societal transformations.

Parallel Panel: Allocating climate change adaptation finance to those who need it most! How does allocation work and how can we measure who is most vulnerable and whether finance is used effectively?

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.120 / Zoom

Chair(s):

Christian Baatz

Session Overview: Allocating climate change adaptation finance to those who need it most! How does allocation work and how can we measure who is most vulnerable and whether finance is used effectively?

The international community mobilises finance to support adaptation to climate change in the Global South. Current finance flows via multilateral climate funds and bilateral development cooperation are much lower than finance needs though. This profound scarcity is unjust; and available resources must be spent effectively and benefit those who need them most to avoid further increasing injustice. This includes transformative adaptation to shift and accelerate the trajectory of progress toward climate-neutral, inclusive, resilient and sustainable development pathways. Small Island Developing States (SIDS) and Least Developed Countries (LDCs) are commonly regarded as most vulnerable to climate change and thus most entitled to adaptation finance. However, it is unclear who is most vulnerable within these countries. It also is difficult to monitor and evaluate whether implemented adaptation projects are effective, not to mention assessing ex ante whether a proposed project will be successful. Such evaluations require clear and differentiated indicators whose robustness needs to be tested across various projects. This will provide much needed insights on when adaptation is effective. The allocation process for adaptation finance also plays a role in ensuring effective adaptation, as delays in funding decisions can compromise project outcomes. In the context of these issues, the panel firstly presents a case study on the allocation procedure of the multilateral Green Climate Fund. The study investigates why adaptation proposals from SIDS and LDCs spend longer in the pipeline before they are approved. The second contribution assesses vulnerability to sea-level in the Seychelles based on a combination of modelling and ethical reflections. The third presentation introduces a robust adaptation impact indicator and explains the concept behind evaluating the effectiveness of adaptation measures. Finally, the fourth contribution evaluates the effectiveness of adaptation measures in low- and middle-income countries based on findings from a multi-year evaluation of adaptation in climate change.

Presentations (including names of presenting authors):

Explaining the delay in GCF's approval process for adaptation projects

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Clara Ida Bartram Gurresø

The international community has agreed to mobilise financial support for climate adaptation in the Global South, with priority to particularly vulnerable countries. Studies assessing whether the most vulnerable countries are prioritised largely focus on the outcome of allocation decisions, such as distribution and volume of funding. Meanwhile, the duration of the allocation process has been overlooked, despite its important consequences for adaptation action. Delayed approval results in delayed implementation. This poses significant risks to project outcomes as underlying (technical and financial) assumptions may change over time. The Green Climate Fund (GCF), the world's largest multilateral climate fund, plays a critical role in funding climate adaptation in the Global South. GCF adaptation proposals spend on average over two years in the pipeline before being approved. This is in part caused by a lengthy review process and long periods of time between feedback and submission. The average approval time conceals large differences between projects and countries. Understanding the patterns in these delays, and why delays occur, can contribute to the debate on whether the most vulnerable countries are indeed prioritised in the allocation of multilateral adaptation finance. As such, this paper explores the question: "What explains the delays in approval of adaptation projects from LDCs and SIDS in the GCF?"

The paper takes a mixed-methods approach to data collection. Using quantitative data on approved GCF adaptation projects, it examines differences in approval time between countries. The findings from the quantitative analysis are further explored through qualitative interviews and content analysis. Interviews are conducted with applicants and GCF staff to explore why projects are usually delayed. Subsequently, we analyse feedback sheets provided by the GCF Secretariat on adaptation projects. Based on the themes emerging from the interviews, we perform a content analysis on the feedback sheets to verify the causes of delay.

The quantitative analysis shows that particularly adaptation proposals from SIDS and LDCs tend to experience longer delays than other countries. Preliminary interview data shows different views on the reasons for these delays. Applicants frequently mention practical barriers, e.g. unavailable data and language barriers. They also express a high level of frustration with the GCF, whose feedback they perceive as inconsistent and sometimes even unfounded. Meanwhile, GCF informants point to quality issues in proposals. This paper contributes to the adaptation finance literature by identifying why projects from particularly vulnerable countries spend longer in the GCF pipeline and the implications for climate justice.

Who is most vulnerable? A case study on vulnerability to sea-level rise in the Seychelles

Dorothee Fehling

Adaptation finance should be allocated to those who are most vulnerable to climate change. But reaching the most vulnerable requires assessing and understanding who they are. Vulnerability assessments are typically based on a range of physical and socio-economic data. However, the lack of these data in Global South countries often impedes vulnerability assessments - and ultimately effective adaptation.

![2023 Radboud Conference on Earth System Governance — Bridging Sciences and Societies for Sustainability Transformations]

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

To better understand the Global South's vulnerability to climate change, we assess the vulnerability of the Seychelles to sea-level rise (SLR), which is one of the major climate-change threats to Small Island Developing States. For our assessment, we employ the global-scale Dynamic and Interactive Vulnerability Assessment (DIVA) modelling framework. DIVA assesses physical and socio-economic impacts of SLR and can account for a wide range of physical and socio-economic scenarios. We then combine these scenarios with multiple coastal adaptation measures to assess their impact on a range of vulnerability indicators produced with DIVA.

Our preliminary results show that the Seychelles are highly vulnerable to SLR. Flooding and coastal erosion dominate the impacts; however, saltwater intrusion and loss of lowlands will become more important towards the end of the century. Flood damages and the number of people flooded due to SLR will be highest on the main island Mahé, where the population and infrastructure are mostly concentrated.

We combine this model-based assessment with a discussion of value judgments entailed in the physical and socio-economic analysis. Flood damages and the number of people flooded can be highly imperfect vulnerability indicators, because they only represent some vulnerability dimensions and they do not differentiate between who and what is affected by flooding. Nevertheless, the number of people flooded is a substantial improvement compared to the extremely unspecific Green Climate Fund indicators that refer to "number of beneficiaries": While an adaptation benefit can be anything from a trivial to a fundamental concern, being exposed to flooding will usually be a serious issue.

We conclude that vulnerability to SLR in the Seychelles is concentrated in densely developed low-lying areas. Adaptation could be economically efficient; however, its implementation is challenged by a series of physical and social issues. Further work needs to focus on assessing alternative adaptation strategies that are not covered by our analysis, such as Nature-based Solutions and hybrid coastal protection measures. Moreover, we will discuss our results with Seychellois stakeholders in order to better understand local vulnerability to SLR.

Effectiveness of adaptation measures and an approach for a robust impact indicator

Laila Darouich

This presentation will outline an approach for evaluating the effectiveness of climate change adaptation measures that has been applied to more than 80 evaluation reports of German development cooperation projects. Building on this, we introduce a new innovative approach to measuring adaptation impacts: a modification of the widely used impact indicator "number of adaptation beneficiaries" that aims to achieve uniformity and transparency regarding the impact of financed adaptation measures.

Effective adaptation assessment frameworks and metrics are essential for tracking and assessing climate change adaptation actions and progress. As experiences of implementation of adaptation are accumulating, there is a need to increase the understanding of whether specific actions materialize to their intended outcomes and the potential negative consequences of adaptation actions that might occur, and under which circumstances. However, few adaptation assessment

Conference Stream(s): *Architecture and Agency*
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

frameworks allow for inter-comparison or synthesis limiting our ability to track and assess adaptation progress across contexts and scales, including our understanding of the factors that explain differences in performance across programs, sectors, and countries. To contribute to a better understanding on the effectiveness of adaptation measures, we applied an evaluation framework and set of criteria for the attribution and evaluation of adaptation impacts to over 80 evaluation reports of German development cooperation projects.

Building on this framework, we developed an innovative approach to measuring adaptation impacts based on the widely used impact indicator "number of adaptation beneficiaries". Among the adaptation finance providers that apply this indicator, there is no consensus on what constitutes an adaptation beneficiary or how to quantify the indicator. We find that this has led to further heterogeneous methodological approaches which obfuscates the comparison of adaptation measures and aggregation of beneficiaries. An additional shortfall of this indicator is that the current definition of direct and indirect beneficiaries does not provide information on the level of impact received by a beneficiary. Since the effectiveness of intervention and size of the attribution gap vary significantly depending on the type of activity, it is necessary to consider these variations in the estimation of the level of impact of an intervention. Thus, the proposed approach emphasizes the need to identify concrete, measurable adaptation benefits and accounts for the depth of adaptation impact per beneficiary allowing for meaningful comparison and aggregation. The presentation also seeks possible answers to the question of how best to make transformative adaptation measurable and whether the indicator of adaptation beneficiaries is suitable for this purpose.

Key findings from a multi-year evaluation of adaptation to climate change

Martin Noltze

This presentation will summarize the key findings from a modular evaluation of climate change adaptation interventions by the [name of the Institute removed for anonymous review process], including findings from an allocation analysis, a global systematic review and evaluation synthesis (based on the analysis of adaptation, see Abstract #3), and the synthesis report.

The allocation analysis finds that with regard to German adaptation finance, SIDS and other most vulnerable countries receive less finance than expected based on their climate vulnerability status. This result holds for both bilateral and multilateral spending.

The global systematic review synthesizes the empirical evidence on the effectiveness of climate change adaptation interventions in low- and middle-income countries. The results show that adaptation interventions can be effective with regards to both climate risk reduction and development-related outcomes. Specifically, nature-based solutions have the strongest positive effects for both the coastal and agricultural sectors and across outcomes. Informational interventions also exhibit positive effects across outcomes in the agricultural sector. Social/behavioural interventions in the coastal sector show particularly negative effects on development-related outcomes that will need to be further tested. Taken together, our results highlight the opportunity for development and climate adaptation practitioners to promote co-benefits beyond risk reduction, particularly in the case of nature-based solutions.

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

The evaluation synthesis analyzed to what extent climate risks were systematically assessed and considered in the broader portfolio of German development cooperation, as well as to what extent the portfolio made effective contributions to adaptation. The results show that there is barely any systematic assessment and consideration of climate risks in the broader portfolio. Nevertheless, in its adaptation portfolio, German development cooperation makes effective contributions to adaptation. The synthesis report of the overall evaluation analyzes what role transformative adaptation plays in German development cooperation. Findings indicate that German development cooperation pursues transformational climate policy and supports a just transition, although this is not specific to adaptation. Furthermore, German development cooperation has a number of transformative interventions that are adaptation-relevant, conceptually appropriate and are already being implemented. However, the extent to which these interventions contribute to fundamental change in practice remains an open question.

Parallel Panel: Climate Litigation

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR -1.070 / Zoom

Chair(s):

Marlene Terstiege

Presentations (including names of presenting authors):

Recentering the State in International Climate Change Law

Steve Lorteau

It is often assumed that the economic activities of individuals and private corporations are the predominant cause of climate change. This assumed factual circumstance is viewed as a challenge for international climate change law due to an alleged mismatch between the addressees of international obligations (states) and the 'true' sources of environmental harm. In response, international practice has relegated the role of state to that of an intermediary of international obligations or a facilitator of polycentric governance. For example, the United Nations Climate Change Regime has increasingly welcomed the contributions of private actors through NAZCA and other initiatives. In many countries, climate change mitigation laws seek to modify the incentive structures of private choices that would otherwise exacerbate climate change. This presentation argues that the assumption of predominant private sector responsibility for climate harms is both empirical wrong and legally misleading. Indeed, it is an often-neglected fact that States are directly responsible for much of the world's greenhouse gas (GHG) emissions. A variety of State actors, including national fossil fuel companies, State-owned electricity utilities, armed forces, and other State actors in the Global North and South consume vast amounts of fossil fuels for electricity generation, transportation, and heavy industry. By some accounts, a shortlist of these state-owned entities for 59-69% of carbon majors' emissions. The common assumption is also legally misleading because it diverts attention away from GHG emissions under state control. This, despite the state-centric nature of international climate change law. Acknowledging the state's direct contribution to climate change and its attendant legal consequences de-problematizes the state-centricity of international climate change law and suggests less trodden avenues for state liability.

Legal Mobilization in a Global Context: The Transnational Practices and Influence of Rights-Based Climate Litigation

Margaretha Wewerinke-Singh

Conference Stream(s): Justice and Allocation
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations
Other

Since 2005, a wave of high-profile lawsuits alleging human rights violations in connection with the climate crisis have been filed in domestic and international courts around the world. We aim to understand the formal and informal practices through which lawyers, judges, activists, and journalists have developed, diffused, or translated legal norms in the transnational legal process at the intersections of human rights and climate justice. Drawing on semi-structured interviews, participation-observation, and systematic analysis of media coverage and legal decisions and briefs, we trace how the practices of collaboration, story-telling, learning, and legal dialogue have fostered the spread and influence of rights-based climate litigation. We also analyze the intersecting and cumulative impact of these practices and assess their potential to give rise to the emergence of transnational communities and forms of transnational legal ordering. By offering an in-depth account of the transnational emergence, evolution, and impact of rigths-based climate lawsuits, our paper generates novel insights regarding the nature and potential of litigation as a vehicle for advancing global climate justice.

An International Court of Justice (ICJ) advisory opinion on climate change: seizing an opportunity for international law to be grounded on science and principles of justice

Peter Lawrence

Earth system law requires better aligning law to the interests of future generations and nature. International litigation on climate change is one important strategy in achieving this aim. An advisory opinion of the ICJ on climate change edges closer with Vanuatu circulating a draft UN General Assembly resolution in late 2022 and with many states signalling support. The draft resolution would request the ICJ to rule on the obligation of states under international law "to ensure the protection of the climate system and other parts of the environment for present and future generations".

This paper argues that an advisory opinion along the lines proposed by Vanuatu would be an opportunity for the ICJ to clarify international legal obligations in a way that ensures the law is grounded in the best available science and moral principles of justice - both international and intergenerational. This could be done in a way which enhances rather than detracts from the legitimacy of the court. The argument is illustrated by focusing, firstly, on the procedural rules of the court relating to expert scientific witnesses and the possibility of amicus curiae briefs (friends of the court) which are argued to provide a vehicle for scientific experts delineating the climate impacts on both current and future generations and nature in a manner which enhances the legitimacy of the court. A second argument in the paper is that philosophical theories of intergenerational justice should be drawn on by the court in delineating international law obligations owed to present and future generations as these discourses can give precision to the rather vague international law concept of intergenerational equity, and also provide guidance as to how to balance intergenerational justice with international and intra-generational justice.

The argument rests on the proposition that the court, consistent with its statute, must both apply but also further develop international law where the law is unclear. Development of international

Conference Stream(s): *Justice and Allocation*
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations
Other

law should be undertaken by the court consistent with its statute but also in accordance with the requirements of justice, which must include intergenerational justice and should be defined in subsistence terms of meeting core human rights to life, health and subsistence. It is further argued that the court's effectiveness depends on it meeting the requirements of democratic legitimacy defined by requiring the court to be both impartial and responsive to the people, including future people.

Same Climate Science but Not the Same: A Comparative Study of Climate Change Science in the Courtroom

Liyuan Fan

Climate change affects every individual, and climate science is commonly articulated in universalist terms, in the form of highly sophisticated computer modeling. However, the assessment of the credibility of climate science expertise varies dramatically from one jurisdiction to another. Drawing insights from both comparative law and Science and Technology Studies, we explore how judges in different jurisdictions determine the credibility of scientific expertise in climate change litigation. This article examines the presentation and examination of climate change science in leading climate-related cases within economically developed democracies and proposes a typology of two distinct approaches. Judges in European countries—including the Netherlands, France, and Germany—have developed a strategy that weaves the authoritative reports issued by international scientific organizations and national public institutions into legal arguments. We label the European approach the "publicity model." In comparison, in the United States, courts try to replicate the peer-review process in a legal setting, implying an equation between robustness and objectivity. Therefore, we label the American approach as the "objectivity model." To handle scientific uncertainty by referring to the consensus of the scientific community, the EU judges commonly rely on the democratic representativeness of the scientific bodies, whereas the US judges stress the importance of avoiding bias and prejudice of the experts.

Anti-Fossil Fuel Litigation

Harro van Asselt

Climate litigation is on the rise across the world, with courts starting to play a role in shaping global climate governance. This paper focuses on a subset of climate litigation, namely anti-fossil fuel litigation, which is defined here as litigation aimed at restricting fossil fuel production with a view to achieving climate goals. Anti-fossil fuel litigation can contribute to closing the fossil fuel 'production gap', and ensure that a fair and effective transition away from fossil fuel production is achieved in line with the Paris Agreement's temperature goal. Anti-fossil fuel litigation can also be seen as a mechanism through which 'anti-fossil fuel norms' – i.e., global moral norms aimed at accelerating the shift away from fossil fuels – can be diffused. Although climate litigation is increasingly understood as a transnational phenomenon, the rapidly expanding literature on the

Conference Stream(s): Justice and Allocation
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations
Other

topic still lacks a cross-jurisdictional analysis of common themes and questions arising in the context of fossil fuel-related climate litigation. This paper will address this gap by analysing information on nearly 250 cases of anti-fossil fuel litigation from across the globe. This analysis will inform a novel typology of anti-fossil fuel litigation, which distinguishes between cases involving: misleading or false conduct by fossil fuel companies (e.g. Commonwealth v. ExxonMobil), human rights violation by fossil fuel companies (e.g. the Carbon Majors inquiry in the Philippines) and states (e.g. the Duarte Agostinho case before the European Court of Human Rights), the permitting of individual fossil fuel projects or infrastructure (e.g. Gloucester Resources Limited v. Minister of Planning); claims against fossil fuel companies for insufficient action (e.g. Milieudefensie et al. v. Royal Dutch Shell), and efforts to hold fossil fuel companies liable for climate change damage (e.g. City of New York v. BP). Based on the review of cases, the paper addresses three key legal questions emerging in the context of anti-fossil fuel litigation, namely: (1) to what extent can emissions and climate impacts be attributed to fossil fuel producers; (2) how valid is the market substitution argument, which posits that other fossil fuel producers will step in if some fossil fuels are left in the ground; and (3) does fossil fuel production violate human rights and, to the extent it does, what are states' and companies obligations in this regard? The paper will offer preliminary answers to these questions, but also point out how litigants and courts vary in their responses to these questions.

Innovative Session: Contributing to just transformative change with effective and legitimate transdisciplinary environmental science-policy interfaces?

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.129

Chair(s): Timo Maas, Machteld Schoolenberg, Arlette van den Berg

Presenter(s): Josephine Chambers, Roberto Rocco, Gijs Diercks

Contributing to just transformative change with effective and legitimate transdisciplinary environmental science-policy interfaces?

Global calls for transformative change in the face of urgent sustainability challenges are growing increasingly loud across science, policy and society. Many of these calls point to the importance of mobilizing organizations and individuals at the science-policy interface towards enabling such change. Especially co-productive or transdisciplinary approaches are seen as promising (Wyborn et al. 2018; Chambers et al. 2021). Moreover, transformations put in the limelight questions of power, justice and equity. This makes transformations inherently political, and they should be treated as such by researchers, practitioners and policymakers (Blythe et al. 2018; Scoones et al. 2020). The corresponding challenge for (transdisciplinary) knowledge processes is to address such political questions openly and visibly.

Many researchers and science-policy organizations are used to relegating this under the safety of their 'independent status' and 'neutrality', but for science-policy organizations to become transformative, they also need to transform their own way of working (Maas, 2023). In this workshop, we would like to think through opportunities for transforming institutionalized science-policy relations, especially in the context of just transformative change for nature-inclusive societies. Specifically, we think there are three questions many science-policy organizations are facing that can inform such opportunities:

- Dealing with multi-level policymaking for transformative change. Transformative change depends on policy on many different and intertwined levels of government. This also means science-policy organizations are active on scales spanning from the very local to the very global. But how can they practically link across national, European, and international levels?
- Dealing with societal pluralism. Transformative change asks for engagement by many kinds of actors. Arguably, there is a productive potential in the societal pluralism this entails, a potential which can be stimulated by making visible what norms and values are implied in different perspectives on transformative change. But how can science-policy organizations meaningfully include and accommodate such pluralism in their work?
- Dealing with ossified scientific institutions and rigidity in knowledge (co)production. There is a strong inertia in institutionalized ways of working. But who benefits from enduring

rigidity, and how to recognize and grasp opportunities for transforming science-policy organizations from 'within'?

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Innovative Session: Locating Gender in Sustainability Governance and Transitions

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.133 / Zoom

Chair(s): Dhanasree Jayaram

Locating Gender in Sustainability Governance and Transitions

Even though the role of gender in sustainability governance is well acknowledged in academic and policy literature, there are several gaps in the implementation of gender-responsive and gender-transformative policies. Gender-related discussions have focussed on disproportionate effects of various crises on women and increasingly the role of women as governance actors, or even agents of change. Yet, the concept of gender mainstreaming often becomes a buzzword in intergovernmental and other governance-related platforms (such as United Nations/UN agencies, international financial institutions, national governments, and others that deal with sustainability governance), but without giving serious consideration to what this would entail and how goals of gender equality and gender justice could be achieved. Furthermore, contextual knowledge, structural inequalities, and intersectionality are rarely reflected in policies, even though there are more and more studies (including Intergovernmental Panel on Climate Change reports) that highlight the need for addressing them urgently. In this context, the innovative session aims to bring in expert analysis by academics and policy-makers and practitioners from different countries to share their experiences about 'gender mainstreaming' in sustainability governance. The session will use short interventions by representatives from academia, intergovernmental organizations, non-governmental organizations, governments, and other policy spaces, on questions of knowledge-policy interface, successes and failures, institutional and structural change, multi-actor and multi-level governance, equity and justice, among others. Since gender continues to be one of the less-represented themes in the Earth System Governance (ESG) research agenda, this session would also act as a fillip for further engagement with this important aspect of sustainability governance.

Speakers:

- Annica Kronsell (University of Gothenburg)
- Aditi Mukherjee (Consultative Group for International Agricultural Research)
- Pedro Coss Sanz (Independent Consultant, Gender & Climate Action; also a member of the delegation of the Dominican Republic in the UNFCCC negotiations)
- Juliana Lins Góes de Carvalho (Radboud University)
- Sheena Anderson (Centre for Feminist Foreign Policy) - video recording

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Conference Stream(s): *Justice and Allocation*
Democracy and Power

Innovative Session: De-Moooo-cracy! A performative experiment with a cow-human citizen's assembly

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.136 / Zoom

Chair(s): Anne van Veen

Presenter(s): Leonie Cornips, Bram van Helvoirt, Noël van Dooren, Bart Bleijerveld

De-Moooo-cracy! A performative experiment with a cow-human citizen's assembly

The problem

Nonhuman animals are stakeholders in sustainability transformations, but are generally not included as such. In addition, justice perspectives are often limited to justice for humans. At the same time, political philosophers increasingly advocate an interspecies democracy with (in)direct forms of representation of nonhuman animals to achieve multispecies justice. Interspecies democratic practices are a huge leap from where we currently are and are therefore difficult to imagine. In this innovative session we use art to push the boundaries of what is seen as possible by performing an experiment with interspecies democracy. Specifically, we hold a (fictional) citizen's assembly in which future generations of cows and humans are represented by current human citizens.

The experiment

Our cow-human citizen's assembly is tasked to develop a vision for how cows and humans will live justly and sustainably in the province of Gelderland in 2043, and to use back casting to develop the policy measures needed to achieve this future. For this, we ask humans living in Gelderland to represent themselves, current cows, future cows, or future humans. In preparatory meetings, artistic methods and expert sessions help the citizens prepare their vision and policy proposals. Activities such as storytelling, embodied exercises, and perspective-taking rituals aid participants in attuning to and embodying the perspectives of the group they represent. During the innovative session, the groups come together and perform their final deliberation.

Aims

- 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?
- 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?

Conference Stream(s): Justice and Allocation
Democracy and Power

Innovative Session: Transdisciplinary research in living labs for environmental issues: gained experiences and lessons learned

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.109 / Zoom

Chair(s): Gerald Jan Ellen, Sander Meijerink

Presenter(s): Giulia Campodonico, Inaya Rakhmani, Bagus Takwin, Huub Ploegmakers, Jean-Marie Buijs

Transdisciplinary research in living labs for environmental issues: gained experiences and lessons learned

Living labs have become a common format for shaping transdisciplinary research on environmental issues. Living labs are places where researchers from a wide range of disciplines engage with societal stakeholders to better understand environmental issues, and to co-design and implement experimental strategies to solve these issues. In spite of the popularity of the living lab approach, realizing productive interactions and shaping transdisciplinary research remains challenging. In this innovative and hybrid session we aim to draw lessons from experienced gained with transdisciplinary research in living labs. Representatives of living labs for biodiversity restoration; soil, water and drought; and flood risk management will kick-off with short pitches in which they present key issues they are struggling with, such as: how to bridge agendas and frames of researchers and practitioners; how to sustain living labs (after funding ends); and how to upscale the innovations developed within the living lab. After the pitches these issues will be discussed in a world café setting with different tables. Some of these tables will be physically at the Radboud University, others online. Online group discussion will be facilitated by using Miro Software. After a break the results of the group discussions will be briefly summarized and presented, after which there is room for physical and online Q&A.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Promises and pitfalls of implementing the Sustainable Development Goals

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR -1.075 / Zoom

Chair(s):

Frank Biermann

Carole-Anne Sénit

Discussant(s):

Yixian Sun

Thomas Hickmann

Session Overview: Promises and pitfalls of implementing the Sustainable Development Goals

The SDG Impact Assessment published in 2022 has shown that the political impact of the Sustainable Development Goals (SDGs) has so far largely been discursive. While the 17 global goals also had some normative and institutional effects, they have unfolded only limited transformative political impact thus far. The goals are at best slowly moving political processes forward, with much variation among countries, sectors and across governance levels. This suggests that scholars and policymakers alike must adjust their expectations regarding the steering effects of the SDGs and more political efforts are urgently needed to bring the SDGs into practice. Against this backdrop, this panel explores the areas where the SDGs had some effects and whether and under what conditions these developments can be scaled up to foster pathways to sustainable development up to 2030 and beyond.

Presentations (including names of presenting authors):

Leveraging the transformative potential of subnational sustainability governance through the SDGs

Basil Bornemann

Previous research on the implementation of the SDGs has shown that the SDGs in themselves have had only a limited transformative impact. Apart from some discursive effects, the SDGs in themselves seem unlikely to directly change institutions, resource allocation, and policies. However, there is growing evidence that the SDGs do not operate in isolation but are interwoven with existing sustainability governance arrangements and policies. When translated into local contexts (i.e., localized), the SDGs enter into multiple relationships with these governance arrangements and strategies. For example, they change the way they function, provide additional legitimacy, alter perceptions of problems and the framing of future visions, and thereby open up additional options for action. In this respect, the transformative capacity of the SDGs must be

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Conference Stream(s): Architecture and Agency

determined in conjunction with existing sustainability governance. In this paper, we would therefore like to broaden the perspective on the transformative impact of the SDGs by highlighting their embeddedness in and linkage to existing governance arrangements and policies. What is the specific role of the SDGs in and for existing governance arrangements and strategies? How are the SDGs linked to governance arrangements and, together with them, how do they contribute to transformative change?

Based on a review of existing literature on SDG implementation at the subnational/local level, we will create a typology of the general roles the SDGs can play with respect to local governance arrangements and policies. These roles and their transformative potential will be further specified using transformation concepts, such as leverage points. Drawing on several case studies from different contexts, we illustrate these roles and highlight specific place-based practices through which the roles are enacted. We discuss opportunities and limitations for strengthening the transformative roles of the SDGs. The findings can be enriched with observations and reflections from practitioners (policy makers, change agents) who are applying the SDGs "on the ground." In this way, concrete and practically reflected recommendations for creating synergies between SDG implementation and ongoing transformation processes are outlined.

Legitimacy challenges of Multi-Stakeholder Partnerships for the 2030 Agenda

Matteo de Donà

Following the launch of the 2030 Agenda for Sustainable Development, the number of multi-stakeholder partnerships (MSPs) seeking to advance its realization has proliferated. This impacts the architecture of global sustainability governance in several ways, not the least with regard to legitimacy as power is dispersed and MSP accountability chains diffuse. In discourses emerging from both scholarly and policy fields, there is a persistent assumption that public-private collaboration and stakeholder diversity are key factors not only to achieve transformative change and implement the Sustainable Development Goals (SDGs), but also to ensure legitimate processes and outcomes. However, previous research on earlier generations of MSPs for sustainable development has shown that their legitimacy and effectiveness are contested. In UN circles these weaknesses were attributed to limitations of nationally bounded processes and silo-driven sectoral orientation. MSPs for the 2030 Agenda therefore seek to embrace a transnational and synergetic approach towards the SDGs.

In this paper, we identify and explore key legitimacy challenges of the new generation of MSPs for the 2030 Agenda. We do this on the basis of a theoretical framework that outlines potential sources of transnational legitimacy at the intersection of public and private realms. These sources stem from procedural values such as accountability, inclusion, and transparency, as well as from substantive goals of partnerships, such as equality, good health, or biodiversity preservation, and from problem-solving capacity. In addition, our framework emphasizes that legitimacy challenges are shaped by the institutional context and problem structure of the issue area in which a partnership operates. Next, we therefore empirically study and compare a selection of MSPs from two different issue areas: health and climate. For health, we consequently zoom in on transnational MSPs that aim to tackle SDG 3 on good health, and for climate, we select MSPs devoted to SDG 13 on climate action. We also include MSPs that aim to synergistically address

both health and climate issues. What are the main legitimacy challenges for these partnerships and how do such challenges differ between issue areas? In whose eyes should partnerships be considered legitimate? What are the main structural obstacles towards legitimate, accountable, and synergistic MSP governance?

In analyzing legitimacy challenges of MSPs as part of the evolving institutional architecture for sustainability, we conclude by offering a broader assessment of the ways in which the new generation of MSPs may reinforce or constrain transformative governance across scales and decision-making arenas.

Exploring plurality in enabling local Sustainable Development Goals actions

Dianty Ningrum

Local governments worldwide are taking the initiative to engage with Sustainable Development Goals (SDGs) despite the absence of a globally-coordinated practical guideline on local SDGs actions. Though local SDGs actions are often associated with localising global targets and indicators and reporting on them, recent evidence suggests that local governments engage with the SDGs in various local governance activities, from local community visioning, strategy and policy planning, to delivering on actions through advocacy and partnerships. With less than a decade until the 2030 deadline, local SDG actions need to be enabled in a more effective yet careful way. Effective—so that successful experiences can be optimally learnt by and adapted in other local governments, and careful—so that local contexts that underpin local SDG actions are adequately paid attention to.

In this paper, we argue that there is a need to look at the process of enabling local SDGs actions beyond a single and straightforward trajectory. Specifically, there is a need to demystify enablers to local SDG actions beyond a list of typical 'good governance' practices (e.g., improved capacity building, more participatory activities, data-driven process) which often being suggested without further examination on where and at what point these enablers work. As much as there is plurality in local SDG actions, we argue that there should also be plurality in enabling local SDG actions. Using Q-methodology, we explore different perspectives on what enables local SDGs actions among local government staff in Australia. Three approaches in enabling local SDG actions emerged from the study: 1) the whole-of-government approach, 2) the champions-driven approach, and 3) the joint stakeholder effort approach. In this study, we found that local governments' framing of their roles and responsibility (vis-à-vis other actors such as state and the federal government) is especially salient in shaping local SDGs actions. By offering a more comprehensive picture of the plurality in enabling local SDG actions, we extend the conversation of how SDG can bring impact at the local government level. Finally, through this study, we also attempt to open a space where different scholarly approaches to advance the SDG—such as leadership for sustainability, network governance, sustainability innovation and experimentation—can be better contextualised in local SDG actions.

Global goals and institutionalization - The case of SDG 12 and Sustainable Consumption and Production

Melanie van Driel

When the United Nations General Assembly agreed on the Sustainable Development Goals (SDGs) in 2015, 17 global challenges were identified. These challenges differ in the extent to which they have been institutionalized, with some having a clear institutional anchor, being led by an international organization or treaty secretariats, whereas others are governed by loosely coupled sets of institutions or governance networks. Although not every 'institutionalized' problem is given its proper attention, and overzealous multiplicity because of the proliferation of institutions and agreements might also be associated with increased global (policy) fragmentation, institutionalization that fills a clear institutional gap might cement and legitimize an issue in the global arena. In this study, we therefore look at the role of governing through goals in processes of institutionalization, taking the case of the issue area of Sustainable Consumption and Production, which is now also the topic of SDG 12. For this purpose, we first conceptualize a triangle of institutionalization. Thereafter, we use process tracing to determine the most important institutional developments in this sphere between 2012 and 2022. We do this based on the categories of authority, procedures and means discernable over time. We thereafter focus on tracing the role of SDG 12 in these developments. To trace these processes, we rely on (primary) documents, including (annual) reports, meeting minutes and evaluations of the One Planet Network, as well as a set of semi-structured expert interviews with members of the network secretariat, (independent) academics, actors from the private sector and members of a diverse range of international organizations. Combining our insights, we reflect on the potential of governing through global goals to (causally) contribute to the institutionalization of 'neglected' global issues.

Innovative Session: Trying out diverse participatory action research methods – harnessing their power for transformative governance

Date & Time (Amsterdam Time): October 24th 3:00:00 PM - 4:30:00 PM

Location: GR 1.160

Chair(s): Linda Carton, Fritz Kleinschroth

Presenter(s): Michael K. McCall, Jon Corbett, Mara de Pater, Igno Notermans, Marieke de Wijse-van Heeswijk

Trying out diverse participatory action research methods - harnessing their power for transformative governance

Transdisciplinary approaches are increasingly acknowledged as vital to addressing complex sustainability challenges and for the generation of transformative change (Norström et al., 2020). Despite its popularity, scholars have emphasized the fundamental differences in the generation of knowledge between academia and other actors (Blythe et al. 2017). Critical interrogation of how transdisciplinary methods link to processes of change is vital to further action research and support transformative governance (Pereira et al. 2018).

This innovative session lets participants try out three, diverse, participatory research methods and interrogate their knowledge co-production processes, their connection to transformative governance, and their blind spots. While all three methods are used to support dialogue processes, they are highly diverse: they originate from different research fields, involve transdisciplinary actors in different ways, are used in different transdisciplinary contexts, and the knowledge they generate connects to different processes of transformative change (Caniglia et al. 2021).

The three methods simulated and interrogated in this session are: 1) the X-curve framework, used to create actionable knowledge on dynamics of build-up and break down in societal transitions (Hebinck et al. 2021); 2) a serious game, designed to simulate various scenarios and interventions for change, fostering learning processes on multiple levels – a sustainability game will be demonstrated (Wijse-van Heeswijk, 2021; Bekius and Gomes, 2023) and 3) participatory GIS, used to represents local peoples spatial knowledge using maps and aerial imagery (McCall, 2003; Corbett et al. 2016).

This session is intended for researchers and practitioners who are curious about participatory methods used to generate actionable knowledge and how they may result in societal impact. The session features short simulations of all methods, practical insights in the use of these methods, and an open discussion on the opportunities and pitfalls of these methods - with specific attention to using these in diverse socio-cultural contexts.

Parallel Panel: Can collective action foster sustainability transformations? Studying the impacts of the climate justice movement

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.125 / Zoom

Chair(s):

Adrian Rinscheid

Sebastian Koos

Discussant(s):

Silvia Pianta

Session Overview: Can collective action foster sustainability transformations? Studying the impacts of the climate justice movement

Political mobilisation has become an integral component of global envi-ronmental politics and earth system governance. This panel zooms in on climate movements, as critical agents of societal change. After a big wave of mobilisation in 2018/19, climate move-ments are currently diversifying their repertoire of protest. Increasingly, this entails disrup-tive and confrontational tactics. Emerging debates about the legitimacy of such climate pro-tests unveil the deep conflict lines between agents of transformation and forces of inertia.

The basic premise of this panel is that more knowledge about the impacts of protest activities is urgently needed for transformational governance. While researchers have started to inves-tigate some of these impacts, our understanding is still very limited. To make inroads, this panel starts with a conceptual contribution, systematically identifying the blind spots of research on climate movements and their consequences, thereby advancing an inter-disciplinary research agenda on collective action. Next, three empirical research projects con-front some of the gaps identified in the first contribution. Attending to the socio-political con-sequences of protest, Ozden & Ostarek document how disruptive protest by the Just Stop Oil campaign has increased support for 'moderate' parts of the movement, but also entails the threat of increasing societal polarisation. Combining experimental and observational longitu-dinal approaches, [citation removed to annonymize abstract] shed light on the understudied contingent dynamics of the movement's public resonance. Studying the impact of XR protests, they show that main-stream media reports are less effective than activists' direct communication. Finally, in a com-parative experimental study, [citation removed to annonymize abstract] systematically examine the impacts of differ-ent forms of protest on citizens' support for the agenda and tactics of the movement.

In a concluding roundtable discussion, we invite two stakeholders to critically discuss the contributions from the perspective of a lawyer and a climate activist, fostering a transdiscipli-nary debate.

Presentations (including names of presenting authors):

Entangled in/between scales, frames and methodological eurocentrism – On the challenges of researching climate justice movements and deep decarbonization

Charlotte Huch

Climate movements are central actors in advancing social transformations required to tackle climate change and reach deep decarbonization. Currently, climate movements in the Global North undergo remarkable changes, shifting from foregrounding generalized claims and mass mobilizations to more disruptive and confrontational protest practices and a return to climate justice as an overall guiding frame. While research on the causes and developments of ongoing transformations in Global North climate activism has already produced important insights, it is unclear what the implications are in terms of social-political consequences. Furthermore, the crucial role of Global South movements remains largely understudied. To what extent are disruptive, confrontational, and climate justice-oriented practices a driving or a restraining factor for decarbonization? What are current analytical and empirical limitations regarding Global South movements? This paper seeks to shed light on the scholarship's blind spots: the nexus of deep decarbonization, climate justice and Global South movements by, first, reviewing dominant theories in social movement studies concerned with movements' impact on social and political dynamics, namely political process theory and political opportunity structures, collective action framing, as well as prefigurative politics. In a second step, we discuss how these existing approaches are currently used to explain the potential impacts of climate justice activism on societal transformation towards deep decarbonization, and reflect on limitations of these approaches. Finally, we call for a more distinctive and critical reflection on the soundness of the dominant movement theories with regards to the contingent dynamics of the climate justice movement. We argue that in order to advance research and subsequent theory-building on climate justice movements, studies have to thoroughly take into account the ubiquity of climate change as a multi-scalar challenge that stands out in contrast to other political and cultural problems that have been in the center of past mobilizations. A critical examination of existing research on Global South climate protest, and the lack thereof, will not only highlight this challenge but also help to outline the methodological Eurocentrism of many approaches.

The radical flank effect of Just Stop Oil

Markus Ostarek

Social movements have the power to enable large-scale social change. Movements are often composed of several factions that can differ substantially in their approaches. Recently, groups that use disruptive and provocative tactics have emerged in several countries. By blockading motorways, throwing soup at paintings, and gluing themselves to airport runways, they have attracted mass media attention. It is hotly debated what the consequences of such radical tactics are for the wider movement: Do they make people more or less supportive of more moderate groups? Do they make people support progressive policy change more or less?

We conducted nationally representative surveys, before and after a week-long disruptive campaign by Just Stop Oil to block London's M25 motorway. 1415 members of the public were asked about their support for and identification with a moderate climate organization (Friends of

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the Earth) and about their support for climate policies. The results showed that people with overall higher awareness of Just Stop Oil tended to identify with and support Friends of the Earth more. Crucially, changes in people's awareness of Just Stop Oil after vs. before the M25 protests predicted changes in their identification with and support for Friends of the Earth. Thus, we observed evidence for a positive radical flank effect, whereby the activities of a radical flank increase support for the more moderate faction of the movement. Regarding support for climate policies, Just Stop Oil's protests appear to have polarized: Those who were the least supportive of progressive climate policies and groups to begin with were negatively affected by Just Stop Oil's protests, whereas those who were more favorable to begin with showed a slight positive effect or no change.

Overall, we propose that Just Stop Oil's radical tactics likely have a net positive effect because the substantial media attention, increased public debate, increased exposure to information about climate change, and positive attitudinal effects on moderate factions outweigh the limited and selective backfire effects that our and previous data point at.

Large-scale disruptive activism strengthened environmental attitudes in the United Kingdom

Cameron Brick

The 2019 London Extinction Rebellion was the first attempt by environmental protesters to create prolonged large-scale disruption in a Western capital city. The effects on public opinion were difficult to predict because protests seen as extreme can reduce support, but protests seen as justified can increase support. Until now, the effects of this unprecedented action on U.K. public opinion were not clear. Available longitudinal opinion polls have not been tailored to examine the effects, although national opinion polls and a study opportunistically using the Understanding Society U.K. Household Longitudinal Study (UKHLS) (Kountouris & Williams, in press) suggest increases in pro-environmental attitudes. Most importantly, experimental evidence has been absent. We studied longitudinal opinion changes in a nationally representative U.K. sample (n = 832) before, during, and after the rebellion, in conjunction with experimental analysis of the causal effects of media reports (n = 1441). The pairing of the two approaches allows opinion changes in the national population to be linked to causal properties of media reports. The rebellion was longitudinally associated with national increases in environmental concern, and activist media increased dissatisfaction with current government action. There was no increase in polarisation in concern or dissatisfaction. Reports from an activist, the BBC, and the Daily Mail caused activism intentions and support to move in different directions, contributing to longitudinally increased polarisation in attitudes to activism. Only a few minutes' exposure to direct activist messaging increased dissatisfaction with government action, which underlines the effectiveness of environmental activists reaching audiences directly, unfiltered by mainstream media, as this experimental effect was not observed for the BBC or the Mail. The rebellion had minimal effects on belief in whether ordinary people can produce relevant change (based on collective efficacy and support for a Citizens' Assembly). Increased polarisation was thus observed primarily in activism-related attitudes and not with regard to general environmental attitudes. The rebellion therefore succeeded in some aims and did not show evidence of any important backlash.

How do different forms of protest shape support for transformational change? A cross-country experimental study of the climate movement

Sebastian Koos

In the last decades, the climate movement has gained much visibility in its fight for climate justice and in enforcing government accountability. Beyond the increased attention however, the socio-political consequences of the manifold activities of the climate movement are far from clear. While some research suggests that protest actions entail an 'activist's dilemma' in that they undermine popular support for social movements, other studies document that climate protest can actually increase societal support for the climate movement. To better understand the manifold and potentially countervailing impacts of climate protests on the potential for transformational change, we designed an experiment that accounts for (1) multiple forms of protest, (2) broader societal impacts, and (3) the mediating role of communicators. Our study hence draws from three streams of literature anchored in social movement research, social psychology, and political communication. (1) We utilise social movement research to conceptualise and capture effects of a broad array of activities – from artistic forms of protest to blocking streets, and from peaceful gatherings to practices that include violence. (2) We build on recent advances in social psychology to mobilise a broad conceptualisation of the impacts of climate movements, encompassing not only citizens' support for (and identification with) the agendas and tactics of the climate movement, but also their perceptions about social norms and the transformative potential of protest activities. (3) We integrate knowledge from political communication to examine how the communication of collective action by societal elites conditions these impacts.

Empirically, our study is based on two large, representative samples (each n = 4,000) of adults in two countries (Germany and the United Kingdom), fielded in early 2023. By attending to a broad range of effects and disentangling why certain social movement tactics are more effective than others, our study contributes to a more empirically oriented and holistic picture of social mobilization. Based thereupon, we develop recommendations for climate activists and offer conclusions for earth system governance more broadly.

Innovative Session: Earth Systems Law RPG: Justice applications in the Anthropocene

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.143 / Zoom

Chair(s):

Andrea C. Simonelli

Presenter(s): Margot Hurlbert, Rosalind Warner, Tim Cadman

Earth Systems Law RPG: Justice applications in the Anthropocene

Theorizing forward-looking legal principles in the Anthropocene is limited by the way these could be applied in practice- this is the challenge of Earth System Law (ESL). Earth-centered legal thinking challenges the long-held precedent on the subject of rights, enforcement of law, the appearance of damages, and the expression of restitution. Transformational law may necessitate adaptiveness in its implementation as a result of the anticipation and imagination needed to see non-human challenges and ripples of scale. This session seeks to move from theory to application by providing an interactive role-play as it applies to the legal challenges of the Anthropocene. It is the year 2065 and international law recognizes the rights of nature. Water and non-humans have the right to life, existence, and the natural progression of their lifespan and/or function. For water, this means it can freely flow through its' phases without restriction and with the right to transit particulate, nutrients, and lifeforms. For non-humans, this means the unimpeded right to birth through maturity, in any and all of the locales that this may entail. The panelists will present two scenarios based on the aforementioned legal recognitions. These will be organized like a trial with the audience acting as a deliberative and/or mediative body. At the end of each role-play, the audience will decide the case evaluating the justice within this paradigm, competing values, and redress. These treatments will pit the intertwined systems of the planet against human economic systems. We invite the audience to participate by weighing the arguments presented relating to the enforcement of rights and impact of potential damages between ecosystem services and a threat, ultimately acting as Judges of the trial having the opportunity to ask questions and ultimately render a verdict; plaintiff versus defendant.

Parallel Panel: Local pathways of climate change adaptation: discourses, actors and tools

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.170

Chair(s):

Claudia Morsut

Discussant(s):

Lisa Sanderink

Session Overview: Local pathways of climate change adaptation: discourses, actors and tools

This panel presents the preliminary findings from the project RISKSEC2.0 Local climate change adaptation: from risk governance to securitisation strategies?, funded by the Research Council of Norway. The project studies international, national and local policies which promote climate change adaptation. Several of these policies are typical top-down, as, for instance, those from the United Nations. However, climate change impacts are manifested locally and adaptation actions need to be taken at local level with benefits for local communities. Without a proper understanding of the characteristics of local governance and society, climate change adaptation is doomed to fail, with consequent economic, environmental and human costs. Building on the literatures on risk governance and the International Relations securitisation theory, this project uncovers how climate change adaptation can be framed through a risk approach, with a focus on accommodating everyday risks, or through a securitisation approach, by which extraordinary measures and particular actors are required.

The findings of this panel focus on the local cases of the project, which are municipalities in Norway, Sweden and the Netherlands, through a comparative perspective. Despite of different socio-political contexts, these municipalities share a common challenge derived from climate change: water-related adaptation issues, such as precipitation-induced landslides, floods and sea level rise. In each paper, the researchers have explored the local pathways of climate change adaptation and to what degree they mirror national policy decisions. The papers address two broad questions: how do national (risk) governance frameworks influence local climate adaptation processes, especially in terms of securitisation? Secondly, how do local contextual factors influence the interpretation of such risk governance frameworks? Each case study will answer these questions following the project analytical framework in terms of three analytical categories: discourses, actors and digital tools.

Presentations (including names of presenting authors):

Local climate change adaptation in Stavanger municipality (Norway)

Ole Andreas Engen

Conference Stream(s): Other

Stavanger Municipality is located in the Rogaland County in southwestern Norway. Its geographical location makes this Municipality prone to various water-related hazards such as (fluvial) flooding, rapid and intense rainfall, and sea levels rising. Extreme weather events such as Per in January 2007, Vidar in January 2017 and Elsa in January 2020 showed how heavy precipitations, storms and hurricanes impacted the water system, sewage and other infrastructure such as paved roads and, at the same time raised several challenges to agriculture and forestry. The municipality has several plans that address how to work with and facilitate climate change adaptation (CCA) but has not yet provided a CCA strategy and plan. In this paper, the authors analyse how the municipality responds to climate risks via CCA measures and initiatives and provides an overview of the local pathways according to the three analytical categories (discourses, actors and tools) from the analytical framework of the project. The findings promote a more effective risk decision making and which climate change adaptation measures are most suitable for the local community.

Climate adaptation in Bergen (Norway): an embedded approach?

Simon Neby

Bergen is Norway's second largest city, but also the rainiest. Located on the west coast, it receives large and increasing amounts of precipitation. Climate adaptation, and in particular the consequences of both increased and more intense rainfall, have for a long time been on the local authorities' agendas. The city's professional community regarding adaptation, societal security and climate change are highly competent and experienced, and the city has even established a separate climate division to deal with issues of climate change. Nevertheless, climate change adaptation most characteristically needles through the standard organization of the municipality. In spite of, or perhaps because of, its awareness and experiences with climate risks, adaptation responsibilities and accountabilities are distributed across sectoral divides with considerable differentiation between technical, analytical, operational and planning tasks. Even in Bergen, an adaptation frontrunner heavily emphasizing the climate issue in general, climate change adaptation is embedded within the regular tiers of the municipal organization, as kinds of "business as usual", in terms of sectors, policy themes and planning regimes. How can this be understood, and what are the consequences of such an approach?

Local climate change adaptation in Sweden: national and local practices from a securitisation perspective

Mathilda Englund

While securitisation of climate change has attracted considerable attention in academia, there is less research on the securitization of climate adaptation. We study how securitisation discourses travel across governance levels in Sweden, and their impact on climate adaptation action and planning. More specifically, we juxtapose the national climate adaptation strategy against five municipal climate adaptation strategies. We look into three analytical categories – discourses, actors, and tools. Our findings show that climate adaptation is characterized by centralized policymaking and regulation whereas responsibilities and implementation are decentralized and at times rather fragmented. Following the principle of local self-government, municipalities have significant freedom to manage and implement actions toward climate adaptation. This allows

securitisation discourses and practices to emerge at different levels of governance, and at times even differ between different administrative divisions and geographical areas.

Climate change adaptation: a risk approach to deal with potential flooding in Dordrecht, The Netherlands

Nenya Jochemsen

Dordrecht is situated on an island in between rivers and is positioned close to the coast. Dordrecht is part of the safety region South Holland South, a network of municipalities and emergency services that together coordinate the control of incidents, disasters and crises. Because of its geographical position, Dordrecht is susceptible to flooding from the rivers and the sea in case of high-water levels. The probability of flooding is deemed low as Dordrecht is heavily protected by a system of dikes but much higher at beyond-the-dike areas. The impacts in case of a flood event are deemed severe to catastrophic in terms of casualties, costs and societal disruption, especially for vital infrastructures that are crucial for the physical and economic safety of the region. To deal with potential flooding, Dordrecht employs a combined model of safety strategies, referred to as multi-layered safety, including structural flood defence (first layer), spatial adaptation (second layer), and emergency response (third layer). After decades of full confidence in the first layer, focus is recently shifting to the second and third layer, which are yet less developed and face many and new challenges. Our study analyses securitisation of local CCA according to three categories: the local discourse around CCA, the responsible actors and their networks, and the policy and digital tools and resources employed by these actors. We conducted an elaborate analysis of policy documents as well as interviews with several local and regional CCA actors. Findings show that the issue of CCA is being perceived as a risk amplifier and is subsequently being integrated in existing policy sectors and tools, and accommodated by existing actors, rather than having CCA being dealt with as an issue in itself. Securitisation is primarily deployed in the form of riskification, most prominently in risk terminology, as well as (digital) tools, ad hoc and structural coalitions and the increased engagement of safety actors.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Visions of Planetary and Participatory Anticipation and Imagination

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.109 / Zoom

Chair(s):

Florian Rabitz

Presentations (including names of presenting authors):

Governing the Planetary Commons: A Key Challenge in the Anthropocene

Louis Kotzé

There are increasing calls to recognise Earth's large biophysical systems that provide Earth system resilience and stability as "planetary commons". The planetary commons include globally shared geographic regions currently recognised under the global commons, but more importantly, also all large biophysical systems that secure critical functions of the Earth system irrespective of national boundaries. Examples are large systems such as the atmosphere and oceans; smaller sub-systems that manifest as tipping elements such as the Amazon Rainforest; and down-scaled systems such as wetlands. As a new paradigm for thinking about planetary resilience, the planetary commons must ideally: safeguard critical Earth system functions that regulate planetary resilience; create responsibilities and stewardship obligations to safeguard planetary resilience; avoid crossing tipping points; and ensure a just world for everyone, now and in future. While declaring the planetary commons is a first critical step, governing these commons raises many complex and unsettled issues. For example, planetary commons governance will challenge the barriers of state sovereignty and self-determination, vested corporate and inter-state interests, structurally embedded global power inequalities, and demarcation complexities. Stakeholder involvement and representation of marginalized interests in designating and governing the planetary commons must be increased in ways that are representative of indigenous and other vulnerable groups. Relatedly, the pursuit of global justice and a broader understanding of multi-species and inter- and intra-generational co-existence for living well must be a top priority. Mutually re-enforcing relationships between law, politics, science, art, and other knowledge domains will also be key in shaping planetary commons governance that is steered by processes of dynamic, mutually supportive knowledge creation. This paper critically reflects on these and other key challenges associated with planetary commons governance and aims to trace the first tentative outlines of a broader planetary commons governance framework.

Imagine All the People: Equity and Inclusion in Participatory Visioning

Fronika de Wit

Futures thinking is progressively moving beyond perspectives of probable or possible futures, based on expert knowledge, toward preferred futures, based on anyone´s imagination. Visioning,

a component of futures thinking that looks into these desired futures, uses participatory processes to jointly reflect on alternative futures. The literature points to advantages of participatory visioning, such as generating innovative ideas, crafting a shared language, creating mutual trust, and building empathy for diverse perspectives.

Futures thinking scholars, however, often overlook power imbalances and injustices in participatory visioning. For that reason, Lab2050, a collaborative living lab on envisioning a sustainable Portugal in 2050, pays special attention to the interplay between participation, equity and inclusion. The experimental project carried out by PlanAPP- the Competence Centre for Planning, Policy and Foresight in Portugal´s Public Administration, has meaningful participation and inclusion as its core values.

This paper describes the process of co-designing Lab2050. It aims to critically analyze enabling institutional settings and the politics of participation and provides recommendations for improved participatory visioning. Its methodology is two-fold. First, it reviews the literature on participatory visioning. Second, it qualitatively analyses the results of a methodological workshop organized by Lab2050 with 32 experts on citizenship and participation in Portugal.

Based on our results, we propose three distinctive features for more inclusive participatory visioning: 1. More than words: going beyond the use of words and include visions based on drawings, videos, theater, games, etc.; 2. Cherish the edges: instead of consensus-seeking, paying special attention to counter-hegemonic visions and more radical ideas; and 3. The Power of Place: instead of organizing workshops in conventional places conditioning participation toward more formal interventions, using unexpected but meaningful places (e.g. market, farm, factory, etc.).

Only then visioning will be about imagining ´all the people´ and not only those that are used to participating.

Boundaries of the future: A framework for reflexive scenario practice in sustainability science

Anita Marie Lazurko

Transdisciplinary scenario processes are increasingly popular tools for anticipating and navigating change in sustainability science. However, no single scenario method can reconcile the diverse domains, scales, values, and epistemologies implicated in the future of complex social-ecological systems (SES). Thus, scenario processes generate partial framings of the future that focus attention on what is most relevant and are contingent on how they were produced. This study aimed to develop a reflexive framework for scenario practice in sustainability science that characterizes 1) how key choices involved in designing a scenario process influence the scope of future potential reflected in scenario outcomes, and 2) the degree to which this scope of future potential reflects the unique characteristics of SES change. The study also aimed to apply and validate the framework with social-ecological scenario case studies. These objectives were addressed through a process of abductive inquiry underpinned by a critical systems lens (i.e., boundary judgments that delineate what is included and excluded). The ten boundary judgments in the final framework range from the scenario purpose and epistemological lens to the degree of formalization and temporal scale. Each judgment narrows or enriches the scope of future conditions and values reflected in the resultin scenarios, with the most expansive choices reflecting the potential for transformation. The framework can be operationalized as an ex ante

reflexive tool or an ex-post evaluation through ten key questions. The analysis of 72 social-ecological scenario case studies exhibits a bias away from transformative scenarios under some judgments. In sum, this study introduces a practical tool for operationalizing futures literacy and offers a research agenda to demystify and enrich the use of scenarios in sustainability science.

Navigating differences in sustainability visions and values: a case study of strong and deep sustainability

Nicola Mary Banwell

The pursuit of sustainability in the face of wicked problems such as the climate change crisis, the sixth mass extinction, and growing social dichotomies, requires a comprehensive and nuanced consideration of the moral and ethical dimensions that inform societal responses. Underlying norms and values are increasingly recognised as integral to promoting transformational change to address sustainability issues. For example, extensive empirical research in environmental psychology and behavioural sciences has demonstrated the pivotal role of values, norms, and morals in shaping pro-environmental behaviour and action for public goods. As such, normative values and ethics form an essential component of the ongoing conversation surrounding sustainability. It has been well established that there are numerous normative frameworks related to sustainability, often referred to as weak, strong and deep sustainability. Between these frameworks exist important differences in terms of normative values and visions for sustainability. Differences in such normative elements among members of groups and teams working towards sustainability transitions have the potential to impede progress on several levels.

At present, there is a need for empirical academic research that provides a deep comprehension of normative visions and values in sustainability actions, as well as how to navigate differences in such visions and values when they arise. Therefore, this paper presents key results from a case study which explored the implicit values related to normative sustainability visions amongst a team actively engaged in sustainability transition within their organisation, a public institution in Switzerland. Data collection methods included document analysis, semi-structured interviews, and a participatory workshop to explore sustainability visions and related values. These methods encourage participant reflexivity on both individual and collective levels through ethical dilemmas and reflexive discussion. This approach encourages participants to reflect on their own values, normative frameworks, and ethical perspectives related to sustainability.

The case study presented in this paper highlights the potential of the Donut Economics framework as a normative framework capable of accommodating visions of both strong and deep sustainability, and the associated value pluralism. Within the context of the group at the centre of the case study, sustainability visions and ethical reasoning revolve around the planetary boundaries and social needs highlighted in the Donut Economics framework. The dialogue that took place in the context of this case study also illustrates the potential for the Donut framework to incorporate alternative visions of the world if some key pitfalls are avoided.

Parallel Panel: Water and food governance at the nexus

Chair(s):

Carlijn Hendriks

Presentations (including names of presenting authors):

Water Governance towards Sustainability: From bricks to building blocks

Shahana Bilalova

Water governance is widely acknowledged as crucial for addressing water-related issues and ensuring the long-term sustainability and resilience of water systems. With an understanding of the social and ecological complexities, multifunctional characteristics of water, and societal interdependencies, water governance has seen a variety of new governance approaches emerge. Inspired by sustainability, democracy, and the complexities and uncertainties involved in governing water systems, labels such as "integrated water resource management," "adaptive water governance," "collaborative water governance," "river basin and catchment management," and "polycentric governance" have been widely promoted as universal solutions, with their effectiveness often taken for granted. However, it remains unclear which of these governance approaches, or combinations thereof, are effective in preserving or restoring environmentally sustainable water resources and ecosystems. Our study aims to create a comprehensive conceptual framework that supports a diagnostic analysis of water governance to determine which governance configurations and contextual factors are necessary for water sustainability performance in preserving or restoring environmentally sustainable water resources and ecosystems.

The conceptual framework illustrates the interconnections between three core elements - water governance paradigms, problématiques, and water governance characteristics - and how interactions among them contribute to sustainability performance under specific contextual factors. Due to the diagnostic nature of the framework, these elements can be further analyzed at different conceptual levels, depending on the guiding policy or empirical questions. In this conceptual paper, we delve deeper into these elements and explore the interconnections between water governance paradigms, problématiques, and water governance characteristics, how these interconnections affect sustainability performance, and the impact of contextual factors. We do this by reviewing existing theoretical and conceptual scholarly contributions in the field of environmental governance. The review of the scholarly work guides the formulation of a set of hypotheses on the relationships between the different elements of the framework.

As water issues are expected to become an increasingly critical problem on a global level, given the rising complexities and unpredictability, this framework contributes to a better understanding of sustainable water governance systems and the dependency of governance performance on

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Conference Stream(s): *Architecture and Agency*

context. This will further aid in the creation of more robust and resilient policies and facilitate the governance reform process. The framework aims to guide comparative analysis of water governance systems, with a focus on improving understanding of how different elements of water governance systems determine their sustainability performance and the extent to which contextual factors influence these relationships.

Identifying opportunities and barriers for transboundary Water-Energy-Food-Ecosystem-nexus governance: a comparative case study of the Lielupe, Nestos/Mesta, and Adige river basin

Caro Eline Mooren

Water-Energy-Food-Ecosystem (WEFE) nexus thinking developed in response to the increasing challenge of declining natural resources. Nexus thinking aims to manage natural resources in a sustainable manner by leveraging synergies and managing trade-offs between domains based on the assumption that all domains are equal. The addition of the ecosystem to the nexus is new. Some scholars argue that the ecosystem should take central stage in the WEFE nexus. One implication is that nexus thinking becomes a transboundary issue, since ecosystem properties often do not match administrative boundaries. This amplifies the complexity of the existing WEFE nexus governance challenges. However, there is little research on the nexus in a transboundary context.

Transboundary governance is mostly addressed top-down and often fails to connect to local realities and reduces the perceived transparency and legitimacy for local actors. However, bottom-up approaches could tackle these issues in the search for solutions. In this vein,[citation removed to anonymize abstract] developed the WEFE nexus governance approach, which puts the ecosystem at the center of the nexus and is strongly rooted in stakeholder co-creation aiming to support the transformation of current governance systems architectures into WEFE nexus oriented governance systems. The approach consists of four building blocks: problem identification; stakeholder dialogue on WEFE goals and policies; designing new policy instruments; implementation. While the approach looks promising, it has not yet been validated in practice.

This research operationalizes and validates the first building block of the WEFE nexus governance approach through a comparative case study of three transboundary river basins: Lielupe, Nestos/Mesta, and Adige river basin from the EU funded NEXOGENESIS project. The building block consists of a governance and policy coherence assessment, for which the Nexus Governance Assessment Tool (NXGAT) and a policy coherence assessment approach were developed. The NXGAT assesses the degree of nexus governance supportiveness of current governance systems architectures, while simultaneously identifying opportunities and barriers towards nexus governance. The policy coherence assessment assesses to what extent the policies from the WEFE nexus domains acknowledge interdependencies between each other, both on paper and in practice.

Our results highlight three novelties. First, the governance and policy assessment stimulate dialogue among local stakeholders, integrating local transboundary interests into WEFE nexus transboundary governance. Second, the NXGAT is suitable for transboundary governance architectures, in spite of the tool not being designed specifically for transboundary contexts. Third,

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opportunities and barriers identified with the NXGAT assessment offers lessons learned for other river basins.

The agribusiness, climate adaptation and local water conflicts: Can new transnational approaches contribute to just transformation?

Almut Schilling-Vacaflor

Private companies' climate adaptation strategies have often been driven by an economic risk logic and paid little attention to how such practices may affect climate-vulnerable groups in sites of production. Adaptation often influences the distribution of vital resources, such as water and food. Unless carried out in an inclusionary manner, such interventions can contribute to increase vulnerability and lead to maladaptation. Adaptation scholarship has, therefore, increasingly focused on questions of climate justice and equity.

However, there is little research on interactions between public and private interactions on climate adaptation and on the question of how private adaptation may contribute to mitigate or reinforce existing vulnerabilities among societal actors. Moreover, there has been no discussion to date about the question of how emerging transnational governance instruments, such as human rights and environmental due diligence (HREDD) regulations that aim to hold companies accountable for adverse environmental and human rights impacts throughout global supply chains, could be used for ensuring that private adaptation does not come at the cost of societal resilience.

This paper analyzes the adaptation activities of large soy producers in the Brazilian state of Bahía, with a focus on the consequences for smallholders and traditional communities. Soy producers, subsidized by the Brazilian state, have developed large-scale irrigation schemes to adapt to more frequent droughts, which has led to concentration of water use rights and escalated conflicts over scarce water resources in the region. This adaptation strategy has exacerbated the climate vulnerability of smallholders and traditional communities. This case is illustrative of how processes of climate change and economic globalization are often deeply intertwined in rural areas, leading to situations of "double exposure".

Based on empirical material collected during fieldwork in Bahía, including qualitative interviews and written primary sources, we first analyze how public and private actors have governed such risks. We analyze how ongoing conflicts are embedded in a context characterized by disarticulated governmental interventions that on the hand seek to improve climate resilience among vulnerable populations in the state, but on the other hand grant water licenses and subsidize irrigation infrastructure to help large producers to cope with climate change. We then discuss how HREDD regulations could contribute to reduce the negative societal impacts of private companies' responses to climate risks.

Paradigms as a source code of water governance: A systematic review

Shahana Bilalova

Water resources worldwide face numerous challenges linked to the climate crisis, environmental degradation and competing anthropogenic pressures. Water governance plays a significant role in addressing these challenges and ensuring the health and sustainable management of water resources. Paradigms serve as the foundation – or source code – of water governance systems, shaping the rules, norms, values, and goals that determine the workings of these systems. As a deep leverage point, intervening at the level of paradigms has the potential for deep-rooted and systemic transformations towards robust and effective water governance. Against this background, we take stock of what we know about the 'source code of water governance' and explore how paradigms are analyzed in the academic literature.

By means of a systematic review of journal articles listed in Scopus, we identified 93 journal articles that explicitly studied water governance paradigms. We coded and analyzed these based on the catalogue of questions on general characteristics of the publication and the treatment of water governance paradigms, addressing, for example, the geographical focus, the nature of paradigms, actor groups involved, paradigm dynamics, governance modes, and effects of paradigms.

Some of our main (preliminary) findings include:

- Most papers offer single (or small-N) case analyses of the implementation of specific paradigms, most often Integrated Water Resources Management, with a greater focus on problems, rather than governance solutions; however, only few consider environmental consequences;
- Papers usually focus on the national (or subnational) level, often in the Global South, and the role of state actors, with few looking into transboundary issues;
- Succession of a paradigm is the most-mentioned dynamic, while dynamics within paradigms, such as adaptation or incremental change, are hardly mentioned.

With this study, we offer, to our knowledge, the first holistic and comparative account of water governance paradigms, their characteristics and dynamics, within the broader water governance literature. In that, the findings of our systematic review allow us to map the scientific discourse and provide a first appraisal of what we know about the 'source code of water governance'. Through this, we aim to set an agenda for further research by identifying gaps in the existing literature and extrapolating new research directions from the review findings.

Parallel Panel: Urban governance and experimentation

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.116 / Zoom

Chair(s):

Viola Jasmine Provost

Presentations (including names of presenting authors):

Naming and Shaming Among Local Governments: How Does Information Disclosure of Pollution Ranking Shape Local Government Behaviors in Pollution Control?

Liuyang He

China's water quality has been damaged by the increasing residential and industrial pollutants. In 2002, China's State of the Environment Report showed that 70 percent of the 741 river sections monitored were unfit for human contact, indicating pollutions levels at or above Grade IV standard (SEPA, 2002). In 2014, the Chinese Central Government publicly declared "war on pollution" and has since announced significant policies in the area of pollution control and remediation to tackle the nation's water pollution crisis, including the ten-point water pollution plan released in 2015. In 2019, the Ministry of Ecology and Environment (MEE) promulgated a monthly ranking of the top and bottom 30 cities in terms of the local surface water quality since the first quarter of 2019. Under such background, how does the information disclosure of pollution rank shape local government behaviors? Does the naming and shaming mechanism enhance the local surface water quality? Are there any unintended adverse incentives for local governments under the zero-sum game scenario? Do the cities on the list increase their pollution after the last testing section to set up their neighboring cities?

This paper answers the above questions by applying a fuzzy regression discontinuity (RD) design. Using monthly panel data of 339 cities aggregated from 3641 monitoring sections of surface water and cross-boundary monitoring section pairs in 2021, we found that naming the laggards in pollution control effectively helps improve the surface water quality in the next period. Our study reveals that nodal-based policies in a hierarchical institution can effectively reduce pollution and contribute to sustainable development through the mechanism of rational local competition.

Planning for and Implementing Sustainability in Local Governments in the Polycentric United States Rustbelt

Thomas Skuzinski

Many of the most pressing issues facing municipalities are connected to sustainability—from confronting a higher frequency of flooding to dealing with increasing energy costs. This is true both in the United States and around the world. To deal with these issues, cities, villages, towns,

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Conference Stream(s): *Justice and Allocation*
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

and other forms of local government are regularly engaging with sustainability in their policy processes. This engagement can be seen in the visions, goals, and objectives described in core planning documents, such as strategic plans, capital improvement plans, and comprehensive plans. But it also extends beyond the agenda-setting of planning processes, as local leaders find room in their budgets and codes for a variety of sustainable practices.

Unfortunately, little systematic data exist on such activity in the United States. The U.S.—especially in the Northeast and Midwest "Rustbelt" states—is a vital study area because it affords us insights into local sustainability in a highly polycentric, often fragmented, and very decentralized setting. National and state-level surveys of municipalities by professional associations, think tanks, and academics have become common over the last two decades, but a lack of panel data means that we are reliant on snapshots about sustainability that can quickly become outdated.

The goal of this article is to begin filling this gap, and we focus first on the state with the most local governments: Illinois. We surveyed over 600 municipal managers and administrators about sustainability (n = 302). We asked about the inclusion of sustainability in municipal plans and in standalone sustainability plans, the level of implementation of a variety of sustainability practices (from internal meetings through to inclusion in the budget), the barriers to implementing these practices, collaborative governance mechanisms, and overall top priorities. Importantly, our respondents represented communities that are heterogeneous in population, population density, median household income, and fiscal indicators.

Municipalities rarely have standalone sustainability plans, but frequently include sustainability in their comprehensive, capital improvement, and strategic plans. An important finding is that respondents regard state and federal governments as having a minimal role in sustainability policymaking. Another is that concerns about resident resistance are rarely mentioned as a barrier to sustainability, which is surprising given that many communities have strongly pro-Republican voting patterns. We also find that smaller and more rural municipalities in our sample are remarkably similar to their larger, more urban counterparts.

Moving Beyond Traditional City Comparisons: Exploring Openness in Climate City Networks to Inclusive Comparative Approaches

Sombol Mokhles

This paper investigates the openness of climate city networks to move beyond traditional ways of networking informed by hierarchical city comparisons. Climate networking is the process of exchanging knowledge between cities with the purpose of learning from the experience of other cities and accelerating the uptake of climate actions between cities. Despite the existence of established city networks such as C40 and ICLEI that facilitate networking practices, they have been found to be uneven, with well-resourced cities in the Global North being perceived as leaders and lower-income cities in the Global South as followers.

The increasing use of urban science methods for city comparison has the potential to influence comparative perspectives within these networks, but also runs the risk of perpetuating

Conference Stream(s): *Justice and Allocation*
Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

imbalanced networking practices. Relying solely on quantitative measures and performance-based indicators, or cities' size and economic status can result in a limited and hierarchical understanding of cities and reinforce the notion that cities in the Global North are the leading actors in climate actions.

To further explore this challenge, this paper examines the perspectives of experts in city networks (ICLEI, C40, UCLG, and UN-Habitat) through focus group discussions to better understand the application of comparative tools and their purpose. It further explores the applicability of a novel and more inclusive comparative approach. based on reported actions for networking between cities in these networks.

The results show although the experts in city networks are open to trying new city comparisons that can expand the existing uneven networking practice, they are still entrenched in the status quo and traditional city comparisons based on size and economic status. This paper highlights the need to expand cities' comparative imagination beyond a few, and to adopt a more inclusive and equitable approach to city comparisons that takes into account the challenges, and capacities of different cities. Overall, this paper calls for a transformation in the existing comparative practices of city networks by illuminating their challenges and underlying assumptions. By doing so, the paper aims to ensure that climate networking among cities is inclusive, equitable, and effective for a diverse range of cities.

Globalization of urban climate governance and the making of net-zero cities

Emilie d'Amico

This paper addresses the ongoing process of 'globalizing' urban climate governance after the Paris Agreement, and its implications. It argues that since 2015, transnational city cooperation has largely consisted in forging a new, shared norm of 'climate neutrality' for urban governance. Using scholarly literature on norms in international relations and urban mobility studies, the paper highlights how the 'climate neutrality', or 'net-zero' norm has been progressively bundled together through an assemblage of narratives, scientific expertise, public performances and policy tools circulated transnationally. By doing so, it highlights the multiple agencies of city networks, the UNFCCC and local decision-makers in constituting the norm, defining its meaning and related practices, but also the uncertainties and contestations linked to it. The paper builds on ethnographic observations of COPs, policy document analyses and interviews with urban professionals as data collection methods. Conceptually, it offers to go beyond city networks analyses by shading a new light on Agency in transnational urban climate governance as the capacity to engage in and influence norm making activities at transnational scale.

Localizing the Sustainable Development Goals in Smart and Sustainable Cities: How can non-traditional data support the local implementation and monitoring of SDGs? A case study of the Brussels Capital Region.

Koen Borghys

The Sustainable Development Goals (SDGs), constituting the policy framework that all 193 UN member states have pledged to achieve by 2030, are getting 'localized' by subnational (regional and local) actors. The set of 248 indicators promises to deliver an overarching overview of the progress on the SDGs, and to provide insights into how to move forward. However, a large variety of indicators are often only reported on national level. Consequently, many subnational governments struggle to identify data sources to meaningfully measure progress towards the goals.

At the same time, a 'data revolution' is taking place in which technologies are leading to an exponential increase in the volume and types of data available, creating unprecedented possibilities for informing and transforming society and protecting the environment. For example, the practice of participatory sensing for environment monitoring has rapidly evolved over the last years.

In this research, we want to assess the potential of non-traditional data sources to improve monitoring of the SDG goals on a subnational level. As sound data is the cornerstone of evidence-based policymaking in formulating priorities, allocating budgets, and tracking progress it is crucial to support the proper operationalization of the SDGs at the local level.

The study will employ a qualitative approach. Concretely, 15 in-depth semi-structured expert interviews with data experts will be conducted. Following the framework of [authors' names removed for anonymous review process] we identify interviewees within 5 main categories of non-traditional data flows (Earth observations, spatial data infrastructure, citizen-generated data, official sensor networks and private & commercial data). Starting from existing traditional data sources, we first map existing data gaps to do local SDG monitoring within the Brussels Capital Region and use them as a guide to query data experts about the opportunities and challenges to use non-traditional data sources for monitoring of SDG goals in a subnational context and to define future potential data flows for SDG monitoring.

The purpose of this study is to provide guidance to city managers, civil servants and policymakers in the adaptation of SDG-indicators to the sub-national level to suggest specific points of action to improve the availability of local data for SDG-measurement within a subnational context.

Parallel Panel: Data-driven climate governance: A critique

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.139

Chair(s):

Aarti Gupta

Discussant(s):

Ina Möller

Presentations (including names of presenting authors):

Accelerating climate actions through radical transparency of satellite-generated climate data? Lessons from India and Ethiopia

Rahwa Kidane

'Data is the new oil' is an increasing refrain. Climate transparency – i.e., making visible the progress of countries' climate action through the generation of ever more climate-related data and information – is key to multilateral climate governance arrangements. This is related to the widespread assumption that more and better information facilitates more ambitious climate actions. In recent times, radical transparency — the generation of an ever-larger quantities of climate-related data in near real-time using satellites and other remote sensing technologies – is increasingly touted as essential to facilitating global climate action. There are various initiatives now emerging that are dedicated to producing climate-related data using such technologies. These include Climate TRACE, Planet Labs, the World Data Centre for Greenhouse Gases, Carbon Mapper and Destination Earth. We focus here on Climate TRACE as an important and visible new radical transparency initiative. Climate TRACE is a global coalition of nonprofit organizations, technology companies, and academic institutions that uses satellite data combined with advanced AI and machine learning techniques to track not only the total GHG emissions in the atmosphere, but also when and where these emissions are occurring globally. While such data might be potentially empowering or useful, it raises several first-order questions that have not yet been posed or addressed, also because these radical transparency initiatives are relatively new. In our paper, we first analyze the origin and evolution of Climate TRACE, including claims it makes, the gaps it seeks to fill, and whether and how it engaged potential users in identifying gaps and creating awareness about the data it generates globally. We then analyze the type and nature of Climate TRACE's data available online for two countries: India and Ethiopia. Finally, through empirical analysis in the two countries, we address: (i) What do policy-makers in these two countries know about climate TRACE? (ii) Are they using its data, or do they see it as potentially usable in the future, and why or why not? (iii) What effects, if any, might already be discernible from existence of such radical transparency? These questions are timely because extensive human and financial resources are being invested in initiatives like Climate TRACE, yet their transformative impacts in terms of highlighting where responsibility should rest in taking ambitious climate action

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(with historically highest emitters, for example), or how it can help to further domestic climate priorities in different national contexts, is little assessed.

DestinE as destiny? A critical inquiry into Europe's planetary Digital Twin for environmental governance

Paulan Korenhof

In January 2021 the European Commission launched the project "Destination Earth", or in short "DestinE". This project sees to the development of a Digital Twin of planet Earth. This is "a highly accurate digital model of the Earth [used] to monitor and predict the interaction between natural phenomena and human activities". The goal of this Digital Twin is to support the European's Green Deal as well as its Digital Strategy. The European Commission aims to have a " 'full' digital replica of the Earth" by 2030 that can be used for Europe's environmental governance. The knowledge production and decision-support offered by DestinE is data-driven. It rests on the assumption that reality can be accurately represented in a quantifiable form that can be analysed by algorithms. It suggests a 'dataist' view on the world: the belief that huge amounts of data can help us understand and deal with the complex reality of the world. While often window-dressed as 'objective', such data-driven representations are in fact riddled with human choices, values, and reflect a particular perspective on the physical twin (Korenhof et al. 2021). In the case of DestinE, the image of the Earth has its centre of gravity in a naturalistic perspective: reality is understood though the lens of physical sciences and the application of natural laws, further prompted by data science. In a cycle of mutual influence, certain assumptions and values are thus embedded in the design of DestinE, while DestinE as a data-driven technology in turn promotes a certain way of approaching our world, certain values to strive for, as well as directions for interventions and mitigation measures. Blok therefore argues that not human beings, but concrete technologies are the prime drivers involved in 'world-production' (Blok 2021). A concrete technology like DestinE has an ontological impact and contributes to the constitution of the world understood in terms of data and computation. We expect that DestinE will deeply affect decision-making practices in Europe's environmental governance, as well as the authority of these decisions by affecting the institutional context and underpinning legitimating discourse. It is therefore crucial to evaluate the assumptions, values, and scope of actionability embedded in DestinE as it shapes the climate policy discourse. In this article, we offer a first critical perspective on what we see as the potential issues and shortcomings of the expected use of DestinE in Europe's environmental governance that remain underexposed in policy documents.

The Rise and Implications of Digitally-Enabled 'Radical Transparency' in Global Climate Governance: The Case of Climate Risk Insurance

Robert Bergsvik

The use of satellites and Big (Environmental) Data permits an ever-growing range of environmental behaviors and conditions to be rendered visible in real-time, across large areas, to a diverse array of audiences, generating 'radical transparency'. These radical transparency technologies are

increasingly merging with another scalar technology, parametric climate risk insurance. Parametric insurance covers large areas and populations using specific environmental variables such as soil moisture, observed using satellites and historical weather and agronomic data. If changes in the condition on the ground match with the predefined parameters, a payout is triggered. In areas where large populations are uninsured and data about specific environmental conditions is scarce, this type of insurance is increasingly promoted as a tool of anticipatory climate risk governance. In this paper, we investigate how the merging of radical transparency and climate risk insurance technologies changes how climate risk is understood and governed. In this regard, we apply participant observation at dedicated climate risk insurance conferences and content analysis of academic, commercial, and grey literature. We find that the use of radical transparency-enabled insurance schemes can alter existing dynamics of what is made visible, by whom and for whom. Information produced through satellites is often seen as authoritative sources of knowledge because of using pictures and visualizations rather than words, thus assumed as being more objective. However, in order to render information visible and sizeable for interpretation, a whole range of techniques are used to abstract and exclude the complexity of the geopolitical aspects of climate change. Furthermore, insurers can make decisions with regards to pay-out without ever having to go to the ground or dealing directly with the insured. While climate risks are extremely complex and uncertain, parametric climate risk insurance operates with the understanding that all possible realities are known, or at least easily calculated. Thus, the reduction of complexity is also central to the function of parametric insurance. We conclude by reflecting on whether and how radical transparency employed for climate risk governance can further depoliticized approaches to anticipate and address climate risks.

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

Roel Riphagen

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.

'Nature Tech' at the Climate-Biodiversity Interface

Harriet Bulkeley, Anouk Fransen

As governments, business, investors and civil society increasingly turn to 'Nature-Based Solutions' (NBS) as central means to govern the intertwined crises of biodiversity loss and climate change, a particular form of expertise is jostling for attention in this crowded policy arena – Nature Tech. Nature Tech or 'Smart' Tech involves tech-enabled tools such as eDNA, algorithms, AI machine learning, and other forms of tech-enabled measurement, observation and prediction, aiming to enable, accelerate or scale-up NBS. While these Nature Tech initiators are making claims that they are the 'sexy bits' of nature conservation, coming to 'rescue' NBS hurdles, yet, work is needed to interrogate these claims and their politics. Research increasingly points to risks with these Tech developments, such as its simplifying tendency and lack of nuance gained by human judgement and its ability to replace other forms of expertise. Through these spaces of circulating technical artefacts - 'technological zones' – some NBS are qualified as being part of the zone, while others are excluded. These emerging technological zones can accelerate and intensify agency in specific (tech-enabled) directions, with undetermined, dynamic and potential radical implications for how governing nature is accomplished in the future. Yet, we lack an understanding how these actors are jostling for attention, how legitimacy is sought, and if authority is granted within these crowded NBS arenas. Using a Foucauldian approach, this paper seeks to explore the ways in which governance is accomplished and the ways in which power is contested and orchestrated. As Nature Tech's ability to become 'authorised devices' relies on whether they are seen as the 'right' or 'appropriate' way of governing nature, this research aims to reveal how these emerging Tech devices are seeking to attain and sustain legitimacy, even in the face of resistance. Based on research undertaken through engaging with these spaces by observing, listening and interviewing, attending virtually and in-person conferences and webinars, this paper reveals multiple strategies how Nature Tech aims to become the 'appropriate' way of governing nature. By steering agency in particular (tech-enabled) directions, it reveals how NBS are being 'technologised' within these zones, meaning that those who can be calculated and qualified through technology become regarded as 'trustworthy' – with potential radical implications for how NBS governance is accomplished.

Conference Stream(s): Anticipation and Imagination

Parallel Panel: Anticipating a decarbonized world

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR -1.070 / Zoom

Chair(s):

Carley Allison Chavara

Presentations (including names of presenting authors):

Co-opting Climate Action Discourses to Delay Fossil-fuel Phase out in Norway: An Analysis of State and Industry Climate Imaginaries

Manjana Milkoreit

Norway's paradoxical relationship with climate change – as champion of domestic and foreign climate policies but persistent producer and exporter of oil and gas – makes the country a deeply informative case study regarding processes of climate delayism. The paradox is rooted in Norway's political economy with a heavily state-controlled oil industry generating significant tax revenues and feeding its sovereign wealth fund. Oil profits have created much of Norway's collective wealth and high living standards to date and promise future financial security. This interdependence between the wellbeing of society and industry has created a close alignment of interests between public and private actors, favoring unabated oil production in the foreseeable future. At the same time, Norway has a green identity and committed itself to the Paris Agreement's goals, which require economic decarbonization at the global scale over the coming decades. This raises the question how the government-industry coalition justifies its position regarding oil vis-à-vis domestic and international audiences: What are the mid-century visions created by state and industry leaders in Norway, and how do they reconcile commitments to fight climate change and the continued production of oil? I answer these questions with an analysis of the long-term climate imaginaries that have been created by the Norwegian government and a set of key industry actors since the Paris Agreement was signed in 2015. I collect and analyze documents produced by these actors, including reports, websites, and speeches, as well as the imagery that accompanies these texts, to identify the discursive strategies of climate delayism deployed in Norway. I argue that while government and industry imaginaries are distinct, they all co-opt climate action discourses that focus on global-scale technology-driven solutions to the problem of greenhouse gas emissions.

Fossil Fuels, Stranded Assets, and the Energy Transition in the Global South: a Systematic Literature Review

Augusto Heras

Complying with the Paris Agreement on Climate Change implicitly requires leaving fossil fuel underground (LFFU), resulting in stranded FF reserves (untapped) and stranded assets (FF

Conference Stream(s): *Architecture and Agency*
Anticipation and Imagination

infrastructure, labour, etc. to extract FF). The recent mapping of the so-called "carbon bombs", prospective or operational extraction projects that would emit each ≥1 gigaton of CO_2 emissions if used completely, makes it even more urgent to address LFFU. This trend raises development trade-offs in the "burnable carbon" distribution among countries, and equity issues regarding the Global South and its necessary energy transition, since most of FF reserves are located there. There are no review papers on the challenges of the energy transition with respect to LFFU and the resulting stranded resources and assets. Furthermore, the scholarship on the Global South is scattered, hence we ask: What lessons can be learnt from reviewing the scholarship on the energy transition in the Global South, focusing on the fossil fuel phase-out and the issue of stranded assets and resources? We systematically review (a) energy transition studies and (b) international development literature, focused on climate change and fossil fuels. Out of a larger set, we identified 96 peer-reviewed papers and 15 reports from grey literature. Our systematic review reveals that: (a) while the literature emphasizes the challenges of promoting and financing renewables in the Global South, it pays less attention to supply-side measures beyond the issue of phasing out FF subsidies; (b) research seldom addresses the dilemmas and hazards of stranded assets (and resources) for the Global South, as opposed to the claim to the Right to Development; (c) the energy transition in the Global South focuses more on energy addition and FF expansion rather than LFFU. Thus, the literature understates: (i) the connections between the energy transition, the issue of stranded resources and assets, and the consequences for the Global South in terms of equity, development, and climate impacts; and (ii) the underlying power dynamics, between and within countries. Future research should take a political economy approach to this challenge, focus more adequately on the viability of energy leapfrogging (substantial change, or transformation) in the Global South, critically assess the additive rather than substitutive character of renewable energy sources in the Global South, and better identify the constraints to an inclusive energy transition, posed by North-South power dynamics, as well as by the narratives and vested interests of FF incumbent actors.

Ambiguity and decarbonisation pathways in Southeast Asia

Lorraine Elliott

The challenges of ambiguity are increasingly prominent in debates about how governance arrangements respond to complex public policy issues that are driven by a logic of technical rationality that demands quantification and standardization. Decarbonisation – in short, removing fossil fuels from energy and economic systems – is one such issue at the core of mitigation efforts under the UNFCCC Paris Agreement. Ambiguity is understood in the literature as 'not clearly defined', as embodying a plurality of meanings or arcs of interpretation, and as a type of uncertainty that emerges from complexity. The literature on governance and the science-policy interface suggests that the role of ambiguity is poorly understood. For some, there is strategic value in ambiguity as an institutional response to the challenges of a world of contradictory 'certainties' or uncertainties, allowing for a flexible interpretation of rules and targets to account for diverse interests and capacities. For others, ambiguity raises concerns about conceptual capture by those who impose preferred interpretations of key climate-mitigation terms and

practices, or as an excuse for doing little in the absence of accepted standards and precise definitions.

In an ESG context, then, ambiguity can function as a concept, as an analytical device, and as guidance for empirical inquiry. This paper applies this ambiguity framework to an initial desk-study of decarbonisation pathways in Southeast Asia, a region that has significant negative exposure to climate impacts and associated economic consequences, and which continues to be highly dependent on fossil fuels. It draws on ASEAN Member States' NDCs and climate action plans and key ASEAN climate and energy-relevant plans of action for its primary data. Preliminary findings show that decarbonisation policy in the region is characterised by three interconnected versions of ambiguity. The first is ambiguity of objectives, including those that arise from the framing of mitigation challenges, and definitional and interpretive ambiguities around decarbonisation, net-zero, carbon-neutrality, and loss and damage. The second relates to pathway ambiguities embedded in arguments about appropriate technology for decarbonisation, managing energy renewables and land-based activities, and climate finance as well as more specific ambiguities around data sources, monitoring, verification and reporting, and cost calculations. The final category examines and evaluates ambiguous claims about actual and anticipated outcomes in aggregate national terms and in sectors such as energy, agriculture and land-use, and urban development that are key to decarbonisation in Southeast Asia.

Is Climate Litigation a Social Driver Towards Deep Decarbonization? Agency, Dynamics and Effects

Cathrin Zengerling

A rising number of climate cases is brought against governments, administrations, and companies in support of enhanced climate action. With the growing number of climate cases there is also a growing body of research related to the dynamics and effects of climate litigation. This paper aims to contribute to this emerging research agenda by developing, operationalizing and testing a method that permits assessing the societal dynamics of climate litigation and its effects beyond the strictly legal realm, i.e. with regards to other forms of climate-related societal engagement.

To that end, we adopt an interdisciplinary perspective on climate litigation as a social process and examine its potential to act as a driver towards deep decarbonization. Drawing on legal, social, and political sciences, we present two analytical tools, the Social Plausibility Assessment Framework and the Global Opportunity Structure for Climate Action, before testing them at two levels. First, at an overarching level, we analyse general developments in climate litigation and in their societal context. Second, we zoom into two recent landmark decisions, Neubauer et al. v. Germany and Milieudefensie and others v. Shell.

We find that the analytical approach generates valuable insights on the dynamics and effects of climate litigation on both, the overarching and case-specific levels. It permits examining the co-evolution of global governance architectures and emergent forms of climate-related agency, for example through the formation of transnational networks of activism and strategic climate litigation. Our results show that climate litigation is shaped by, and continuously shapes, legal,

socio-political, economic, and scientific scripts and repertoires of a Global Opportunity Structure for Climate Action. The research responds to core questions of Stream 1 on Architecture and Agency, such as How are environmental issues influenced by complex global networks across sectors, scales and decision-making arenas? Based on our assessment of the effects of climate litigation, we also gain novel insights into What forms of architecture and agency are most effective in earth system governance across scales.

Zero-carbon imaginaries: Governance of meanings in the Australian energy transition

Chris Riedy

After decades of debate, there is consensus that humanity must reduce global greenhouse gas emissions to zero and beyond. Achieving this after more than a century of steady growth in such emissions requires a deliberate transformation of key social-ecological systems, particularly energy, transport, and agricultural systems. To realise such a transformation, we must first be able to collectively imagine it. We need to co-create social imaginaries – collective meaning systems for understanding the present and envisioning the future – that can guide the necessary transformation to a zero-carbon future. These zero-carbon imaginaries are a contested cultural space, where multiple meanings and narratives about the future circulate, coincide, and conflict. Such imaginaries play an important part in the governance of energy transitions, alongside material and institutional influences.

This paper examines zero-carbon imaginaries and their role in governing energy transition, using Australia as a case study. The paper provides a cultural sociological analysis of formal institutional imaginaries as expressed in the guiding publications that contribute to the governance of the Australian energy sector. The analysis starts with high-profile international publications, such as the Intergovernmental Panel on Climate Change reports and the International Energy Agency's Net Zero Carbon Plan. It then narrows in on key Australian publications, such as Australian Government policy documents and the Australian Energy Market Operator's Integrated System Plan. Finally, it considers prominent publications from state and local governments, business, and civil society.

What is apparent from this analysis is that institutional imaginaries largely decentre human agency in favour of technological solutions and focus on pathways without presenting an inspiring vision of the destination – a future zero-carbon world. Zero-carbon imaginaries do become more tangible and people-focused as the geographic focus of the publications narrows. However, even these more tangible zero-carbon imaginaries seem unlikely to inspire human agency and motivate widespread collective action.

The Australian energy sector makes relatively little use of imaginative and creative futures thinking practices, which may at least partly explain the lack of inspiring zero-carbon imaginaries. The final section of the paper considers opportunities to develop zero-carbon imaginaries that can support energy transition, using innovative anticipatory methods and engagement with artists and creative practitioners in emerging genres such as climate fiction, eco-fiction and solarpunk.

Innovative Session: Earth Trusteeship Dialogue, World Heritage and Rights of Nature

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.129 / Zoom

Chair(s): Henry Mentink

Presenter(s): Klaus Bosselmann, Kelly Dorkenoo, Yanti (T.) Kusumanto, Nico Landsman, Joel Persson, Hans van Willenswaard

Earth Trusteeship Dialogue, World Heritage and Rights of Nature

This Innovative Session brings together initiators of academic transformation as well as pioneers of down-to-earth social innovation. Professor Klaus Bosselmann, Chair of the **Earth Trusteeship Initiative**, contributes to the discourse on paradigm shift at the highest academic and governance levels. While other presenters address the same Earth System Governance challenges by symbolic action on the ground for Rights of Nature and action-research on climate emergency affecting small-scale farmers in the Global South.

The importance of Earth Trusteeship was anticipated by Right Livelihood Laureate Judge C.G. Weeramantry (1926-2017), Sri Lanka, Vice-President of the International Court of Justice, The Hague. Earth Trusteeship became a major advocacy issue of Right Livelihood Laureates (57 signatories) and the World Future Council toward the 2024 UN Summit of the Future.

An Earth Trusteeship Working Group undertakes transdisciplinary research and dialogue on Earth Trusteeship in light of the recommendations of UN Secr.-General Guterres in his Our Common Agenda, in particular on "repurposing the UN Trusteeship Council". Trusteeship resonates with steward ownership and guardianship as innovative modes of public as well as private ownership. Inherently it serves "the common good" rather than the self-interest of corporations and sovereign states. The UN Trusteeship Council functioned until 1994, guiding the process of states gaining post-World War II and post-colonial independence. At present, the extra-territorial "global commons" – in particular the high seas – demand trusteeship governance in light of Rights of Nature and climate justice, rather than governance guided by narrow commercial or security interests. Experiments recognizing ecosystems possessing Rights of Nature are manifesting all over the world. Moreover, as an element of emerging public imagination the whole "Earth System" is increasingly experienced as commons to be governed as World Heritage for the wellbeing of future generations.

In April 2023 the working group published its first book titled *Reflections on Earth Trusteeship. Mother Earth and a new 21st-century governance paradigm*. Several of the presenters are also co-authors of this groundbreaking book.

Conference Stream(s): *Anticipation and Imagination*

Innovative Session: Demystifying degrowth – Connecting research and practice

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.160

Chair(s): Juliette Alenda-Demoutiez, Karolien van Teijlingen

Presenter(s): Paul Hendriksen, Natascha Hulst, Just Dengerink, Sara Pape, Maria Kaufmann

Demystifying degrowth - Connecting research and practice

Even though many people are tentatively interested and charmed by the idea of degrowth (e.g., local production instead of global exploitative approaches; commons instead of a limited number of untouchable property owners, cooperation and solidarity instead of economic profit as the main goal, focus on environmental sustainability instead of extraction and pollution; a 'good' life), a common reaction is to intuitively think that 'this is not realistic, it is not possible in practice'. This reaction leads people to discount degrowth or other post-growth ideas as unfeasible utopias and stops them from genuinely engaging with them. By applying interactive and creative tools, the aim of this roundtable is to talk about several practical examples to demystify the prejudices and preconceptions people have about degrowth. We want to show that it is not only possible to implement degrowth ideas in practice, but that it is also much more common than one thinks.

The roundtable discussion will consist of practitioners from different fields (ecovillages, land property movements, housing cooperatives, local currencies) that are applying degrowth ideas in practice. Together with the audience, we will identify commonly held preconceptions on degrowth and demystify (some of) them by sharing experiences from practice. The outcomes of this panel are threefold: (1) increase awareness for degrowth initiatives among academics and non-academics and address some of the common myths about degrowth (and its feasibility). To spread the word, a very practical outcome will be an artistic illustration (e.g., cartoon drawing) of common myths related to degrowth and how they can be demystified, which everyone can share in their network. (2) The session will also connect people working on degrowth in the Netherlands and exchange experiences on best practices and challenges, and finally (3) it will allow us to identify avenues for further collaboration between practitioners and academics.

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*Conference Stream(s): Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations*

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Innovative Session: The ties that bind: World Café on youth engagement as a driving force for community-based healing in times of environmental and social shocks

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.136

Chair(s): Ebru Canan Sokullu, Idil Boran

Presenter(s): Aslı Çalım, Dize Doğan, Ozan Savran, Pamir Canan

The ties that bind: World Café on youth engagement as a driving force for community-based healing in times of environmental and social shocks

Decision makers have a responsibility to make the right choices and take effective action in times of crisis. Environmental and social shocks affect hundreds of thousands of people worldwide. As a driving force, youth leaders have a critical role in decision-making across social, environmental, economic, and political issues. An innovative session designed in a world café format can facilitate a discussion on how decision-makers can benefit from the perspectives and potential of young community leaders.

This Youth-led and output-oriented World Café aims to co-create an inclusive environment to take a deep dive into difficult situations that challenge community ties, solidarity, social justice and collective healing in times of extreme environmental and social crises. The CIFAL Istanbul Youth Platform team at Bahçeşehir University (BAU), in partnership with York University (Canada), will lead a transdisciplinary and intergenerational exchange of ideas bringing their experiences in community-based healing following the massive earthquake that struck Türkiye and Syria in February 2023. Informed by transdisciplinary social-science perspectives, the session will probe the limits of mainstream governance approaches in situations of sudden environmental and social disruption, in search of creativity and experimentation to foster community-building and healing. Through structured but open-ended discussions, participants will identify best practices to overcome social divisions, and promote solidarity, social cohesion, accountability, resilience, inclusion, and social justice, among other concepts that lie at the core of environmental and social governance approaches to sustainable development.

The World Café format allows for idea-driven, guided discussions in small groups. It will contribute to, and amplify, the early-career activities and South-South dialogues at the conference, while promoting networking. The session will lead to a prototype replicable in different settings aligned with the themes of Earth System Governance, such as climate extremes and disasters, forced migration etc.

This innovative session aims to build a working group and will set the foundation for a collaborative project as an output. Wide participation is encouraged. Session participants will have an opportunity to contribute to the co-creation of the collaborative output.

Further information on this innovative session's format: https://sway.office.com/fHKg0SzKukO0jetR?ref=Link

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Conference Stream(s): Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Conflicts, settlements and displacements

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.120 / Zoom

Chair(s):

Lukas Hermwille

Presentations (including names of presenting authors):

The Nature of Peace – The dynamics between post-conflict peacebuilding and environmental justice

Fariborz Zelli

This paper presents the results of a four-year inter-disciplinary research project that scrutinizes the mutual constitution between environmental protection, environmental justice and peacebuilding processes after internal armed conflicts, with Uganda and Colombia as case studies.

We first introduce our rationale and the concept of environmental peacebuilding that guided our project. We propose a broad understanding that takes all cycles of the peacebuilding process into account and puts stronger emphasis on long-term social and environmental impacts. The linkages of internal armed conflicts to environmental justice are complex; such conflicts may entail direct environmental destruction and a deterioration of livelihoods, e.g. through population displacement, land grabbing and illegal extraction of natural resources. On the other hand, internal armed conflicts may provide unintended protection for forests, wetlands and other ecosystems.

Based on this conceptualization, we sketch our analytical framework that establishes various dimensions (social, ecological, political, economic) of post-conflict environmental peacebuilding and their interactions. To research these dimensions, we employed a cross-disciplinary variety of methodical approaches, including legal and policy analyses, GIS and spatial analyses. Adding to this, we conducted field research in biodiversity hotspots at risk, with semi-structured and focus group interviews, transect and narrative walks.

An integral part of our research design is the difference in timing between our two selected case studies. In Uganda, the signing of the peace agreement officially ended the conflict in December 2002. As we show, tensions over resources have persisted, implying mineral exploitation, land grabs and conflicts between returnees and community members. Together with high poverty and low education levels, they bear a high potential of relapse into violent conflict.

Colombia, by contrast, is still in the midst of the peace process. Areas formerly used by guerrillas as hiding places are now undergoing rapid transformation. For Sumapaz and Putumayo we can show that the post-peace agreement period has seen an intensification of land conversion, illegal

Conference Stream(s): Justice and Allocation
Democracy and Power
Other

land grabbing and new forms of natural resources exploitation, also including new actors such as large mining companies attempting to enter the area.

In a final step, we ask to what extent certain lessons for environmental justice, positive and negative, can be learnt from Uganda for the Colombian case. We advance a set of cross-cutting recommendations for practitioners, stakeholders and scholars: for how to enhance measures of environmental protection and natural resource management in post-conflict peacebuilding processes; and for how to support and improve the situation of vulnerable communities.

Embracing the politics of transformation: Reconceptualising policy action as battle-settlement events

James Patterson

Sustainability transformations are intensely contested and at risk of backlash to ambitious policy action. Political elites and mass publics opposing policy action sometimes push back fiercely, especially in wider contexts animated by populism, resentment, and deeply divided preferences and values. This threatens policy enactment and durability, potentially setting back broader policy agendas, and derailing efforts towards realising transformations in governance and society. This is particularly evident for climate change policy where experiences of backlash have shown that even when ambitious policy is adopted, heated political battles may continue, and policy durability and expansion is not guaranteed. However, literature on sustainability transformations pays insufficient attention to the potential for such conflict, and its implications for understanding how ambitious policy action may be advanced in non-ideal real-world arenas, where conflict is endemic and consensus is elusive or impossible.

In this paper, we develop a framework for conceptualizing policy action in societal transformations as an unfolding sequence of 'battle-settlement' events. Distinct from (and complementary to) recent literature emphasising the role of coalitions and policy feedback in achieving durable policy action, we argue that the notion of battle-settlements better captures the open-ended character of ongoing political struggles over deliberate societal transformation and their oftentimes messy and lurching trajectories. By 'settlements', we refer to limited and often bitter compromise between rival actors over distributions of power and resources which are forged through mutual struggle. Arguably, a policy feedback view risks jumping too quickly over the politics of reaching settlements and reflecting a narrowed focus on endogenous policy effects which can overlook unexpected consequences and wider contradictory interactions. The notion of battle-settlement events usefully foregrounds historical and contextual contingency, a combination of authoritative enforcement and mutual buy-in, and a fragile balance of provisionality and finality to decisions which may not easily become locked-in. We illustrate the utility of this approach through various empirical experiences of backlash in climate and environmental politics to show how conflict arose and settled, and the implications for broader trajectories of transformation.

This contributes to envisioning and analysing new ways of dealing with inevitable conflict in sustainability transformations, by bringing ideas about political settlements from other fields into

Conference Stream(s): Justice and Allocation
Democracy and Power
Other

conversation with developmentalist thinking on political change and transformation in sustainability (e.g., coalitions and policy feedback). Thereby, it contributes to understanding dynamics of policymaking and resistance within sustainability transformations at the interface of 'Democracy and Power' and 'Architecture and Agency'.

Localized land tenure registration in Burundi and eastern DR Congo: the politics of transformations to sustainability

Mathijs van Leeuwen

With our paper we would like to contribute to a better understanding of the inherent politics of sustainability transformations. To do so, we reflect on findings of the research project 'Securing Tenure, Sustainable Peace?' which explored efforts to localize land tenure registration (LLR) in Burundi and eastern DR Congo. Rather than demonstrating success or failure, we question whether key assumptions about localized land tenure registration hold in practice, notably the idea that it will contribute to sustainable peace. More specifically, we analyse whether localized land tenure 1) results in a clarification of land rights and thus better protection; 2) helps marginalized groups, notably women; and 3) prevents disputes. Our findings demonstrate that these assumptions need to be nuanced. Localized land tenure registration is not just a response to tenure insecurity and conflict, but tends to become part of the socio-political dynamics that nurture these. Frequently, efforts for transforming land tenure effectively undermine the prerequisites for sustainable peace. We consider these findings also relevant for better understanding the politics of sustainability transformations more widely. In particular, we draw attention to the tendency of de-politicization of land tenure interventions, which in our case involves 1) the discursive power of technical optimisation, which reduces policy makers' engagement with fair outcomes and renders invisible the political choices these require; 2) the underestimation of elite capture and institutional competition accompanying land registration programmes; 3) overlooking of the level of risk involved in land registration programmes and unforeseen outcomes of transformation.

Climate mobility in Europe? Reviewing the evidence.

Michele Dalla Fontana

The frequency of extreme weather events has increased over the last decades in different regions across Europe. According to the Internal Displacement Monitoring Centre (IDMC), just in recent years, extreme weather events have displaced hundreds of thousands of people. For example, heavy rainfall across western Europe in mid-July 2021 led to at least 84,000 displacements. In the same year, wildfires triggered around 155,000 displacements in Southern Europe. On top of that, the number of reported cases of relocation or planned retreat of settlements due to exposure to risks such as floods and Sea Level Rise is increasing (e.g. East Anglia and Norfolk counties on the eastern coast of England or the municipality of Almada in Portugal). Despite this, news media and politicians seem more interested in discussing climate change-induced mass migrations towards

Conference Stream(s): *Justice and Allocation*
Democracy and Power
Other

Europe rather than recognising people's internal mobility responses to environmental change. Furthermore, there is a geographical bias in the scientific literature as well, as research on climate change, environment and human mobility is underrepresented in European cases and mainly focuses on the Global South. This paper reviews where the discussion on the effects of environmental change on human mobility in the European context stands. To do so, we review the relevant scientific literature and a selection of European and National strategies on climate change adaptation and Disaster Risk Reduction to understand whether and how human mobility is contemplated in these frameworks. The present study is an initial attempt to fill the geographical gaps in the literature on environmental change and human mobility. At the same time, it questions the assumption that European countries can consider themselves immune to environmental change-related human mobility.

Conference Stream(s): Justice and Allocation
Democracy and Power
Other

Innovative Session: Roundtable on Institutionalising Multispecies and Planetary Justice

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR -1.075 / Zoom

Chair(s): David Schlosberg

Presenter(s): Anthony Burke, Danielle Celermajer, Stefanie Fishel, Tobias Muller, Cristina Inoue, Agni Kalfagianni, Stefan Pedersen

Roundtable on Institutionalising Multispecies and Planetary Justice

Fundamental to the models of growth and progress assumed in hegemonic western legal, economic, and political systems isan extractive relationship with other animals, forests, rivers, oceans and soils, or what we might collectively call 'the more-than-human'. Now, however, climate change, deforestation, river and ocean toxicity, soil depletion, pandemics, biodiversityloss, and the emergent and intensifying crises of food, energy, clean water, disasters, and subsequent refugee flows andpolitical conflict combine to make clear that the normalized extractive relationship between humans and beings other than humans generates highly negative outcomes for both.

This current convergence of environmental, social, political, and cultural crises, or the polycrisis, clearly illustrates that forms ofsocial and political organisation that assume the promotion of human good or development at the cost of the more-than-human world result in the erosion of the conditions of all life. A transformative approach to governing the polycrisis mustaddress the foundational and pathological failure to appreciate the entanglement of human and more-than-human worlds.

A transformation of the institutions that encode and operationalise human exceptionalism, and that render the more-than-human as exploitable resource, is required. Such transformative governance requires fundamental systemic change. First,beings other than humans must count as subjects of justice. Second, decision making must be informed by an understandingof the fundamentally relational nature of human and more-than-human interests; this requires a shift in the practices of representation to include the more-than-human.

This roundtable will be an open discussion amongst scholars who have been working on various aspects of planetary justice, multispecies justice, and models of more representative and ecological democracy. It will focus on the relationship across these concepts, with an eye toward the design of governance institutions fit for both the polycrisis and the necessity of institutions and practices that include planetary and multispecies subjects.

Parallel Panel: Emerging economies and green transformations

Date & Time (Amsterdam Time): October 25th 8:30:00 AM - 10:00:00 AM

Location: GR 1.133 / Zoom

Chair(s):

Ilaha Abasli

Presentations (including names of presenting authors):

Unpacking China's climate policy mixes: path dependencies and policy feedback

Xiaoran Li

The role of policy interventions in accelerating low-carbon transitions has been widely acknowledged in innovation and transition studies. Within a policy mix, the relationship between policies and the interactions among key actors behind them have significant implications for policy outcome and effectiveness. However, network effects among different policies in a policy mix and their evolution remain underexplored in the existing literature on policy mix. To what extent the design of new policies depends on preexisting policies, and what shapes the links between policies? The answers to these questions would help researchers understand how policies are designed and feedback in a given regulatory context. We address these questions using a novel dataset of 342 national climate policies in China between 2016 to 2022. By combining social network analysis and process tracing, our study assesses the links between policies within and across key sectors developed by different ministry-level governing entities in the post-Paris Era. More specifically, our study shows the durability and change in China's climate policy by investigating: 1) focal policies linking various sectors to ensure consistency in broad policy goals and objectives; (2) key governing entities driving the focal policies and the mechanisms through which they influence policies in different sectors and issue areas; (3) path dependency phenomena in key sectors where policies become sticky and strengthened over time. Our findings identify the temporal consistencies and inconsistencies in China's climate policy as well as the focal actors influencing policy design. By unpacking China's national policy mix on climate change, the paper not only makes theoretical contributions to the climate policy literature through a network approach to investigate policy interconnectedness and feedback and also presents important empirical evidence on path dependent policy processes in the world's largest carbon emitter.

Is South-South and Triangular Cooperation for the SDGs an answer for inclusive global development partnership? Evidence from India and Indonesia

Mahesti Okitasari

The global landscape of development cooperation has been evolving with the increasing involvement of Southern countries in the transfer and exchange of resources, technology, and knowledge. Middle-income countries that actively invest in South-South cooperation (SSC), such

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Conference Stream(s): Justice and Allocation
Architecture and Agency

as India and Indonesia, play a pivotal role in accelerating the achievement of global and national sustainable development goals (SDGs). The new approach of development cooperation includes donor countries willing to engage in SSC schemes through triangular partnerships. However, scholars have yet to fully consider how middle-income countries respond to the SDGs, particularly SDG 17 (Partnerships for the goals), in their foreign development policies and practice. It is important to consider whether their responses (or lack thereof) support or hinder SSC in delivering inclusive development partnerships alongside their pragmatic objectives, such as gaining resources, the influence of development models, and status and legitimacy as development partners. Equally, there has been insufficient attention given to the extent to which donor countries use the SDGs to shape triangular cooperation.

This study focuses on India and Indonesia, examining their SSC and triangular cooperation's social infrastructure, especially the political and institutional processes. It assesses various types of steering and the roles of actors in operationalising SSC. Document analysis on Indian and Indonesian SSC and Triangular Cooperation policies, institutional setup, and strategies of their donor countries is conducted, and qualitative studies from SSC and triangular cooperation-driven projects on infrastructure development supplement the analysis.

The findings demonstrate how types of steering and roles vary according to the context-specific nature of national foreign diplomacy, domestic economies, politics and development approaches, institutions and governance, and the specific project needs. While proponents of SSC and triangular cooperation, including the larger SSC partners and donors, use the SDGs selectively, they have not entirely leveraged the SDGs as an attractive narrative framing tool. The social infrastructure around SSC has yet to catch up with inclusive development partnerships, where the complexities of deepening SSC mean that proponents of SSC may find it challenging to ensure ownership of development priorities of smaller SSC partners and exercise multi-stakeholder partnerships. Overall, this study contributes to understanding the key factors shaping SSC and triangular cooperation and the realities of the political discourse surrounding SDGs in emerging nations' development cooperation policies. By examining the social infrastructure of SSC and triangular cooperation, the study provides insights into the challenges and opportunities in achieving inclusive development and ownership of priorities by smaller partners.

Strategic mimicry by emerging economies: The rise and evolution of climate policies in India and Indonesia

Chris Höhne

Since the 2007 Bali Climate Conference, a proliferation of climate mitigation strategies and targets has occurred in the Global South. While very vulnerable states such as island nations and developed countries had early on demanded ambitious climate actions by all parties, particularly emerging economies resisted this perspective by arguing that they face trade-offs with their economic development and are not responsible for climate change. However, India and Indonesia adopted national climate action plans in 2008 and 2011, communicated mitigation targets in 2009, and submitted Intended Nationally Determined Contributions prior to the Paris Climate

Conference in 2015, alongside other emerging economies such as Brazil or China. What can explain this rise and advancement of climate policies in emerging economies?

Despite multiple influences, such as international pressure or lesson drawing from peers, I argue that one factor has recently remained underexplored: Strategic mimicry regarding the norm of climate mitigation contributions from developing countries. Strategic mimicry is characterized by the mimicking of an engagement with an international norm for strategic reasons. Actors instrumentally use arguments and actions to persuade others of the validity of their own engagement with that international norm. It is activated in order to shine internationally and to receive international legitimacy so that these actors can advance other preexisting strategic goals beyond that international norm (e.g. in other policy fields), which they pursue based on preexisting dominant domestic norms.

In this paper, I argue that we can best understand the emergence and advancement of climate policies in these countries from such an International Relations' norm perspective, which takes the foreign policy goals of these countries into account. Both countries have strived to advance their foreign policy goals, such as international recognition as a nuclear power and as a member in the United Nations Security Council in India's case, through mimicking an engagement with climate mitigation. Based on interviews in India and Indonesia and extensive analysis of primary and secondary document, I explain the emergence and evolution of their climate policies from 2007 until 2015. This research, therefore, contributes to the conference theme of architecture and agency by "address[ing] institutional frameworks and actors implicated in earth system governance and how they resist or respond to change and evolve over time".

Varieties of net zero politics in emerging economies: A comparison between China and India

Yixian Sun

"Net zero" refers to a state in which the greenhouse gases emitted into the atmosphere are balanced by their removal out of the atmosphere. Since 2020, the term has quickly shifted from a mere scientific concept to a mainstream organizing principle for climate change mitigation plans of states and other actors across the globe. To date, net zero targets cover 91% of the global GDP and 80% of the global population. Such wide coverage is not possible without pledges made by large emerging economies, which are new engines of the global economy as well as major carbon emitters. Despite the rise of a burgeoning literature on net zero governance, the question of how the concept of net zero has been adopted and has gained traction in the Global South remains largely understudied. What are varying processes through which "net zero" has emerged and diffused as a guiding principle for climate mitigation in emerging economies? We address this question through a comparative study of China and India – the world's two largest emerging economies. In both countries, net zero targets have been made not only by national governments but also a range of subnational and private actors. Drawing upon the theory on varieties of climate governance, we argue that new transnational normative contexts, market environments, and pre-existing domestic governance jointly shape the uptake of the net zero concept in emerging economies. Our empirical study uses policy documents and key informant interviews with practitioners to first map out the processes through which net zero targets have been increasingly

used in the two countries, and then identify the forces driving the relevant net zero movement. Our close examination of the policy processes in the two countries reveal divergent patterns. In India, despite the importance of a national pledge announced at COP-26, there has been a bottom-up process for subnational jurisdictions and businesses to leverage market and political opportunities through net zero commitments. In contrast, the net zero movement in China has been largely orchestrated by the central government with subnational and non-state actors following the directions set by the top leaders. The paper presents novel insights into climate governance in non-Western contexts and further advances the literature on comparative climate politics.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: International Climate Policy

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.139

Chair(s):

Frederik Dahlmann

Presentations (including names of presenting authors):

Governing through goals: the case of the Global Goal on Adaptation under the Paris Agreement

Timo Leiter

An emerging body of literature is exploring goal setting as a global governance strategy. "Governing through goals" (the title of a book in the ESG book series with MIT Press) can be an alternative to traditional "governing through rules" which is challenged by countries' resistance to prescribed courses of action. Indeed, the approach of the Paris Agreement is to let countries determine their own contributions to globally agreed goals. Next to the temperature goals the Paris Agreement also established the "Global Goal on Adaptation" (GGA), a qualitative and aspirational goal. Unlike greenhouse gas emissions which can be measure in physical quantities irrespective of context, climate change adaptation is more difficut to standardize and measure. At the most recent UN climate change conference in Egypt in November 2022 it was decided to develop a framework for the GGA. Doing so raises numerous governance questions including: to what extent can a context-specific subject matter like climate adaptation be governed globally? How can the inherent trade-offs between specificity and detailed guidance on the one hand and flexibility to countries' circumstances and national sovereignty on the other be addressed? How exactly could a framework under a global goal "govern"? What potential and limitations do global indicators have?

This research is based on participant observation in the UN climate change negotiations including participation in the UNFCCC workshops that inform the development of the framework. It offers unique insights into a real-time case of creating a new governance modality under the Paris Agreement including how the development is utilized by different actors to advance their respective interests. The research also draws on literature and experiences on goal setting under other global governance processes including the 2030 Agenda and the Sendai Framework. It makes an empirical contribution to literature on governing through goals that is of high relevance to earth system governance scholarship.

High demand, low supply: understanding the lack of reforms at the UNFCCC

Naghmeh Nasiritousi

Institutional reforms are crucial to meeting growing sustainability challenges. However, the scholarship recognizes that institutions are often sticky due to path dependencies. Nevertheless,

previous scholarship has highlighted architecture and agency as important concepts in understanding how change can take shape. For instance, the literature on transformations of international organizations suggests that institutional reforms are likely when it is demanded by powerful member states, when there are external shocks, or when the international organization faces legitimacy challenges, such as when there is a growing recognized gap between rhetoric and actions. An international institution that faces growing calls for reform is the United Nations Framework Convention on Climate Change (UNFCCC). The calls for reform come from a range of actors and involve both legitimacy concerns and consideration for a change in the purpose of the UNFCCC as it enters an implementation stage. Nevertheless, previous calls for reform have largely failed (reference removed to annonymise review process). This paper therefore examines the prospects for UNFCCC reform through an interview study with a range of stakeholders familiar with the UNFCCC. The semi-structured interviews with (former) UNFCCC officials, climate diplomats, business and civil society representatives and academics show that there is a recognized need to reform the UNFCCC; however, few believe in the prospects of meaningful reforms. Besides the well-recognized difficulties of decision-making by consensus, the paper highlights the issue of trust – or the lack thereof – amongst member states as a stumbling block to reform. It also shows how prospects for reforms depend on the types of reforms considered, ranging on a spectrum of how politically controversial they are. The paper concludes by discussing its findings and its implications for understanding architecture and agency in climate governance and by identifying ways forward toward fostering institutional reforms through adaptation and learning.

Legitimacy and accountability of polycentric climate action: Can non-state and sub-state climate action enhance democratic legitimacy of the UNFCCC?

Karin Bäckstrand

The climate regime has been criticized for ineffectiveness because of the multiple, overlapping and even competing institutions and agreements, leading to the fragmentation of global climate governance. However, climate governance post-Paris has also been heralded for its experimental, polycentric and bottom-up logic. Research has predominantly focused on the effectiveness of non-state climate action within polycentric governance, while less attention has been paid to challenges of democratic legitimacy, accountability and inclusion. In response, the aim of the paper is to take stock of the legitimacy and accountability of the non-state climate action orchestrated by the Marrakech Partnership for Climate Action (MPGCA) and the Global Climate Action Portal of 27,000 commitments, including companies, investors, cities and regions. The multi-actor, multilevel, multi-scale, multisector and cross-jurisdictional climate action under the umbrella of MPGCA can be conceptualized as polycentric climate action. First, the paper discusses legitimacy and accountability challenges facing polycentric climate action, namely skewed participation, weak accountability, and low transparency, which can be explained by its non-hierarchical, networked, and non-electoral nature. Second, it maps three types of accountability mechanisms – public, peer and market – in the MPGCA workplan, Yearbook of Climate Action, annual reports by the High-Level Champions, alongside submission by non-state and state actors. While accountability mechanisms have been strengthened in the second phase, monitoring, review and verification

(MRV) are still weak, amplified by problems of low transparency and imbalanced participation of stakeholders. Finally, the paper proposes how to improve legitimacy and accountability in polycentric climate governance.

Global Climate Governance: a Discourse Network Analysis

Lisa Sanderink

The system of institutions governing climate change is often described as complex, fragmented, or polycentric – referring to the intricacy and dispersed authority of international and transnational institutions across the public-private divide engaging in climate mitigation. Institutional fragmentation has been connected to questions and challenges concerning effectiveness, legitimacy and justice in climate governance, and been studied in detail in terms of norms and actors. This paper adds a new perspective and empirics to institutional fragmentation, namely a discursive dimension. Studies on discourses in global climate governance are limited, despite plausibility that the way climate change is described, explained and imagined has an effect on its solutions. The paper analyzes discursive structures in global climate governance and how they changed over time using Discourse Network Analysis (DNA). The starting point is a dataset of more than eighty international and transnational climate institutions with the intentionality to steer policy and behavior towards a common goal to mitigate climate change. By processing and analyzing a structured set of texts of these institutions, DNA demonstrates how climate institutions are connected at a discursive level and reveals key properties of the discursive debate underlying climate governance. Thereby the paper focuses on the shift of the global dialogue from the "two-degrees target" in the Paris Agreement (2015) to the "net-zero agenda" at the latest United Nations Climate Conference in Glasgow (2021). The paper also reflects on the extent to which the discursive structure of global climate governance can be characterized in terms of fragmentation, complexity or polycentricity by relating these findings to the specifics of the three concepts. The contributions of this paper are consequently threefold: first, it provides new empirical insights into the discourses underlying global climate governance. Second, it contributes a distinct perspective to the interrelated concepts of fragmentation, complexity and polycentricity. Third, it strengthens the position of discourses and the innovative method of DNA traditionally applied in linguistics, communication and media studies, in political science and international relations studies on global governance.

From the IPCC to the Green State Nobility: Towards a new research agenda on expertise in the green transition

Søren Lund Frandsen

Experts play a significant role in shaping global and local norms on how states should respond to the climate crisis. However, current scholarship on the relationship between states and expertise has not fully addressed recent transformations in the field, specifically the emergence and increasingly influential role of what we term 'green transition expertise'. In this paper, we argue that if earth system scholars want to further deepen their grasp of the politics of the green

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Conference Stream(s): Architecture and Agency
Democracy and Power

transition analytically and normatively, they need to embrace a 'post-IPCC' research agenda that turns increasingly towards state actions predicated on new forms of expertise as a prime mover in addressing climate change. We advance this claim based on a literature review of the relationship between expertise and the state in climate mitigation research. Overall, we find that while existing research has provided highly nuanced studies of state-expertise relations, it has tended to cast the issue of expertise as one of climate science consensus construction and the issue of state action as determined largely by failed (or limited) intergovernmental collaboration. To advance the study of state-expertise relations in the green transition, we outline a post-IPCC research agenda centered on the study of what we, drawing on Bourdieu, term 'green state nobility'.

This agenda sets out to understand how experts shape state action on the green transition and how the state actively assembles green transformation expertise, including the actors recognized by states as appropriate members of the emerging green state nobility. This includes analysis of how state action is conditioned by informal networks, partnerships, and inter-expert competition about what should constitute expertise within the state and which forms of expertise matter. To capture the green state nobility, we combine literature on the green state with insights from the Sociology of Expertise. This research agenda proposes a three-pronged approach to studying green transition expertise in the state: (1) focusing on expert actors to understand who is recognized as a legitimate green transition expert over time and their location, (2) examining expert content to understand the nature of green transition expert work, including what gets left out, and (3) considering expert context to examine the institutional, cultural, and political factors that shape the relationship between green transition expertise and state behavior. Overall, a post-IPCC knowledge politics agenda seeks to address the agency of experts in influencing how the green state is currently carrying out its sustainability transition activities.

Conference Stream(s): Architecture and Agency
Democracy and Power

Session: Earth system governance and outer space development: Politics, power, and the future-making of sustainability Architecture and Agency

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR -1.075

Chair(s):

Xiao-Shan Yap

Rakhyun E. Kim

Discussant(s):

Aarti Gupta

Session Overview: Earth system governance and outer space development: Politics, power, and the future-making of sustainability

Increasingly complex developments in space impact earth system governance in various ways. Recent geopolitical turbulences have prompted states to channel massive resources into building and strengthening their national space-based infrastructures and assets. Meanwhile, the space sector has also experienced a major structural change due to rapid privatization – known as the New Space movement. While Earth's orbit is increasingly competed among a diverse set of actors, rich private enterprises are actively pushing the frontier of possibilities including building new human settlements on the Moon and Mars. These salient developments cause new environmental challenges such as the accumulation of space debris and environmental degradation on other celestial bodies, exacerbate global injustice, and impose barriers to effective international coordination for sustainability transformation. In particular, the expansion of human activities transcending the earth system is shaping and altering the future of planetary sustainability. Some scholars have called for an integrative approach to address Earth-bound and space-based sustainability challenges. Yet, existing studies lack comprehensive conceptual, analytical, and methodological tools to deal with this rising challenge. The aim of this session is, therefore, to push the frontier of these debates.

The panel is set out to explore the following topics:

1) The changing roles of the state and private actors in view of New Space;

2) The interrelations of (extra)terrestrial politics, i.e. how geopolitics on Earth shape political tension in space and vice versa;

3) Potential global institutional architectures for governing rising space activities;

4) The role of space in the future-making of sustainability;

5) Challenges for integrative earth-space governance; and

Conference Stream(s): *Architecture and Agency*

6) Innovative methodological approaches addressing these issues.

Presentations (including names of presenting authors):

Transnationalization and state power in the global satellite industry

Florian Rabitz

Outer space has become an object of intense political, economic and scholarly interest, including due to the novel opportunities and challenges that space resources, space tourism, orbital debris or Earth observation instruments raise for environmental sustainability. The contemporary politics of outer space are defined by two disparate and partially inconsistent trends. On one hand, outer space is undergoing transnationalization as private actors are increasingly pushing into a domain that had been organized among strictly intergovernmental lines since the 1950s. On the other hand, we are witnessing a new space race, where primarily China and the US are competing for access, influence and supremacy in outer space. Starting from classic and more recent theoretical debates in international political economy, we probe the relationship between transnational and state power. Specifically, we ask whether power relations constrain transnationalization dynamics; or whether the latter unfold above and beyond the global structures of political power constituted by nation states. We apply Exponential Random Graph Models (ERGMs) to a dataset of global partnerships in the satellite industry. This dataset consists of partnerships by public and private organizations, in both domestic and transboundary contexts, on the construction and operation of military as well as civilian satellites. We estimate an ERGM to predict tie formation in the corresponding partnership network, using two edge attributes as predictors: a) whether or not edges represent transnational partnerships, in the sense of private organizations collaborating with public organizations in a transboundary context; and b) whether or not edges connect organizations from states that do not participate in shared military alliance structures. We find that ties are significantly less likely to form in transnational contexts and significantly more likely either domestically or between states with military alliances in place. We conclude that contemporary debates on the rise of private space actors overestimate commercial factors and private-sector innovation as drivers of the emerging space economy. Instead, geopolitical factors appear to predominate, suggesting that the politics of outer space have changed considerably less than commonly assumed. Against the background of an intense scholarly debate on how and what transnational cooperation can deliver for environmental sustainability and beyond, our findings imply that geopolitical conflicts and contingencies remain major limiting factors for achieving cooperative outcomes that leverage space-based activities as global public goods in the context of multiple contemporary social and environmental crisis dynamics.

The missing ingredients for a sustainable polycentric governance of space debris

Jean-Frédéric Morin

This paper explores the prospects that space debris can be governed more sustainably under a polycentric governance system. A number of recent studies suggest that the lessons that Elinor Ostrom has drawn from polycentric local resources management can be applied to space debris. These studies, however, are mainly theoretical and provide only anecdotal evidence to support their claims. This is the first empirical assessment of the polycentric governance system for space debris. Using a combination of network analysis, content analysis and interview data, this study

finds that the governance system for outer space has the structural characteristics but not the emerging properties of a well-functioning polycentric system. This is a useful reminder that a polycentric structure is not sufficient to favor learning and adaptation. The paper also provide policy insights by identifying some of the missing ingredients for a sustainable governance system.

The politics of earth-space sustainability: A preliminary typology based on global discourses

Xiao-Shan Yap

Space-based developments are reshaping socio-economic development and sustainability transitions on Earth. Over the past decade, various framings and expectations on how space developments will be the next frontier of opportunities or solutions for sustainability emerged across the globe, such as through the deployment of advanced space-based infrastructures or the availability of minerals in space. At the same time, space activities are already causing new anthropogenic footprints on Earth and in space, such as the soot emission from private rocket launches and the accumulation of space debris. Scholars have recently called for an integrative approach to address or govern earth-space sustainability issues. However, such an approach will require navigating the various interests of a growing set of actors relying on, governing, or occupying space. This paper aims to shed light on the emerging politics of earth-space sustainability by analyzing how the international space community (e.g. policymakers, businesses, and scientists) frames the relations between Earth sustainability and space-based developments. More specifically, their discourse strategies can be identified and categorized into four classical types, i.e. problem solving, limits and survival, sustainability, and green radicalism, based on two dimensions (reformist versus radical and prosaic versus imaginative). The paper uses a qualitative discourse analysis approach, drawing on a 15-year dataset of international news articles in English – a major sense-making platform where a diverse set of international space actors legitimize or rationalize their preferences in terms of technologies, policies, and practices through discourses. Actor statements were coded in the software Nvivo using qualitative content analysis based on a coding scheme derived abductively. The paper builds a preliminary typology on the politics of earth-space sustainability to facilitate future research on the topic, drawing on different examples of space-based developments including advanced satellite infrastructures, space debris management, space military, and space mining. The paper specifies which particular strategies have been performed or shifted among different groups of space actors over the past 1.5 decades and to what extent the classical categorization of environmental discourse strategies is applicable for analyzing the politics of earth-space sustainability. It demonstrates how the politics of earth-space sustainability is inherently unjust and fragmented on a global level and points to the lack of transformative orientations in existing discourses. The paper concludes by anticipating how these discourses might develop as space activities expand, outlining the challenges for effective earth-space governance, and stressing the importance of broadening data selection strategies for such analyses.

Making life multiplanetary – how Elon Musk's imaginaries are shaping discourses on earth-space sustainability

Leon Wagenknecht

Conference Stream(s): *Architecture and Agency*

The expansion of human activities in space and their impact on sustainability has recently gained much attention due to the various ambitions led by private entities along with rapid technological advancements. Elon Musk, an influential space entrepreneur, proposes a future where space plays a crucial part in the survival of humanity, with Mars portrayed as a potential new home. This study aims to examine the imaginary of a multiplanetary society he is creating, and to uncover its impact on sustainability discourses by mapping how others engage with it. We conducted a discourse analysis using 147 selected tweets of Elon Musk and over 50,000 quote tweets from other users over the time period of 2011 until 2022. To identify storylines and discourse coalitions, we employed both qualitative and quantitative approaches, using NVivo and natural language processing in R. The findings suggest that Musk actively shapes an emerging socio-technical imaginary that points to a multiplanetary future, made plausible through a reusable interplanetary transport system. Such a future is presented as necessary, rationalized by an existential threat to human life on Earth and the need to preserve the species. The study also reveals the emergence of two diverging discourse coalitions, with supporters and detractors of Musk's vision, and their underlying discourses. Supporters of Musk's imaginary are dominating the discourse on Twitter and are framing his multiplanetary vision as an exciting adventure that could also benefit sustainable development on Earth. The detractor coalition, however, raises critical concerns about the necessity and feasibility of such plans while providing a more meaningful argumentative structure, questioning the role of power and the allocation of resources and rights in space. Although members of civil society form the majority of actors in both coalitions, our research finds that technology-affine libertarians are generally more inclined to support Musk, whereas environmentally conscious and community-driven individuals often occur as opponents. The discourse analysis approach of this study sheds light on the growing role of space in shaping alternative sustainability futures and raises important questions about the governance of space activities.

Open space for all? – A network analytical approach to assess the role of non-state actors in the governance and use of earth orbits

Marieluna Frank

The Ukraine War has not only underlined the critical role of space-based communication infrastructures in securing connectivity, but also demonstrated the potential influence of private actors. It has at the same time raised discussions on the possibil

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Innovative Session: Deep systems change for a more just and sustainable world

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.170

Chair(s): Norman M. Kearney

Presenter(s): Henrik Carlsen, Nina Weitz, Eleonora Bonaccorsi

Deep systems change for a more just and sustainable world

The UN recently met in New York for the SDG Summit, meant to mark the beginning of a new phase of accelerated progress towards the Sustainable Development Goals. Building on that momentum, the UN will convene a Summit of the Future in September 2024, with the aim of breathing new life into the multilateral system so that it can deliver on the promises of the United Nations Charter and the 2030 Agenda for Sustainable Development.

Against this backdrop, this session aims to stimulate new ideas about how to accelerate the achievement of those goals. Over the past few weeks, innovative thinkers in policy, business, civil society, and research have been invited to share their insights about how to strengthen global sustainability transitions (Share your insights here! [1]).This session begins with a summary of those insights, followed by selection of questions/topics for discussion as proposed by the organizers and the participants. The questions/topics are voted on and the most popular questions/topics are assigned tables. The rest of the session involves small group discussions in the style of a World Café [2].

Building on systems thinking, and calls for transformation frameworks such as the Global Sustainable Development Report (2019, 2023), we hope that our survey and this session will contribute new concrete insights about which systems changes are necessary for accelerating global sustainability transitions, how those changes interact, and how to initiate and guide them.

We encourage participants to reflect on changes in politics, economics, society (including health and demographics), technology, the environment, law, ethics, or culture that could strengthen or weaken global sustainability transitions, and how to address them. For example: Maximum wage policies (legal/economic changes) could help to prevent extreme income inequalities (SDG 10 - Reduced Inequalities), leading to improved health and well-being (SDG 3 - Good Health & Well-being). Such policies could be introduced at multiple levels: sub-national, national, supra-national (e.g., EU), and global.

Maximum wage policies at the global level, which could help to correct extreme income inequalities among countries, might require new global institutions (political change).

Another pandemic (social/environmental changes) could reduce health and well-being (SDG 3 - Good Health & Well-being), leading to lower productivity (SDG 8 - Decent Work & Economic Growth). Improved monitoring and emergency preparedness (social/technical changes) could help to prevent future outbreaks from becoming pandemics. This session is a joint initiative of researchers at the Centre for Development and Environment, the International Institute for Sustainable Development, and the Stockholm Environment Institute.

[1] https://ww2.unipark.de/uc/2030PLUS/

[2] https://theworldcafe.com/key-concepts-resources/world-cafe-method/

Conference Stream(s): Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Transformative interventions to strengthen prioritisation of biodiversity in decision making

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.109

Chair(s):

Ilkhom Soliev

Alex Franklin

Agnes Zolyomi

Discussant(s):

Jeanne Nel

Rosalie van Dam

Session Overview: Transformative interventions to strengthen prioritisation of biodiversity in decision making

Strengthening prioritisation of biodiversity in decision making to sustain diversity of species, ecosystems, and nature has become one of the most pressing social-environmental challenges of our time. Halting the alarming loss rates and enhancing biodiversity will require system-wide societal transformations, including changes at the institutional (e.g., policies, governance arrangements), but arguably more at the deeper interpersonal (e.g., norms, interactions), and intrapersonal (e.g., mental models, values, behaviour) levels. Driven by the Horizon Europe project PLANET4B, the panel brings together inputs that discuss tested and emerging forms of interventions necessary to trigger particularly deeper level transformations. We will discuss conceptual perspectives on understanding interventions and their transformative potential (esp., Leventon et al. and Karner et al.), as well as in particular detail using in-depth case studies (esp., Karner et al., Navarro Gambin et al., Home et al.). Overall, we will discuss the interventions from the perspectives of sustainability and justice, particularly in terms of ensuring (1) that an impact from interventions is truly transformative and fundamentally moves individuals and societies towards adequately valuing biodiversity in the long term, and (2) that interventions do not serve as a mechanism for stripping the rights and benefits of already disadvantaged individuals and communities but in fact strengthen their roles in decision-making related to biodiversity and nature. The panel unites interventions involving public, private, community actors, results from observational and experimental research on interventions, as well as insights from key sectors at the intersection with biodiversity (food, agriculture, fashion, education, etc.), all with particular focus on their more fundamental and transformative impacts. Furthermore, the panel aims to support discussions in other panels relevant to these subjects by active exchange and participation (agreed collaboration on interventions with the innovative panel "It's all in the game").

Presentations (including names of presenting authors):

Conference Stream(s): Justice and Allocation

Systemic transformation for biodiversity: what intervention, in which system and for what purpose?

Julia Leventon

Creating sustainable futures requires changes in individual behaviour, and in the systems that shape these behaviours. Changes to individual actions is insufficient without bigger changes to the economic, political and social systems that shape and constrain them. A growing number of scholars emphasize a need to work across all sites of behaviour change from individual to systemic levels to promote sustainable behaviour. Thus, interventions are needed that consider multiple levels of decision-making, spanning individuals, communities, local, regional, national and international policy. To do so, questions of power and the structures that reinforce power and thus shape opportunities to create or enact change must be addressed. Further, there are important questions of scale, including how to unlock shifts at multiple levels, and over a greater number of people. Systems thinking, and associated concepts such as leverage points (after Donella Meadows), have become popular in transformative change research. Systems thinking can be used as an organizing framework to consider questions of scaling and considering how individual change is embedded within broader political and power systems. Leverage points are increasingly being used as boundary objects, particularly in social ecological systems research, to explore interventions for sustainability in place-based systems. Aiming at the most effective leverage points has the greatest tendency to transform our world into a more sustainable state. However, systems thinking can be broadly split into two categories – ontological, where a system is a real object to unpack and design interventions; and epistemological, where systems thinking is an approach to unpack complexity. We argue that current dominant narratives in the biodiversity literature tend towards framing systems as defined objects with mechanistic understandings of leverage points. We do not wish to denigrate such approaches, but rather position these within more reflexive approaches that allow us to make explicit systems of power, politics and normativity. Within our paper, we draw on a range of example cases from the PLANET4B project. Using a critical, reflexive approach to systems thinking, we consider how the case seeks to intervene, in which systems, and with what implications for biodiversity conservation and restoration.

Using an intersectional lens in co-developing interventions to strengthen the 'BioDiverse Edible City' concept in Graz, Austria

Sandra Karner

We use intersectionality as a theoretical concept that sheds light on structural inequities in societies to inform research at the intersection of food and biodiversity. Ensuring access to good food for all inevitably tackles questions of food justice, social justice and social inclusion, which implies to acknowledge the diversity of needs and abilities of people. Likewise, it has been argued, for example in the context of Ecofeminism and Social Ecology research, that looking at biodiversity is inseparable from looking at the diversity of human communities. In a case study from Graz, Austria, we apply intersectionality as a theoretical point of reflexivity and a methodological tool to strengthen the 'BioDiverse Edible City' concept. The aim of this concept is to establish an urban foodscape that is based on democracy, social inclusion and adequately sustained biodiversity. In

the PLANET4B project, a living lab will be set up to define this concept, to elaborate a tailored set of interventions and roadmap for its implementation, and to implement first pilot activities in practice. To transform elitist approaches of edible city activities, PLANET4B will reach out to vulnerable groups. Intersectionality will be used as a method to make this research inclusive by integrating inequality-generating categories of gender, class, and race in using a simplified approach of Degele and Winker's multi-level analysis. Initiatives at the intersection of food and biodiversity often lack social diversity, which is well documented in the literature, but little is known about the interventions to foster inclusion. To fill this gap, we are developing an organisational model for a multi-actor food cooperative that is expected to allow for more social inclusiveness, participatory decision making, and thereby fostering access to good food for all. The initial model was co-developed based on group discussions, various workshops, systematisation of experiences, cooking events, an exhibition, 'food stories', and validated by involved actors. The model has a modular structure, which allows for being adapted to individual needs and contexts. Thus it can be applied in socioeconomically and culturally heterogeneous environments as well as in deprived neighbourhoods. Thereby the model will represent a central cornerstone for covering the food justice related aims of the 'BioDiverse Edible City' concept, which combines in this case study access to sustainable food and a social justice philosophy. The paper will outline how the applied intersectionality approach supported transformations for a sustainable urban food scape framed within a 'BioDiverse Edible City' concept.

Understanding interventions for pro-biodiversity behaviour in a sectoral context: An example of the Tuscan textile, apparel, and fashion industries

Pedro Navarro Gambin

Textile, apparel, and fashion (TAF) industries are significant contributors to global biodiversity loss through their multitude of negative impacts on natural ecosystems and their services. These impacts are distributed across the supply chain of production, processing, consumption, and product end life. Production of cotton, viscose, modal, rayon, lyocell, wool, and leather drives vast land-use changes (deforestation) and excessive water consumption that together with intensive pesticide use have a serious impact on biodiversity. TAF industries account for 20% of global water pollution, which changes the ecosystems by means of the acidification and eutrophication. While the environmental impacts of TAF industries in the global supply chains have been widely addressed in the existing literature, such research with focus on biodiversity is scant. National and regional governments also struggle to set reliable priorities and develop interventions capable of fostering transformations towards sustainability in TAF industries. This study examines the examples of Prato (Tuscany), the largest textile centre in Europe (yarns and woollen fabrics), and Santa Croce, a globally recognised location for leather production. The main strategy of both the public authorities and the key actors of the TAF system here has mainly focused on "ensuring sustainable production and consumption patterns" (most recently driven by Sustainable Development Goal 12) with little or no link to biodiversity. The regional biodiversity strategy, for example, does not address impacts of TAF industries beyond the regional boundaries resulting from raw material sourcing choices. There are however several initiatives led by luxury brands and multinationals whose objectives and actions, as well as impacts around biodiversity is yet to be studied. We apply a mixed qualitative research approach to understand more global - political

(international norms, path dependencies) – and more local - behavioural (cognitive, social, dispositional) - factors hindering prioritisation of biodiversity in the sustainability agenda of the sector. Through a discourse analysis and a series of in-depth interviews as part of PLANET4B project, we uncover the meaning of key TAF actors' behaviour, as defined from their own point of view. How do they value some of the most-widespread policy interventions (including labels and certifications) for transforming attitudes towards biodiversity across the supply chain? To what extent is the distribution of benefits and costs perceived equitable? Results will allow us to holistically understand pro-biodiversity behaviour in its social context and generate further research questions to define potential interventions and understand how they might be applicable in other contexts.

Aligning agri-environmental programmes with farmers' attitudes to unlock transformative change: a target-oriented biodiversity promotion in the Canton of Zurich, Switzerland

Robert Home

Agri-environmental schemes are a common policy intervention for addressing biodiversity loss in European agricultural landscapes. In such schemes, farmers receive subsidies in exchange for installing habitat elements or for reserving some of their land as an ecological compensation area. However, the standardised systems encourage farmers to base their implementation decisions on maximising subsidies while minimising disruption and inconvenience: neither of which are included in the goals of the schemes. In turn, the changes brought about by these schemes remains largely marginal and hardly transformative. This contribution describes an agri-environmental scheme that has been piloted in Canton Zürich, Switzerland and which aims to motivate farmers to include biodiversity outcomes as a criterion in their implementation decisions. In the program, farmers, in collaboration with ecological advisors, decide on site-specific and targeted measures to promote biodiversity on their farms, with subsidies connected to achievement of negotiated biodiversity outcomes. Thus, the participants of the experimental pilot had a direct decision-making power aligned with the already existing incentive structures of the schemes. To evaluate how the new program is perceived, which could inform the strategy to upscale following the pilot phase and further to be examined as part of PLANET4B, we interviewed the 29 participating farmers and asked questions about their motivations and experiences. The results show overall positive experiences, with the new subsidy system perceived to be aligned with the farmers' self-image as producers. In particular, there was support for incorporating farmers' knowledge and enabling the implementation of site-adapted measures. Such direct participation seems to be considered equitable too, generally empowering the affected actors by the policy instrument. The advice was also perceived by farmers as having a positive influence on ecological outcomes, contributing to their sustainability, and potentially unlocking the initially intended transformations in the sector. The results suggest that the targeted promotion of biodiversity where incentives within policy interventions are aligned with internalisation of norms is a promising approach to counteract the loss of biodiversity in agricultural areas.

Mainstreaming Global Biodiversity Targets in Sectoral Action: 'What Works, How and Why?'

Hens Runhaar

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

The ongoing loss in nature and biodiversity due to human activity, exacerbated by climate change, is one of the most pressing sustainability challenges today. Governments and companies have committed themselves to contributing to global biodiversity targets, as defined by the Kunming Montreal Global Biodiversity Framework (GBF) of the Convention on Biological Diversity (CBD) and the Sustainable Development Goals (SDGs; particularly SDG14 Life Below Water and SGD15 Life on Land).

For *actual* biodiversity recovery, targets do not suffice. It is crucial that national governments as well as private companies *integrate* or *'mainstream'* these targets in sectoral policies and plans and implement concrete measures. Such policy integration in, for instance, the food and transport sectors, is considered a promising governance approach, because it can directly address the driving forces of biodiversity loss. In fact, this is also what the GBF aims for. complements targets on more classical biodiversity governance such as the management of protected areas and endangered species with requirements for sector policies governing resource and land use, as well as underlying drivers including food systems, consumption, energy or finance flows.

In this paper, we are synthesising results of a special issue in the *Earth System Governance* journal that aims to further our understanding of how and to what extent the adoption of biodiversity targets in public and private sectoral policies 'works' in terms of implementation and results. By discussing and complimenting these findings in light of the scientific debate, we provide in-depth insights into the critical enablers, barriers and challenges that facilitate or impede a stronger integration. The focus is on national policies and private initiatives beyond the individual company level (except for when this has sector-wide implications).

The questions that we address are the following:

1. In what ways have global biodiversity targets been integrated in public and private sectoral policies and plans, from policy formulation to implementation?

2. What factors explain the degree and results of integration and implementation of biodiversity targets in terms of their (potential) contribution to biodiversity recovery, and what explains the emergence or absence of these factors?

Conference Stream(s): Justice and Allocation

Parallel Panel: Equity and justice in nature and climate governance

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.112 / Zoom

Chair(s):

Alexia Faus Onbargi

Discussant(s):

Arjen Buijs

Presentations (including names of presenting authors):

Nature-based solutions for urban transformations: rhetoric versus reality

Sarah Clement

Nature-based solutions (NBS) are proposed as a comprehensive approach to addressing a wide range of social, economic, and ecological problems in cities, featuring in international policy and in national and sub-national discourses. Not only is nature billed as a solution to some of the most vexing environmental challenges, they are presented as an opportunity to amerliorate all manner of governance crises, with the ambition to provide socially just, democratic, and locally tailored solutions that are "co-produced" and "co-designed" with stakeholders. NBS also offer a new way to frame urban greening efforts; one that is economically efficient and politically palatable. This presentation provides results from Urban GreenUP, a 6-year transdisciplinary demonstration project, to plan, implement, and monitor the impact of NBS in three European cities and in a network of 'follower cities' in South America, Asia, and Europe. After an overview of the social, economic, and biophysical impacts of the interventions and an introduction to the data dashboard providing these results, the presentation compares these modest results to the promises in policy and the grey and academic literature. These are used to draw out key areas where more attention needs to be paid if the promise of NBS as a concept is to be realised, particularly in urban areas. These include the extent to which NBS offer a 'transformative' alternative to addressing sustainability crises in urban areas, whether they offer more democratic and inclusive solutions to such crises, and whether the global ambitions and standards of NBS are achievable in cities. This analysis reveals a mismatch between the ways NBS are framed as potential solutions to both material and existential sustainability challenges, and the reality of how NBS are implemented in practice. The ways in which NBS are seen as technical solutions with measurable physical impacts, rather than as a new way to plan and develop cities, is found to stultify progress in using NBS to address society's greatest challenges. Ultimately, this analysis of monitoring and action research data finds that the transformative potential of NBS requires that cities be treated not just as living laboratories where new ideas can be tested, but that these new ideas need to be more than engineering advancements or novel demonstration projects. A more ambitious scope for NBS implementation would push the boundaries of how decisions are made, require a re-

consideration of patterns of development, and significantly increase the scale of greening interventions.

Mosaic governance and urban environmental justice: Can civil society contribute to just transformations?

Arjen Buijs

Cities are an increasingly important place for experiments connecting climate action with challenges around food, energy, biodiversity 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. 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 into urban governance, empowerment of local communities, and environmental justice, 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 as well as to possible pathways to enhance not only environmental but also social justice.

Are justice considerations in international guidelines for disaster risk governance promoting sustainable development?

Mathilde de Goër de Herve

Governance of earth systems comprises dealing with disasters. Previous research has shown the importance to discuss justice (i.e. fairness) in the management of disasters and disaster risks. In the context of resilience-building and sustainable development, several dimensions of justice must be taken into consideration. The here presented framework called risk justice includes procedural, distributive, and corrective justice under four sustainable dimensions that overlap: social justice (the fairness between different groups of people) ecological justice (the fairness between humans and non-humans as well as between different non-human entities), spatial justice (the fairness between entities present in different geographical areas), and temporal justice (the fairness between entities living at different moments in time). Indeed, sustainable development has to happen for everyone, including both human and natural systems, and the actions taken on one territory at a specific moment in time should not hinder sustainability in the future and in other territories. Hence the importance to consider justice for social and ecological issues, within different spatial-temporal scales. The risk justice concept is an innovative framework that can be used by decision-makers and risk managers as a proactive tool to discuss the issues raised by potential future strategies, and by evaluators and researchers as a retrospective tool to judge the fairness of current and past risk management strategies that are already implemented. After the conceptual elaboration, this paper applies the risk justice framework in a document analysis to pinpoint how justice is (or not) considered in international disaster risk management guidelines, naming the Sendai Framework for Disaster Risk Reduction 2015-2030 and the European Floods Directive. These two documents are barely quoting justice (nor synonyms), yet several elements are related to it, without naming it. These elements highlight aspects of social and spatial justice, mostly related to the distribution of the management impacts (distributive justice), as well as to how the decisions are taken (procedural justice). Elements of corrective and ecological justice are less present, but they appear indirectly in the European Floods Directive. Temporal issues are mentioned in the Sendai Framework. What the guidelines insist on (or not) gives indications on the aspects of sustainable development that the international community explicitly focuses on. Yet, all sustainability-related dimensions of justice are essential to consider for society to become more sustainable, even though tradeoffs are unavoidable. Accordingly, the risk justice framework can facilitate transparent discussions on justice to promote disaster risk governance's contribution to sustainable development.

Framing natural infrastructure practice and learning ecosystems in a warming world

Liese Coulter

Green and Natural Infrastructure (NI) offer Nature-based Solutions (NbS) to tackle climate change and biodiversity loss in urban areas by actively managing ecosystems and their services. Decision makers are now challenged to connect infrastructure, ecosystems, sustainability and the implications of climate change. Therefore, swift transitions are needed in professional education and practices that build capacity and introduce new capabilities in NI to combine management of

municipal built and natural assets, and related ecosystems. However, determining the most effective learning interventions is complicated by the diffuse and emerging nature of NI in practice, professional norms excluding NI in problem definitions and solutions, and the interconnectedness and extensive collaboration required by ecosystem management. Following the focus on ecosystems in NI, we apply the ecosystem concept to frame both practice and learning, building on the literature surrounding learning ecosystems. In framing a learning ecosystem that addresses NI planning, design, development and maintenance, we consider what elements make up NI learning opportunities and professional practice. This paper describes a guiding framework to enable NI practices, addressing the multi-disciplinary educational system by A) identifying the existing NI practice and learning ecosystem, B) discussing how this system reflects consideration of NbS through NI and C) suggesting transdisciplinary knowledge exchange, including with Indigenous worldviews. The NI learning ecosystem (NILE) was first defined through a survey and a virtual Challenge Dialogue workshop to explore and respond to a proposed set of NI norms, identify core competencies, and explore user needs related to NI training. Because NI is an emerging practice with few aligned credentials, research sought to understand what organisations and roles influence such practices to identify additional capacities and capabilities most central to NI in practice. Actors were identified in three Canadian Prairie provinces and their network illustrated using KUMU software. Validation interviews including NI practitioners and educators informed the NILE framework. We found that aligned professions such as engineering and planning had no specific NI credentials or designation; and that government departments and professional consultancies are significant actors, although municipalities are central to implementing NI. The NILE frame offers some structure to guide efforts to support NI practices through learning opportunities in higher education institutions, professional continuing education and workplaces. Because NI is not well understood by communities and professions alike, applying and mobilizing the NILE can inform the social processes needed for a stronger social license respecting shared Indigenous and Western connections to the land.

Parallel Panel: Water-Energy-Food nexus in South Africa: consequences for social justice?

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Marjanneke Johanna Vijge

Discussant(s):

Jochen Monstadt

Session Overview: Water-Energy-Food nexus in South Africa: consequences for social justice?

The Water-Energy-Food (WEF) nexus is gaining scholarly and policy attention. Despite growing evidence on which type of nexus governance works, little is known about the consequences of such governance for social justice. Implementing the nexus requires decision-making about trade-offs between the use and production of water, energy and food, which are particularly acute at household and community levels. This raises justice questions of whether the nexus can benefit all, who makes decisions and at what levels. In South Africa, where access to water, energy and food are strongly influenced by a history of Apartheid and inequality, there is a need to study the challenges and opportunities of a socially just nexus implementation from the bottom up. This panel session presents papers from an interdisciplinary [project name removed to anonymize] research project involving 4 universities in Europe and South Africa. We introduce the concept of WEF communities, inspired by EU legislation for energy communities to produce their own renewable electricity. We study how similar communities in South Africa could be legally recognised and expanded to include water use and food production, and with what consequences for social justice, particularly for the poorest and women. Incorporating WEF communities in South Africa's legal frameworks may enhance social justice from the bottom up, yet this is uncertain given inequalities in (legal) access to energy, water and land. This panel includes papers that draw on analyses of multilevel governance and legal frameworks in the EU and South Africa, as well as household assessments on WEF interlinkages and decision-making in two communities in the Eastern Cape and Northern Cape in South Africa.

Presentations (including names of presenting authors):

Exploring the narratives about water, energy and food delivery and the role of interagency interactions

Michele Dalla Fontana

The rationale behind the water-energy-food nexus (WEF) is particularly appealing in those geographical contexts where resource demand is expected to increase the most and resource security issues are on the daily agenda. It is not by chance that most of the research on the topic

has been conducted in countries from the Global South. The WEF nexus in the African continent has been through conceptual, intellectual and social development in recent years, particularly in South Africa. Different regional organisations and research institutions are adopting the concept and are committed to facilitating cross-sectoral engagement. Nevertheless, there is still a huge gap between nexus theory and practice, and sectoral approaches in policymaking are still dominant. The theory-practice gap is not unique to the African context, but it is reported globally in the literature. Too little attention to the institutional, socio-economic and political aspects of the nexus, in favour of a prominent focus on the materialistic and technical aspects of it, can somewhat explain the challenges of WEF nexus operationalisation and institutionalisation. Although there has been a recent increase in studies looking at the governance and management practices of the nexus, they often build on assumptions that are verified, such as: i) there are no interactions among actors from the water, energy and food sectors; ii) this lack of interaction is the cause for water, energy and food issues; iii) actors' interactions and coherent policies will yield better results. However, this reasoning neglects that new solutions will necessarily be built upon existing governance arrangements and networks of relationships and will have to consider how different actors and institutions develop narratives about WEF nexus problems. It also downplays the (often strong) incentives against nexus governance. We argue that better understanding the status quo is fundamental before rushing into general calls for more coordination and interactions. In this paper, we adopt a qualitative approach to capture how different actors interpret the relationship between water, energy and food delivery issues and the codependences of these sectors in South Africa. We aim to understand what kinds of interactions are in place, which are not and why, and which are considered part of the problem in WEF delivery and thus need improvement. We develop our argument on policy documents, interviews and workshops conducted with government officials at the national, provincial and local levels in South Africa.

Community-level institutional inclusivity and its determinants in water, energy and food nexus governance for social justice

Saul Ngarava

Unmet realities of water, energy and food (WEF) cannot be reduced unless there is serious threat to possibilities of elite-class accumulation, due to inequalities. However, various classes have varying affinity and access to these resources. This has bi-directional effects on institutional arrangement influencing rights to use, own and manage, proffering significance of resource politics and examining processes hindering access and control over resources; providing alternative, transformative and just futures. However, institutional inefficiencies affect how groups and classes are represented. Political ecology demonstrates that institutional dynamics and discourse shape outcome. It exposes the social and ecological ramifications and uneven outcomes of political, economic and cultural power for WEF resources, recognizing the unneutral and unobjective resource policy and evaluations. There has been a neglect of micro-politics that (re)shape (in)securities and (in)equalities in resource governance. The study sought a nexus understanding, acknowledging the political nature, as well as lived and experienced realities in a case of three heterogenous sites in South Africa, marred by inequality, micro-institutions and accumulation from below, drawing attention to political nature of class inclusivity in WEF governance. Inclusivity in this instance referring to giving voice and expanding frontier of who has

specific rights, has remained superficial when structural reproductions of discrimination are overlooked. Scrutiny was achieved through assessing how agricultural, water and energy user groups, ward committees and forums for integrated development plans were inclusive in their community-level WEF decision-making and determinants thereof. Cross-tabulation and binary logistic regression were used to analyze a cross-sectional survey of 1,184 households. There was heavy presence of ward committees, more effective (perceived) in community-level WEF decision-making with extensive considerations (both in process and outcome) of age, gender and disability as well as taking community recommendations on board. Various vices such as corruption, lack of empowerment and participation were identified as hampering community level WEF participation in decision-making. This has been compounded by decision-making being inadequate, inaccurate and untimely; not accommodating the poor and unrepresented and less objective and independent. Lack of cohesion was a major determinant of inclusivity in agricultural, water and energy user groups as well as ward committees while community-based action reliant on recommendations was significant for forums around integrated development plans. In conclusion, there are differentiated levels of inclusivity (both in process and outcome) in community level WEF decision-making with lack of cohesion and recommendation-based action being significant determinants. The study recommends tailor-made inclusivity criteria for the differentiated institutional arrangements.

Insights from EU legislation on energy communities for WEF communities in SA

Alois Mugadza

Power outages have been occurring often in South Africa since 2016 and have gotten worse over the past two years, 2021 and 2022. Every sector of the economy has been impacted, including the vital industries of food and water. The President of South Africa, Mr. Matamela Cyril Ramaphosa, has since declared an energy state of emergency because of the shortages. In contrast, citizen-led, communal energy initiatives have been reinvigorated in Europe. Communities organise themselves on their own and produce their own electricity from renewable sources. The incorporation of renewable energy communities (REC) and citizen energy communities (CEC) into EU law in 2018 and 2019, respectively, helped to legalise, foster, and strengthen energy communities. Importantly, the idea of "water-energy-food (WEF) communities" was inspired by legislation mandating energy communities to produce their own renewable energy. Energy communities in the EU support local ownership and participation in the energy sector while enhancing and bolstering local social justice and energy security. The EU might have introduced a practical solution that can meet South Africa's energy requirements and advance social justice. This article explores the energy communities in the EU and investigates their legal possibilities in South Africa for a WEF nexus.

Water-Energy-Food nexus in South Africa: multilevel governance for social justice?

Marjanneke Johanna Vijge

The Water-Energy-Food (WEF) nexus has gained traction internationally as an integrated approach to accelerate transitions towards sustainable development. Although growing evidence exists on which nexus approaches work, how and why, most of this is based on analyses at one level of governance, mainly at the national level. Moreover, it is not clear what pursuing the nexus

approach means for social justice, for example around resource allocation. While some degree of conflict is considered necessary for nexus approaches to be effective and address trade-offs in the allocation of water, energy and food, the consequences for social justice, including around gender, have not often been studied. In order to address some of these knowledge gaps, we combine different analyses on the extent to which, how and why household-level interlinkages between water, energy and food resources are (not) incorporated into local, regional and national policies and/or policy processes, and with what consequences for social justice. We zoom in on South Africa, a country with long-standing inequalities, including around water, energy and land allocation. We pose the following questions: How and to what extent are water, energy and food resources and the lack thereof interlinked at household level in South Africa? How and why do multilevel governance and legal frameworks (not) take account of these interlinkages? And what is the role of local communities therein? Our research is part of an NWO-WOTRO project and is based on fieldwork with 1,184 household surveys in two locations (Northern Cape and Eastern Cape); workshops and focus group discussions among local communities; interviews with local, regional and national policymakers; and analyses of legal and policy documents. With this research, we not only generate empirical insights into multi-level nexus governance in South Africa, but also contribute important theoretical insights into how and under what conditions WEF nexus approaches increase social justice at multiple levels of governance.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Environmental impact of the healthcare sector within the concept of planetary health

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.120

Chair(s):

Tim Stobernack

Discussant(s):

Maud Huynen

Session Overview: Environmental impact of the healthcare sector within the concept of planetary health

The healthcare industry is crucial for promoting human well-being but also has a considerable impact on the environment, contributing to climate change, pollution, and resource depletion. To address this issue, the concept of "Planetary Health" recognizes the interdependence of human health and the health of the planet. The production and distribution of medical equipment, pharmaceuticals, and energy-intensive infrastructure of healthcare facilities all contribute to environmental impacts, highlighting the need for identification of hotspots and stakeholder collaboration.

Various studies within our panel propose solutions, such as the first study, which aims to monitor the environmental footprint of the Dutch healthcare sector through collaboration between stakeholders. The second study identified hotspots of environmental impact in care trajectories within a Dutch academic hospital using life cycle assessments, offering perspectives for future sustainability programs. The third study highlighted the environmental impact of pharmaceuticals and suggested redispensing unused drugs to reduce costs and impact. The fourth study evaluated the sustainability of e-health through life cycle assessments and identified its potential contribution to reducing the environmental impact of healthcare.

In conclusion, the healthcare sector must adopt more sustainable approaches to promote the health of both people and the planet. Collaborative efforts between healthcare providers, policymakers, and patients are essential to ensure a sustainable future of healthcare. Hotspot identification, redispensing medication, and e-health implementation are promising solutions to reduce the environmental impact of healthcare. The concept of "Planetary Health" emphasizes the need for more sustainable healthcare practices that promote the health of both people and the planet.

Presentations (including names of presenting authors):

Towards monitoring the environmental footprint of the Dutch healthcare sector with stakeholders

Rosalie van Zelm

Conference Stream(s): *Inter- and Transdisciplinarity for Sustainability Transformations*

In the transition to more sustainable economies, monitoring countries' footprints is important to assess whether climate or sustainability targets are met. In recent years, the Netherlands has set specific climate and sustainability objectives at a sectoral level to drive action and to improve decision-making. We established a method to measure the environmental footprint of the Dutch healthcare sector. The generic footprint was calculated using a (top-down) input-output analysis using the latest available data and key figures. The outcome was supplemented with specific (bottom-up) data, such as the impact of propellants in inhalation medication. Bottom-up analysis was then used to deepen the understanding of the product group that contributes most to the calculated environmental footprint of the healthcare sector: chemical products, which includes pharmaceuticals and medical consumables. This hybrid approach, combining the generic top-down analysis and the bottom-up analysis, lays the foundation for a baseline measurement of the environmental footprint of the Dutch healthcare sector, i.e. the current state of affairs to provide a reference point against which future changes or results can be measured and evaluated.

However, our research does not yet provide this baseline measurement by which a transition towards environmental sustainability can be monitored. To do so, it is necessary to analyse what is minimally needed for that purpose, whether all these data are available and which uncertainties arise. In addition, it is crucial to review the possibilities to keep data and key figures representative and up-to-date and what a useful monitoring frequency would be.

In The Netherlands, healthcare institutions participate in national sustainability goals by setting individual goals and implementation strategies in the Green Deal Sustainable Care 3.0 initiated by the sector and coordinated by the Ministry of Health, Welfare and Sports (VWS). Monitoring the results of this Green Deal requires intensive collaboration with stakeholders. It is important that measurable goals are set, that stakeholders interact to achieve goals, and to know what commitment is needed from all actors. Through collaboration, a baseline measurement can be achieved, alongside an action plan for the monitoring national developments of the environmental footprint of healthcare, fulfilling one of the commitments made by the Ministry of VWS at the COP26 UN climate summit. Together with healthcare institutions, government, and other stakeholders, the Dutch National Institute for Public Health and the Environment (RIVM) aims to improve data analysis and minimize uncertainties, to provide achievable recommendations to minimize the environmental footprint.

Environmental hotspot identification of patient trajectories

Sanne Tinga

While the healthcare sector's primary focus is on keeping individuals healthy, its footprint causes planetary systems to shift out of balance. The goal of the CATEGORISE study is to identify environmental hotspots within common healthcare trajectories. Determining the elements and/or processes that have most impact on the environment enables future sustainability programmes of the healthcare sector to be most effective.

The environmental impact is determined of four patient healthcare trajectories (n=10) of the Radboudumc hospital. Patients with sepsis and patients with high-energy trauma are included on admission to the Emergency Room (ER) and followed onwards to the Intensive Care Unit (ICU). Furthermore, patients that undergo Coronary Artery Bypass Grafting (CABG) surgery are included

from the Operation Room (OR) onwards to the ICU. Lastly, the environmental impact of cataract surgery performed at the OR, worldwide the most performed type of surgery, is quantified.

Life cycle assessment (LCA) is the method used to calculate the environmental impact and identify the environmental hotspots. In this study, real-time data is acquired by direct observation. Close collaboration between environmental researchers and hospital personnel is key here. Track is kept of all processes used to treat the patients, including the use of medical equipment, performance of diagnostics, administration of medication, consumption of energy and production of waste. Subsequently, a model is built in the LCA software SimaPro. Finally, the environmental impact of the different patient trajectories is determined using the LCA impact assessment method ReCiPe2016.

As of right now, February 2022, the CATEGORISE research has been running for one year and is expected to be finished around February 2023. For the CABG and cataract surgeries at the OR it has become clear that their carbon footprints are 532 kg CO_2eq. and 72 kg CO_2eq. respectively. CABG's main impacts are disposables (30%), energy (21%) and employee transportation (20%). The hotspots for the cataract surgery are patient transportation (46.2%), employee transportation (19.5%) and disposables (18%). Currently, an action list of measures to lower the footprint of these surgeries is being developed and the trajectories on the ER and ICU are investigated.

This study marks the first large scale attempt to determine environmental hotspots in multiple care trajectories. Interdisciplinarity makes up the core of this research, continuously bringing the field of environmental science and the healthcare sector together. The conclusions of this LCA gives hospital management and other healthcare professionals the tool to effectively lower the sector's environmental impact.

Contributing to sustainability by redispending unused drugs: A test-case with oral anticancer drugs

Lisa-Marie Smale

INTRODUCTION

Waste minimalization in healthcare could contribute to economic and environmental sustainability. Particularly, when expensive therapies, such as oral anticancer drugs (OADs), are targeted. To minimize waste, OADs remaining unused by patients could be redispensed to other patients after quality verification in the pharmacy. This study aims to assess the economic and environmental impact of redispensing unused OADs and to identify hotspots in the process to optimize those impacts.

METHODS

A prospective intervention study in four Dutch hospitals was conducted with 12 months follow-up per patient. Participants received prescribed OADs in special packaging (i.e. sealbag with temperature logger) and were requested to return unused OADs to the pharmacy for quality verification on: authenticity, remaining shelf life and correct storage. OADs of verified quality were redispensed to other patients.

The economic impact from a healthcare perspective and the environmental impact were determined compared to standard practice (i.e. no special packaging and disposal of returned OADs). Economic impact was determined per patient by the balance between costs of redispensed OADs versus operational costs (€, 2021). The environmental impact on endpoint and midpoint level, using ReCiPe2016 (H), was calculated with a cradle-to-grave Life Cycle Assessment (LCA), following ISO14040 standards. Inventory data was collected for seven OADs and the quality verification procedure, based on the intervention study, EcoInvent database and literature. Scenarios on the quality verification procedure were used to identify hotspots and optimize environmental and economic impact.

 RESULTS

1,071 patients participated in the study, median age 70 years (IQR: 62 – 75) and 42% female, using OADs for ≤ 6 months (32%), 7 – 24 months (32%) or >24 months (36%) at start. In total, 184 (18%) patients returned 332 OAD packages, of which 224 (67%) OAD packages were approved of quality and redispensed. This provided mean net cost-savings between €613 (CI: €345 – €881) and €652 (CI: €516 – €788) per patient per year, depending on the quality verification procedure.

Initially, the quality verification procedure had a higher environmental impact on all indicators compared to the avoided impacts of redispensed OADs. However, by changing the type and use of temperature loggers, environmental benefits of waste reduction outweighed the operational impact.

 CONCLUSIONS

Redispensing unused OADs had a substantial, positive economic impact, and, with process optimization a lower environmental impact compared to standard practice could be established. Accordingly, this study provides a hands-on strategy targeting drug waste to contribute to economic and environmental sustainability of healthcare.

Can teleconsulting and telemonitoring in primary care be eco-friendlier than care as usual?

Egid M van Bree

Background   According to the WHO, climate change is the single biggest health threat in the 21st century. Especially for a population at-risk due to chronic diseases, negative health effects of climate change are expected to increase in the next decades. Other environmental crises, such as biodiversity loss, may even compound the negative effects of climate change. Whilst chronic diseases are already the leading cause of death on a global and national level, the number of people affected will continue to rise over the following years, partially due to population ageing. Paradoxically, the healthcare sector substantially contributes to the Dutch carbon footprint – 7% annually. In line with European regulations, carbon emissions must be reduced by 50% in 2030. Two recent reviews concluded eHealth to be a promising intervention to reduce the mobility-related carbon footprint of healthcare, yet they did not consider other environmental impacts. The simultaneous benefit of eHealth for chronic disease management and reduction of environmental impact has been suggested, but was never explicitly studied. A proof of concept is necessary for the environmental argument for telemonitoring and teleconsulting – two subtypes of eHealth.

Objectives   This study aims to quantify and compare the environmental impact of teleconsulting for chronic nursing care in home setting and telemonitoring for chronic disease management in primary care to a patient care trajectory 'as usual'.

Methods   A state-of-the-art life cycle assessment (LCA) will be conducted to study the relevant processes, products and inputs required for primary care teleconsulting (long-term nursing at home) and telemonitoring (post-myocardial infarction care and cardiovascular risk management). Selected eHealth interventions have been chosen based on their ongoing implementation and large volume of usage. As a comparison, the environmental impact of an average outpatient trajectory of physical and telephone contacts will be computed as 'care as usual'. Every eHealth intervention will include a sample of at least 10 patients to account for interindividual variations. Impacts will be reported as midpoint environmental impacts using the ReCiPe method v1.6 'Hierarchist' perspective. Where possible, background information will be drawn from the Ecoinvent® database and existing LCA healthcare literature.

Results/Conclusion   To our knowledge, this is the first study conducting a life cycle assessment for comparison of telemonitoring and teleconsulting to a patient care trajectory 'as usual'. Data collection is due to commence soon and first results are expected by October 2023. Obtained insights may provide an action perspective for future efforts in healthcare sustainability.

![2023 Radboud Conference on Earth System Governance — Bridging Sciences and Societies for Sustainability Transformations]

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Multilevel and local adaptation and resilience

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.125 / Zoom

Chair(s): Rini Astuti

Presentations (including names of presenting authors):

Regional preparedness networks: a method to implement adaptive governance?

Maija Nikkanen

The Nordic approach to security and preparedness emphasises decentralisation and cross-sectoral cooperation. In Finland, the approach is known as comprehensive security: briefly, society's vital functions are secured through collaboration between the authorities, organizations, and citizens. Comprehensive security has been operationalised, for example, through regional preparedness and security networks that bring together municipal actors, rescue services, security and defence authorities, social and health services, NGOs, and companies. The network itself has no leading partner nor formal decision-making power, and its operation is based on mutual agreement and the responsibilities of each participant organisation.

In this qualitative study, we interview 15 members from six regional preparedness networks from eastern and central Finland. We focus on how they prepare for storm-related power outages, which are a relevant hazard scenario in all regions of the country. Our objective is to study how these polycentric networks operate in practice, and how and if cross-sectoral regional cooperation has altered regional preparedness for and responses to storm-related disruptions.

In particular, we focus on whether the attributes of adaptive governance are visible in these networks. Adaptive governance (AG), a concept most commonly used in environmental and resource governance related fields, represents a shift from a traditional predict-and-control governance system to a more polycentric, flexible approach, which takes complexity and uncertainty into account. Frequently named attributes of AG are multi-actor networks, multilevel and multiscale governance, mutual learning, collaboration, and reflexivity.

Although AG has been amply discussed in literature, practical examples of its implementation have been scarce. Therefore, we ask: could regional preparedness networks be considered a tangible method to implement adaptive governance, in addition to comprehensive security? For instance, AG emphasises the inclusion of a diverse set of stakeholders: hence, we examine how the regional preparedness networks are formed, and which actors and organisations are included. Furthermore, we study how polycentric collaboration works in practice, when many member organisations have formal mandates and responsibilities. We also explore how the networks are linked to other levels of governance, and whether scale mismatches hinder their functioning – are there discrepancies between local hazard impacts, municipal responsibilities, regional networks, and state-level policies? Moreover, we investigate whether there are examples of these networks

supporting peer learning or reassessing current practices. Finally, we discuss whether such networks could have potential to govern sustainable transformations.

Conditions for effective governance of interdependencies among water, energy and food securities: the case of Domasi River Basin, Malawi

Srinivasa Reddy Srigiri

Sustainable governance of water resources essentially involves institutions that enable deliberation and participation for managing the interdependencies generated by conflicting goals and strategies. Supporting institutional environment are required not only for managing the interdependencies, but also to adapt to changing climate and its impacts. In Malawi, the interdependencies are more pronounced due to high dependence on biomass energy, which limits the water available for food production as well as drinking and domestic use. This is further aggravated by the increasing spatial and temporal variability in rainfall and water availability. The objective of the paper is to identify the factors affecting the ability of a water resources governance system to manage the interdependencies among the strategies for achieving the goals of water, energy and food (WEF) securities under the conditions of changing climate.

Using the Institutional Analysis and Development (IAD) framework and the concept of Network of Action Situations, we analyse the conflicts and coordination among actors at different levels in designing and implementing strategies to achieve the WEF securities in Malawi, focusing on the case of Domasi River Basin. Qualitative data from 54 interviews with key informants and 4 focus group discussions with water users were analysed to identify key challenges to coordination within and across levels and sectors.

Gaps in implementing key legislations on governance of water and biomass resources along with the predominant dependence on biomass for energy and livelihood, are leading to unsustainable charcoal production driving deforestation in the catchment areas. This is further leading to siltation and reduction in the availability of water for drinking and food production. Lack of representation of key sectors and agencies at the basin and district levels is affecting coordination and conflict resolution. Furthermore, political economic factors are leading to prioritisation of populist short-term policies for agricultural development, crowding out of private investments and irrational allocation of limited state capacity. Efforts to foster collaborative governance for resolving the WEF conflicts and achieving synergies need to focus beyond the national level by strengthening capacities of actors at lower levels for effective and coherent implementation of different sectoral strategies.

Understanding and overcoming adaptation lock-ins: comparative analysis of coastal vulnerabilities using an actor-centred framework for navigating polycentric governance

Jean Hugé

Coastal social-ecological systems are typically subject to a wide range of anthropogenic pressures, as these systems combine high human population densities with high biological productivity at

the land-sea interface. Competing resource claims by multiple stakeholders create tensions, which are not easily resolved due to the inertia of coastal policy systems. Self-reinforcing mechanisms make policy systems rigid and resistant to change – these systems become 'locked-in'. While the concept of lock-in has been widely used in climate mitigation research to explain barriers to decarbonisation, climate adaptation lock-ins have only recently gained attention. While adaptation is becoming increasingly important, progress is less than desired. Just as in decarbonization, lock-ins may provide an explanatory mechanism. In this explorative study, we use a 'lock-in' perspective to analyze adaptation in coastal governance systems, particularly in case study locations where we have conducted empirical research. These include coastal systems in the Global South (Kenya, Pakistan) and in the Global North (the Netherlands, Belgium). In our explorative analysis we focus on the mechanisms by which lock-ins influence the multi-dimensional vulnerabilities of local communities. In order to examine possibilities to navigate polycentric coastal governance systems, we propose to apply [citation removed to annonymize abstract]'s (2021) framework, , by focusing on knowledge, relationships, strategies and decisions and their implementation. By applying a lock-in lens to complex, strained polycentric governance systems and by highlighting the vulnerability and the agency of local communities, we aim to propose an interdisciplinary research approach in order to compare and learn from coastal systems, thereby allowing communities to develop fair and effective adaptation strategies .

Innovative Session: A Sustainability Manifesto for Higher Education

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.129 / Zoom

Chair(s): Kristina Lauche, Adam Calo

Presenter(s): Jeremias Herberg, Mathéa Debant, Tomasso Mondovi, Marc Davidson

A Sustainability Manifesto for Higher Education

While some argue that sustainability is a concept worthy of rescuing the planet from its problems, sustainability itself is in need of rescuing. Sustainability thinking has motivated action in the climate and environment remain, but there is an equal din that critiques the vision of sustainability as weak, inconsistent, harmful, and ultimately futile. While this debate remains to be resolved, many academic institutions have embraced sustainability as central to education, research, and internal management. Radboud University, for example, prepares to launch a new masters in Sustainability Science, will hire a Professor of Enduring Behavior Change for Sustainability, and has instituted the inclusion of sustainability across all curriculum. The danger of mainstreaming sustainability into the core mission of research and teaching is that is serves as an inadequate stand-in for the realm of contested values that higher education could or should pursue. Critics warn that a generation of research and education devoted to an empty concept only risks to further the status quo. If sustainability is to become a positive transformative force, we desperately need a set of epistemological and practical foundations worthy of making sustainability capable of the task it aims to accomplish. In this session we discuss the publication of "The Real Sustainability Challenges: A Manifesto for Politicizing Sustainability in Higher Education," authored by a collective of Radboud researchers and students. We highlight voices from the Manifesto's author collective paired with a panel response from the academic community. The Manifesto has direct implications for the direction of research and education at Radboud University, an institution branding itself with sustainability. It also provokes a discussion of how the larger academic community navigates the unsteady yet needed terrain of sustainability thinking. The stakes are too high to allow the concept of sustainability to be deployed so casually without critical reflection on what such a commitment truly invokes.

Innovative Session: Struggles in connecting theory and practice: a townhall debate on dilemmas in creating societal impact

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.136

Chair(s): Igno Notermans

Presenter(s): Mara de Pater, Gijs Diercks

Struggles in connecting theory and practice: a townhall debate on dilemmas in creating societal impact

Addressing the societal challenges of today requires transdisciinary approaches and co-production of knowledge for transformative change (Norström et al., 2020). Shifting the locus of knowledge production away from academia, it still plays an important role by researching what interventions are needed and how fundamental change can be set in motion, but more importantly by supporting societal actors in addressing these major sustainability challenges (Caniglia et al. 2021).

How such sustainability knowledge feeds into societal processes of change and results in societal impact varies due to fundamental differences in the generation of knowledge between academia and other actors (Blythe et al. 2017). Much of the scholarly work on co-creative interactions describe ideal-type contexts for these to take place: e.g., by convening stakeholders in an inclusive and 'safe space', or allowing for 'triple loop learning' between stakeholders. However, working in 'real life' societal transitions means one is often confronted with situations that divert from this ideal-type context, which sometimes presents dilemmas.

In this innovative session, we aim to probe salient issues that surface when connecting scientific theory and sustainability practice. We will build on experiences from our work at the Dutch Research Institute for Transitions, where our advisory, education and research approach depart from the understanding that co-creation between science and societal actors is essential for the generation of societal impact (Hebinck et al. 2022).

This session invites ESG participants to take part in a town hall-style debate on connecting theory and practice. This moderated debate is structured around anecdotes drawn from 'real life' cases, used to illustrate dilemmas, such as ensuring inclusive participation; staying 'radical' when interacting with the regime; and generating 'simple solutions' in a complex world. It will probe the cross-cutting questions that underly these dilemmas and discuss the balancing act that comes with connecting theory and practice.

Innovative Session: Transformations and Tensions in Food System Governance

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.133 / Zoom

Chair(s): Matthew Canfield, Jessica Duncan

Presenter(s): Priscilla Claeys, Leonardo van den Berg, Els Hegger

Transformations and Tensions in Food System Governance

Over the past decade, the concept of "food systems governance" has gained greater traction as civil society, governments, international institutions, and researchers increasingly understand the need to holistically address the public health, climate, and economic dimensions of food. In 2021, this culminated with a Global Food Systems Summit organized by the UN Secretary General. Yet the Summit also revealed competing interests, epistemic commitments and visions of global governance that significantly threaten the prospects of building effective and democratic governance of global food systems. As a result, many civil society organizations and indigenous peoples' movements boycotted or threatened to withdraw their participation from the Food Systems Summit. Moreover, in the wake of the Summit, global geopolitical conflict grew more intense. In late 2022, this global geopolitical fracturing led to the failure to effectively address food systems in the context of the convergence of crises caused by the climate, COVID-19, and the Russian invasion of Ukraine.

This transdisciplinary roundtable asks: What are the possibilities, transformations, and limitations in constructing effective food systems governance in the current moment and beyond? Participants (including representatives of movements, NGOs, and academics) will reflect on their research and engagement across different arenas of global and regional governance and issue areas—from agroecology to digitalization—to consider this question. An outcome of this roundtable could be a research agenda for a Food Systems Governance Group within Earth Systems Governance.

Conference Stream(s): Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: How Can ESG Research Contribute to Transformative Change for Climate & Biodiversity?

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR -1.070

Chair(s): Harriet Bulkeley, Esther Turnhout

Presenter(s): Michele Betsill, Stacy VanDeveer

How Can ESG Research Contribute to Transformative Change for Climate & Biodiversity?

The past five years have witnessed growing calls across climate and biodiversity research and policy communities for transformative change. Yet despite an apparent consensus about the need for transformative change to address the intersecting crises of global inequality, biodiversity loss, and climate change, what transformative change is, how it can be realised, and how we might evaluate its impacts and consequences remains elusive. Various perspectives focus on changes in systems, political or economic structures, or processes of decision-making, and across the climate and biodiversity domains there are differences in the extent to which justice and equity are prioritised, the direct or indirect drivers of change are in focus, or the extent of technocratic approaches which focus on specific outcomes in terms of tonnes or carbon or hectares of biodiversity saved. These different conceptualizations of transformation matter deeply since they affect what mechanisms, policies and options for action are advanced and recognised as legitimate. Ultimately, what is at stake is the question of whether transformative change will end up catalzying deep and positive change, or as a red herring that reproduces the status quo.

This innovative session brings together researchers from across the ESG community working on transformative change in relation to climate change and/or biodiversity with practitioners and policy-makers who are seeking to pin-down the concept of transformative change and put it into action. Our panel members will each offer some opening remarks about what transformative change means to them, the opportunities and challenges they see ahead, and what (if any) signs of transformation they have personally encountered:

- Astrid Hilgers, Team Lead for Forests, Climate and Landscapes, Ministry of Agriculture, Nature and Food Quality
- Eloisa Vittoria Menguzzo, Advisor Responsible Investment, PGGM Investments
- Shuaib Lwasa, Professor at the International Institute of Social Studies, Erasmus University Rotterdam & at the Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente
- Eefje Cuppen, Professor and Director, Rathenau Instituut, University of Leiden

After this initial round of provocations and discussion with the audience, we will break into discussion groups to consider the perspectives on transformation offered in the dialogue so far, to interrogate where there is common ground and which gaps need further exploration to chart new directions for transformative change research and practice.

Parallel Panel: Water governance at the nexus

Date & Time (Amsterdam Time): October 25th 10:30:00 AM - 12:00:00 PM

Location: GR 1.143 / Zoom

Chair(s):

Asgeir Barlaup

Presentations (including names of presenting authors):

Assessing Household Water-Energy Nexus Vulnerabilities: A Case Of Matatiele Local Municipality, Eastern Cape, South Africa

Sibulele Bongoza

Water and energy are vital resources for human well-being, poverty reduction and sustainable development. The demand for the provision of both water and energy is increasing rapidly, and the trend is likely to continue in the future worldwide. Managing water and energy resources as an interconnected system, and eliminating the traditional silo-based planning, improves sustainable development through research-based evidence. The basis of the WE nexus approach to resource management lies in identifying the vulnerabilities and justifying the interactions at the multiple interfaces of resource systems, while holistically assessing the impact of interventions from the institutional, environmental, financial, and socio-cultural perspectives. Understanding the vulnerabilities and interlinkages of these two critical resources at the local level is necessary to identify and implement mutually beneficial strategies for their management and use. An intensive research design has been chosen for the study since the researcher wants to get in-depth, detailed and comprehensive data analysis result to generation of information on household water-energy nexus vulnerabilities with the use of a mixed approach (qualitative and quantitative). A purposive sampling procedure was used to select participants that are more relevant and could provide rich information about the vulnerabilities in water and energy at the household level. The collected data was analysed using ATLAS.ti and Statistical Package for Social Science (SPSS). Comparative analyses of qualitative data in relation to quantitative variables have been extended and refined to include a broader range of within-case and cross-case analyses. After that, data has been grouped into themes for a clear understanding and explanation of various themes from the field. Subsequently, the themes were linked to the objectives to fulfill the aim of the study. Some of the villages in Matatiele Local municipality are still lagging behind with municipality service delivery, and there is a lack of affordable clean energy sources for some households. Residents are resorting to wood, paraffin, gas and candles as energy sources for lighting, cooking, and heating, and traditional leaders are not involved in water and energy policy decision-making. There are water and energy nexus vulnerabilities due to water inequalities and injustices in the distribution of water and electricity, and injustices with regard to policy and decision-making processes.

Hybridization of water response; a new paradigm in modelling water sustainability in Africa

Afolayan Samuel Juwon

Owing to the significance of grassroots education and mobilization towards sustainable water action and general SDG 6, innovative and hybridized approaches have become an inevitable necessity in reaching the local communities, and underserved demographics in Africa. There is a strong nexus between water and multiple developmental indexes (economic, health, trade, etc.), therefore, solutions should be modeled based on the peculiarities of each region. Africa has a huge history of traditional governance across all sectors, and this includes the water resource management system. Despite remarkable potency, the role of traditional institutions has significantly faded with the advent of democratic governance and the over-reliance on social-scientific and diplomatic approaches in addressing global problems. Before the introduction of modern water technologies, many African communities-built dams and water storage systems to meet their water needs. These successes were accomplished because the traditional institutions being very close to the people were able to adopt the appropriate mobilization strategies that turned into productivity. This confirms that the sustainability of local water response and intergenerational solutions to water provision can only be accomplished if local mobilization is prioritized, and the principal actors at this level are the traditional institutions. Democratic governance is not at war with the traditional system, and the evolution of democracy should not relegate the functions of the latter, but rather harness the potentials that it offers in achieving sustainability in water provision across African states. We have identified some of the important areas where traditional institutions could play significant roles in water resource management, and we have elaborated these under six major strategic value areas, backed with relevant conclusions and recommendations. The Recommendations from this study could bring a paradigm in African water management and governance, as well as stakeholders' strategy of engagement.

Our contribution through this study complements existing research findings on related topics and also opens the pathway for diverse explorations of the traditional institutions in solving local problems. For example, [citation removed to annonymize abstract] examined the extent to which traditional governance systems have been acknowledged and incorporated into new water management institutions and approaches in South Africa and concluded that failure to acknowledge and incorporate aspects of these traditional governance systems may undermine the ability of government to achieve the objectives of the National Water Act (NWA). We have consolidated this by also modelling a system that could address the Water toxicity-River-Worship cultural clash in Osun State, Nigeria.

How hydrological models can support cities to adapt to urban flooding – lessons learned from two transdisciplinary case studies

Markus Groth

Adaptation of urban areas to the impacts of climate change is becoming increasingly important, whereby also the growing need for innovative and fast approaches to effectively bridge the gap between practice and science becomes apparent-.

With regard to expected more frequent and more intense heavy rainfall events, flood analyses based on rainfall-runoff models are used more often in order to determine hot spots in urban areas. To perform these analyses, there exist various hydrological models using different methodological approaches and boundary conditions.

In order to support municipalities to adapt to urban floods caused by heavy rain events, case studies have been carried out in close exchange with stakeholders as part of a model comparison. For this, the use of two different hydrological models in two German cities has been evaluated and compared based on the same simulated event. The freely available model "River Analysis System" (HEC-RAS), was used to simulate the heavy rainfall runoff behavior in the city of Geesthacht. The software platform "Tygron Engine" by the TAUW GmbH was applied for central areas in the city of Rostock. In addition, a comparison of "HEC-RAS" with the "Tygron Engine" was made for the case study in Rostock.

The objectives of this simulation comparison analysis are, for example, the identification of possible alternatives to deal with a specific challenge in practice, to develop an evaluation basis regarding the quality of the model results, and the identification of barriers and limitations of different models. Based upon these findings, scientifically sound and practically appropriate advice for different city-specific use-cases will be provided.

Within the paper, the different approaches, the main results and lessons learned from these user-orientated, and transdisciplinary case studies will be presented. Furthermore, both the relevant legal framework conditions at the European and national level as well as further need for research will be discussed.

Overall, the experiences from the case studies show that also the use of simplified digital models of a city without the need for big-data and monitoring information can be good planning tools to assess plausible results regarding possible impacts of climate change on a small scale. Based on this, adaptation measures can be planned, justified, and implemented in the context of urban planning and development.

City-to-city learning to enhance urban water management: the contribution of the City Blueprint Approach

Carel Dieperink

Cities face several water challenges which ask for more pro-active management approaches. One option that cities have is to start networking and build learning alliances with other cities. Forming meaningful alliances however asks for clear and easily accessible city-matching methodologies which are based on a standardised assessment approach and the presence of structured and large databases. The City Blueprint Approach is an example of such a methodology. Aim of this paper is to demonstrate the potential of this approach as a substantive methodology for enhancing learning on urban water management. This is done by illustrating the use of the approach in four

cities, which were studied in the [citation removed to annonymize abstract] project and by comparing the results found with good practises present in the City Blueprint database. These good practises however cannot simply be copy-pasted from one city to another. We therefore outline in what way more in-depth city-to-city (C2C) learning results can be achieved and be tailored to best-fit particular urban areas. The paper concludes with some suggestions for enhancing the potential for C2C learning in urban water management networks.

Innovative Session: Nijmegen Agenda for Transformative Interdisciplinarity and Transdisciplinarity in Earth System Governance

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.139

Nijmegen Agenda for Transformative Interdisciplinarity and Transdisciplinarity in Earth System Governance

The Radboud Conference on Earth System Governance aims to shape the Nijmegen Agenda for Transformative Interdisciplinarity and Transdisciplinarity in Earth System Governance in a collaborative manner with conference participants. True to the conference theme "bridging sciences and societies for sustainability transformations", the World Cafe format will foster joint-up thinking, enabling attendees to collectively identify key priorities and opportunities for trans- and interdisciplinary approaches in Earth System Governance research. By harnessing the collective wisdom of participants, the session will contribute to actionable outcomes that will constitute the Nijmegen Agenda. This agenda will serve as a vital roadmap for future research and policy actions, emphasizing the importance of collaboration across disciplinary boundaries and engaging stakeholders from various sectors to address the pressing challenges of Earth's systems governance.

Parallel Panel: Solar Geoengineering: Contestations, Public Perceptions and Governance

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR -1.070 / Zoom

Chair(s):

Aarti Gupta

Discussant(s):

Sean Low

Session Overview: Solar Geoengineering: Contestations, Public Perceptions and Governance

Solar geoengineering refers to a set of largely speculative future technologies that could be deployed to reflect some incoming solar radiation back into space, to counteract adverse consequences of climate change. The idea of solar geoengineering is much debated and remains highly contentious, even as these technologies are still at very early stages of conceptualization and development. This panel brings together papers that consider how solar geoengineering remains a highly contested concept, and how multiple understandings of future risk or benefit, as well as support for, or critique of, different solar geoengineering techniques manifest in practice. Three of the four papers explore growing contestations around solar geoengineering in diverse arenas, such as national and international governance regimes, small-scale experimentation, (rogue) commercial uptake, public engagement exercises, or within institutions of higher learning, such as universities. Another paper explores existing prohibitory regimes in international law and governance – which restrict use of potentially risky or dangerous technologies or activities – to learn lessons for the design of a restrictive global governance regime for solar geoeingineeing. Taken together, the panel offers a timely assessment of persisting contestations around solar geoengineering as these manifest within diverse arenas of discourse and practice. The panel fits within the conference stream on anticipation and imagination, with the papers illustrating how the diverse processes and arenas wherein claims of future risk or benefit from solar geoengineering are anticipated and acted upon are sites of contested climate politics.

Presentations (including names of presenting authors):

Going Rogue? Public Perceptions, Governance, and Information Framing involving Experimentation with Stratospheric Aerosol Injection

Chad Baum

Concerns over climate vulnerability and the insufficient pace of emissions reductions are prompting interest in novel climate-intervention solutions. Research, development, even deployment is thus being undertaken with emerging technologies such as carbon dioxide removal and solar geoengineering. To this point, the latter has been more tentative and controversial. There is the sense, though, that things are potentially accelerating, specifically around

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Conference Stream(s): Anticipation and Imagination

stratospheric aerosol injection (SAI). Notably, a trial in northern Sweden of a balloon, led by Harvard University, was indefinitely postponed after criticism that it would have taken place on indigenous Sámi lands, without their approval. Furthermore, at the end of 2022, it came to public attention that a small Silicon Valley start-up had released trial balloons in Mexico, without government authorization. After becoming aware of the unauthorized trials, the Mexican government banned future solar geoengineering experiments, the first to do so. How SAI development and deployment should be handled, the proper governance approach, and what the public (or publics) think all remain open questions. While some researchers and civil-society members have called for a broad moratorium, others are pushing for a framework more conducive to testing and trials, albeit within limits and with oversight. Furthermore, in the wake of the first-ever SAI trials, which were coupled with attempts to sell "cooling credits", it has been asked how such "rogue" activities might broadly affect perceptions of SAI. Accordingly, the current article employs an information-framing design to explore how permutations of SAI deployment might affect public perceptions. Focusing on two countries (Mexico and United States) at the core of recent events, with a nationally representative sample of 1000 participants from each, we employ a 2x2x2x1 design that examines the role of location (Mexico, United States), the actor involved (university, start-up) and scale and purpose (small-scale test with single balloon for research purposes, large-scale with hundreds of balloons and intent to commercialize). By looking at how overall support for SAI, perceptions of risks and benefits, and preference for specific policies vary depending on the information presented, we provide insights for understanding public perceptions and governance approaches. To this end, we also examine the role of potential covariates including beliefs about mitigation, aversion to tampering with nature, trust in institutions and science, and climate change perceptions.

Geoengineering in Action: Coping with a contested concept

Ina Moller

Over the last decade, 'geoengineering' proposals to counteract global warming have started appearing on the agendas of national and international regulatory bodies. These proposals to deliberately intervene in the climatic system have caused much debate. Where some see an additional tool to mitigate dangerous global warming, others fear the advent of a democratically ungovernable techno-fix with unpredictable effects. Those tasked with developing governance mechanisms for geoengineering thus reliably find themselves confronted with the task of first defining what geoengineering is. We have seen this in the context of the London Convention, where substantial negotiation time was dedicated to establishing what conceptual boundaries the Protocol should draw. Similarly, the IPCC has engaged in a definitional exercise of geoengineering across several assessment reports, only to eventually discard the term entirely for its lack of precision. Still, geoengineering continues to lead a life in the political context, maintaining existence and traction as a legal term and as a way to distinguish what are considered 'new', 'different', or 'dangerous' approaches to addressing climate change. So what is geoengineering, then, and (how) does it become subject to governance? In this paper, we argue that in order to properly grasp geoengineering's evolving status in climate policy, we need to study how the concept plays out in action. We thus ask: How does geoengineering enter arenas of governance and how do people engage with the concept in these settings? How do those tasked with

developing governance contend and cope with this concept? And, finally, how does their engagement shape governance trajectories around geoengineering? To study geoengineering in action, we examine the conceptual disputes that have taken place in four powerful climate policy arenas: the United States Congress, the London Convention and Protocol, the Intergovernmental Panel on Climate Change, and the International Organisation for Standardisation. For each of these arenas, we identify an event that can be considered as the beginning of meaningful interaction with the concept of geoengineering. By contextualizing this event and analysing its implications, we trace when, why, and how actors engaged with the geoengineering concept and what effects this engagement had for its subsequent trajectory in this policy making arena. In doing so, we show not only how certain meanings are attributed to geoengineering, but also how actors cope with the ensuing contestation of these meanings.

Towards a Non-Use Regime on Solar Geoengineering: Lessons from International Law and Governance

Aarti Gupta

As the adverse consequences of climate change become ever clearer, the potential future use of controversial solar geoengineering techniques is increasingly debated in expert and civil society fora, if not yet extensively in formal international policy processes. Solar geoengineering refers to a set of still speculative, and potentially highly risky, future technologies that would permit artificial interventions into the climate system, to reflect a part of the incoming sunlight back out to space, thereby providing a cooling effect. These interventions range from a possible brightening of marine clouds to increase their reflective capacity to the placement of mirrors in outer space. The most widely discussed option is the injection of reflective sulfur aerosol particles into the stratosphere from special aircraft or other means, to deflect some incoming sunlight. So far, solar geoengineering remains hypothetical, with no such technologies are currently developed or available for deployment. The potential future use of solar geoengineering poses, in our view, significant ecological, social and political risks. As such, we see a need to develop an anticipatory global governance regime that effectively prohibits use of solar geoengineering as a future climate policy option. Yet, how feasible is it to develop a global governance regime to prohibit future use of a potentially risky and speculative technology; and what might such a global governance regime look like? We address these questions here by examining and drawing lessons from existing prohibitory and restrictive regimes in international law and governance, with a view to learning lessons for the potential design of a global prohibitory regime on solar geoengineering. We examine international prohibitory or restrictive regimes dealing, inter alia, with nuclear weapons, chemical weapons, biological weapons, weather modification technologies, anti-personnel landmines, substances that deplete the ozone layer, trade in hazardous wastes, and mining in Antarctic. We also include consideration of global regimes relating to fundamental human rights, such as prohibition of slavery and torture; and emerging norms and rules on the prohibition of human cloning; and other similar national, transnational or international governance of emerging novel governance issue-areas, such as deep seabed mining, artificial intelligence and lethal autonomous weapons. Our aim is to distill lessons for the design of a prohibitory global governance regime on experimental use and future deployment of solar geoengineering,

including outlining a set of generic elements that a prohibitory solar geoengineering governance regime could include.

The Role of Higher Education in Advancing Solar Geoengineering: A Critical Analysis

Jennie Stephens

In response to the climate crisis, some scientists and other lobbyists have been advocating for more investment in solar geoengineering, a dangerous set of hypothetical technologies to block some incoming sunlight by spraying aerosols into the stratosphere. Given the global governance implications, the ecological threats, and the massively unequal humanitarian risks for vulnerable people, global resistance to solar geoengineering is strong, and there is growing recognition that this is a risky non-transformative approach that empowers those advocating for climate obstruction and delay on actions toward climate justice. Nevertheless, universities around the world are being offered, and are accepting, research funds to advance solar geoengineering technologies. This analysis focuses on the role of higher education institutions in advancing solar geoengineering acknowledging that it is a small group of scientists, mostly from elite universities in the Global North, that have been pushing the solar geoengineering agenda. In response to pressure to include the Global South, a strategic effort to funnel solar geoengineering research funds to universities in the Global South has broadened the geographic distribution of which institutions of higher education are receiving research funds. University funding for solar geoengineering research has so far been largely from philanthropy from technology and finance billionaires, but due to the effectiveness of solar geoengineering lobbyists public funding for solar geoengineering research may soon increase. The elite scientists who have been lobbying for more solar geoengineering research have used their power as "researchers" to devalue indigenous, feminist and other types of knowledge that emphasizes the dangers of investing in this approach. This paper demonstrates why efforts to promote solar geoengineering cannot be disentangled from a way of thinking that is based on the patriarchal and colonial assumptions of higher education that defines what kind of knowledge and whose values are most relevant.

Parallel Panel: Governing urban transformation: Policy and politics of experimentation and scaling

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.170 / Zoom

Chair(s):

Elisa Kochskämper

Matteo Roggero

Discussant(s):

Klaus Eisenack

Session Overview: Governing urban transformation III: Policy and politics of experimentation and scaling

The last ten years have seen an outburst of research on experimentation in urban environmental governance. From the microlocal to the global level, researchers have investigated how experimentation in cities emerges and is maintained, challenges the political status quo, or deepens social inequalities. Simultaneously, the multiplication of environmental crises worldwide has highlighted the need to rapidly scale up urban experiments and allow transformative change. This has led many scholars to focus on ways to take successful urban experiments from a smaller to a larger scale. These intents generally follow a bottom-up and instrumental approach to scaling. For instance, concepts such as vertical, horizontal, or hierarchical upscaling have helped understand ways in which local experiments may gain significance. Yet, we still do not know what the most relevant approach is to generate catalytic change and have tended to ignore important political and social justice concerns, including power dynamics and equity issues. This panel features critical conceptual and empirical contributions to how urban experimentation, scaling, and transformative change interact.

We invite contributions that explore:

- Temporal and spatial perspectives: How do we move beyond linear accounts that emphasize hierarchical notions of scale? What other categories and analytical models can explain how experimentation leads to urban transformation?
- Politics, participation, and place: How do political processes enable or prevent experimentation from delivering transformation? For example, who decides what constitutes experimentation and where it is undertaken? How do people experience experimentation in their everyday lives and contribute to opportunities for broader-scale urban transformation?
- Normative assumptions: To what extent are normative views on experimentation embedded in dominant policy rationales? For example, is experimentation part of economic principles on growth and entrepreneurialism, which may reproduce urban conditions of inequality?

Conference Stream(s): *Architecture and Agency*

Presentations (including names of presenting authors):

Governing spatial scaling within, across, and beyond and cities

Kristine Kern

Expectations that cities can manage the growing challenges of climate change have increased. However, it has become evident that a lack of national and regional support cannot be compensated by local initiatives, in particular in smaller cities and towns. Therefore, we argue that the decarbonization of cities requires deliberate scaling within, across, and beyond cities. Scaling within cities means that place-based experiments need to be rolled out from one neighborhood to other neighborhoods. Scaling across cities refers to horizontal interactions between cities, which is facilitated by networks such as the Climate Alliance. Finally, scaling beyond cities implies the emergence of vertical relations between local governments on the one side and regional and national governments on the other. This paper combines these three dimensions of spatial scaling with four modes of governing climate change in cities, ranging from hard to soft instruments: (1) regulation, planning and monitoring (such as local heat plans or legislation which makes solar roofs mandatory for new buildings); (2) provision and funding (ranging from local funding programs for heat pumps to national funding programs such as the German Kommunalrichtlinie; (3) voluntary action and enabling (such as agreements between local actors or carbon agreements between cities and the national government); (4) Self-organization (such as climate-neutrality goals for own facilities or setting up a local climate council). Our analysis focuses, first, on a mapping of experimental climate policies, which are scaled within, across, and beyond European forerunner cities. Starting from this general overview, we will then ask whether and how German forerunner cities differ from these general trends. Second, we will compare the development in German cities in three selected areas (electricity, heat, mobility) in more detail by analyzing how local climate experiments and the mix of policy instruments have changed over time. In general terms, we find that German forerunner cities lag behind cities in Northern Europe, which have developed and introduced new instruments such as carbon budgets and climate contracts. Moreover, we see a hardening of soft instruments in German cities, in particular in the area of heat transitions. Overall, the study shows that the mix of policy instruments is changing. We see not only a hardening of soft instruments but at the same time also a trend from scaling within and across cities towards scaling beyond cities, i.e. regional and national policies focusing on local climate action seem to be on the rise.

Out of the limelight: scaling climate action in the experimenting city

Matteo Roggero

Cities have taken center stage in the fight against climate change, yet commentators see a widening gap between the high-level rethoric and the action on the ground. European cities are "on track" with meeting the goals of the Paris Agreement, with a growing number of initiatives to show for. It is unclear, though, whether this is the first step towards a decarbonized and resilient urban future, or whether instead it represents an inflation of short-lived prestige projects that will never deliver on a larger scale. We thus turn away from the limelight of "showcase" climate experiments and into the realm of "anonymous", day-to-day adaptation and mitigation processes: how do they play out in the absence of project grants, scientific support, and fast-track permit

procedures from the local administration? What additional challenges do they face? Most importantly: can we look at anonymous processes as the scaling out of showcase experiments, or are they entirely different matters? To answer these questions, we turn to the case of Berlin, Germany. Sites such as Potsdamer Platz, Tempelhof, the ufaFabrik, or the Prinzessinnengarten have gathered attention from both academia and the public, highlighting the Berlin's committment to climate experimentation. Furthermore, the city is well aware of its internal diversity and heterogeneity, and the resulting need for context-aware, diversified strategies. With a broad range of showcase experiments to draw lessons from, the city should be in the best position to scale out climate experimentation and expand climate action within its borders. Through an embedded comparative case study of three anonymous and three showcase experiments, we address the institutional and organizational dimension of local climate adaptation and mitigation in Berlin. The comparison focuses specifically on the effects of the missing attention and preferential treatment. Results show how, out of the limelight, the city's committment to climate action falters, and institutional barriers prevail. Scaling out climate experimentation, in other words, seems to require deep, second-order scaling, where institutional preconditions are scaled out, not just the experiments. Implications for research and practice are then explored.

Urban climate governance and climate justice in the SW of England

Sophia Hatzisavvidou

The urgent need to decarbonise social and economic systems calls for transformational change on all levels of governance. In the UK cities are formally recognised as having a key role in implementing the necessary changes to meet the target set by the UK Government in its Net Zero Strategy. However, there is no guarantee that the transition to a net zero future will automatically be socially and economically just, as urban environmental governance is complex. This is not only because of the multiplicity of agents involved in relevant processes and decision making, but also because of the diversity that characterises cities by definition. In this paper we take stock of three interrelated studies we conducted in two cities in the Southwest of England, Bristol and Bath over a period of two years (2021-2023). Our place-based approach aimed at examining discourses of climate governance in these cities and at capturing people's perceptions of socioecological transformations taking place in their cities in the implementation of net zero. We offer critical insights into how local authorities, policymakers, and citizens experience and view newly introduced climate governance schemes in their localities, such as Low Traffic Neighbourhoods. We critically reflect on upscaling local experiments and provide insight into how unique local traits (e.g. UNESCO status) provide opportunities for policy and practical innovation, without hindering the possibility of upscaling. We also assess the place of the principle of economic growth in emerging policies and practices. Our paper moves beyond empirical observation to offer a normative account of the manifestations and relevance of principles of justice in the discourses and practices we studied. Overall, the paper contributes to scholarship on climate justice in the context of urban governance.

Scaling deep at the margin: Reflecting on the coproduction of Nature-based Solutions as decolonial praxis in Cape Town.

Patience Mguni

While achieving more water resilient cities through an increased focus on Nature-based Solutions (NbS) is clear, how such solutions can create deeper transformation particularly in under-resourced, inequitable cities of the Global South remains unclear. In this paper, we use a decolonial lens to reflect on a place-based transdisciplinary NbS research project that has focussed on the multifunctional retrofitting of a stormwater detention pond through coproduction in Mitchell's Plain, Cape Town. Our analysis points to the significance of stormwater ponds as promising-yet-contested leverage points for co-implementing NbS towards water resilience in Cape Town. We also find that 'scaling deep at the margin' is an important initial condition for experimenting with alternative socioecological possibilities in contexts of deep difference. In scaling deep, resistance and desire are central dynamics that help rework the unjust power asymmetries that constitute environmental and infrastructure realities in the post-apartheid city. Findings also highlight the need to not foreclose possibilities of failure in transdisciplinary NbS experiments when resistance is encountered and the need to explore the generative insights that may result from failure. We conclude that sustainability transitions in the Global South may be more productively understood as contested, emergent and seldom-complete endeavours in which social and environmental justice should remain the goal.

Parallel Panel: Implementing sustainable development goals in an incoherent world: Aligning climate action and reduced inequalities

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR -1.075 / Zoom

Chair(s):

Adis Dzebo

Discussant(s):

Maya Bogers

Session Overview: Implementing sustainable development goals in an incoherent world: Aligning climate action and reduced inequalities

Climate change and sustainable development pose significant, intertwined challenges. Global multilateral agreements – the Paris Agreement and the 2030 Agenda – seek to harness collective effort to meet goals for emissions reductions and sustainable development. National governments face numerous challenges, however, in designing and implementing policy that balances the two agendas. In some cases, trade-offs between climate goals and the Sustainable Development Goals may be inevitable. A key objective for governments is then to reconcile trade-offs while helping to reduce growing social inequalities.

Many have argued that coherent policymaking will help governments to navigate trade-offs in a transparent and equitable manner. Others have recognised that deep-rooted barriers, such as fossil fuel interests and ideologies of economic growth, potentially inhibit coherent policymaking. To date, little empirical work has considered the role of such political factors in influencing coherence. Likewise, the consequences of incoherence for goal achievement remains poorly understood, particularly for politically contentious goals such as reduced inequalities.

This panel envisions policy coherence as a political process by assessing the causes and consequences of (in)coherence in the context of the two agendas. The first paper presents an analytical framework for studying political dimensions of policy (in)coherence in different contexts. The following papers then apply this framework in the context of just energy transition, agriculture, land-use and mobility, drawing on empirical insights from Colombia, Sri Lanka, Sweden, Fiji, Germany, South Africa, Kenya, Philippines and Australia.

Overall, the panel advances research on policy coherence by moving past the diagnosis of incoherence to empirically examine its political causes and consequences. It aims to provide valuable insights into how different contexts and political factors such as ideologies or vested interests can influence policy coherence. Moreover, it provides much-lacking evidence on the relationship between policy coherence and goal achievement, including how equitably progress on goals is distributed.

Conference Stream(s): Architecture and Agency

Presentations (including names of presenting authors):

Analysing the Causes and Consequences of Policy Incoherence in the Context of the Global Climate and Development Agendas

Katherine Browne

Many have argued that coherent policymaking, i.e., policymaking that maximises synergies and minimises trade-offs, is key to successful implementation of the Paris Agreement and the 2030 Agenda. These arguments tend to be grounded in an apolitical approach, which sees incoherence as an outcome of institutions' shortcomings, which can be rectified by greater attention to institutional arrangements. Increasingly, however, scholars recognise that barriers to policy coherence may also be rooted in inherently conflicting interests and mandates. At the same time, arguments about the importance of coherence reflect a broader assumption that coherence contributes to greater effectiveness and achievement of policy goals. Many see coherence as vital to ensuring that progress towards goals is balanced and equitable for all groups of society, in keeping with the central pledge of the 2030 Agenda to 'leave no one behind'. Empirical evidence linking coherence to goal achievement and equity is, however, surprisingly sparse. These assumptions raise important questions about the political causes and consequences of policy incoherence. What political factors inhibit coherence? Is coherence a necessary condition for the successful and equitable implementation of the climate and development agendas? Which groups in society suffer from the outcomes of incoherence?

We present a novel two-part framework for analysing the causes and consequences of policy incoherence. The first part of the framework uses the '3 I's' approach (institutions, interests, ideas) to examine political influences on coherence in the policy process. The second part uses an 'outcomes' approach to examine whether and how incoherence inhibits progress toward goals. Specifically, we ask whether coherent policymaking contributes to more effective outcomes and helps to reduce inequality We conclude by introducing how the framework is currently being applied to analyse policy coherence between the global climate and development agendas across national contexts.

Contestation of climate, energy and inequality goals: Policy (in)coherence in just energy transition in Kenya, Australia, Germany and South Africa

Jonathan Pickering

In simultaneously implementing the 2030 Agenda and the Paris Agreement, synergies and trade-offs arise for most countries, raising important questions for efforts to achieve the global goals. For countries with high fossil fuel dependence, transition to renewable energy can enhance equity and reduce inequality, not least by reducing the impacts of fossil fuel pollution and climate change on vulnerable groups and making energy affordable, whilst creating jobs in renewable industries. At the same time, trade-offs can become particularly pertinent if affected groups are excluded from decision-making or if low-income groups gain few economic opportunities.

For example, despite rapid growth in installed capacity of renewable energy, Australia remains heavily dependent on fossil fuels. At the same time, it is grappling with entrenched socio-economic inequality, particularly affecting low-income households, First Nations peoples, and rural and

remote communities. Similarly, Germany's flagship energy transition strategy, the Energiewende, sees important trade-offs with energy security (especially compounded by the Russian invasion of Ukraine), economic inequality and biodiversity conservation, slowing down implementation. In South Africa, over-reliance on coal for energy generation and exports and widespread inequality, poverty and unemployment create a barrier for achieving climate and Sustainable Development Foals. Lastly, in Kenya, despite huge investments in renewable energy, affordable energy access has not improved, with vulnerable and marginalised groups and small enterprises lacking access to electricity.

The just transition concept arises as a potential approach to tackle some of these obstacles. However, an energy transition can only be just if it reconciles trade-offs while optimising on the synergies and responding to the needs of society's most marginalised groups.
This paper assesses the role of policy (in)coherence in the context of just energy transition, focusing on the interaction between climate, energy and inequality goals. It analyses synergies and trade-offs in policy formulation and implementation in four countries with high level of fossil fuel dependence: Kenya, Australia, Germany and South Africa. It draws from an extensive range of policy documents and interviews with policy-makers and other stakeholders. The paper then discusses the causes and consequences of (in)coherence, exploring i) the role of institutional and political barriers and ii) the policy outcomes in terms of achieving the climate and sustainable goals, whilst reducing inequality. The paper concludes with a set of reflections on possible drivers of (in)coherence, highlighting challenges in institutional coordination and the continuing political influence of vested interests and/or the role of political ideology.

Implementing the Paris Agreement and the 2030 Agenda through sustainable agriculture: Critical assessment of policy coherence in Fiji, Sri Lanka and the Philippines

Priyatma Singh

The agriculture sector plays a crucial role as a large source of emissions as well as a provider of jobs, economic development and livelihood for many smallholder farmers in the Global South. For example, in the Philippine economy, in 2022 agriculture contributed to 9% of the country's total Gross Domestic Product and accounted for 23% of the total employment.

Multiple countries are devising strategies for a transition to sustainable agriculture – in the context of implementing the Paris Agreement and the Sustainable Development Goals – to increase productivity, seeking synergies with the creation of green jobs, tourism, social development and climate resilience, among others. At the same time, for many countries, the agricultural sector suffers from low productivity, social inequality and exclusion of smallholder farmers as well as carbon-intensive production methods.

This paper applies a sequential approach, featuring analysis of policy interaction, document analysis and more than 70 expert interviews, to assess to what extent agriculture policies, plans, and programs interact synergistically with other policy areas relevant for climate and Sustainable Development Goals. It draws on insights from three countries: Fiji, Sri Lanka and Philippines and assesses synergies and trade-offs between agriculture and green jobs, tourism, climate change and inequality reduction. The paper then explores the causes of policy (in)coherence and how ideas, institutions, and interests shape and influence policy-making. In Sri Lanka, for example, past

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decisions shape political and economic institutions, which determine the balance of power between policymakers and farmers, in favour of the former. This has empowered interest groups with narrow or short-term priorities, creating trade-offs with long-term goals. Lastly, the paper discusses how policy (in)coherence affects goal achievement in terms of sustainable agriculture as well as the achievement of the Paris Agreement and the 2030 Agenda more broadly. The objective of the paper is to formulate evidence-based policy recommendations for relevant stakeholders, especially government officials.

The paper finds that while the policy objectives between different sectors and policies are generally synergistic, in all countries, challenges persist, suggesting that synergies in policy objectives have limited effect on outcomes. Furthermore, while the paper finds that "good" practices can improve coherence, this does not always correspond to whether or not goals are achieved equitably. For example, in Fiji, for successful implementation, gender mainstreaming and engaging women and youth groups in Agriculture was more important for generating positive cascading effects on the achievement of multiple climate and Sustainable Development Goals.

Political drivers of policy (in)coherence between climate change and sustainable development: assessing goal conflicts in Colombia and Sweden

Mario Cárdenas Velez

Operationalising and strengthening policy coherence between the Paris Agreement and the 2030 Agenda is a constant challenge due to different political processes that can facilitate and constrain progress. Incoherence in implementing these global goals is driven by socioeconomic development efforts, policy silos between ministries and agencies, and actors' vested interests. The global pandemic and changing geopolitical landscape have led to a loss in sustainability momentum with national discourses reverting to protectionism and energy security over long-term climate objectives and Sustainable Development Goals.

This paper assesses the political drivers of policy (in)coherence in implementing the climate and Sustainable Development Goals in two self-proclaimed frontrunner countries, Colombia and Sweden, and two sectors, Agriculture, Forestry and Other Land Use (AFOLU) and regional mobility, respectively. The paper uses a case study methodology encompassing policy interaction analysis, document analysis and semi-structured interviews. In both cases, policy implementation is characterised by seemingly archetypical tensions, namely those between economic growth and development on the one hand and climate and environmental targets on the other. In Sweden, the case study analysis departs from the contentious topic of national subsidies to sustain regional airports. In contrast, trade-offs in AFOLU hamper policy coherence in Colombia, leading to biodiversity loss, high deforestation rates, and the expansion of the agricultural frontier to develop extensive cattle ranching and large-scale crops, all of which contribute significantly to national GHG emissions.

The paper highlights how these trade-offs and goal conflicts result from interests, institutions and ideas hampering effective decision-making. In Sweden, for example, the support of regional airports amidst ambitions of fossil freedom becomes a type of 'policy battleground' where conflicting objectives are visible in different policies and utilised by various actor coalitions, thereby politicising conditions for coherence. Meanwhile, in Colombia, conflicting political

interests regarding natural resources, non-enforcement of environmental laws, short-term environmental policies, and narrow participation in the political decision-making process are drivers of the non-prioritisation of AFOLU, leading to the broader climate and Sustainable Development Goals becoming overlooked. Overall, the paper highlights how political factors influence and inhibit coherence in both countries despite differing levels of economic development and fossil fuel dependence, questioning the assumptions around more coherent policies being found in more developed countries.

Parallel Panel: Agriculture and Food Systems

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.109 / Zoom

Chair(s):

Daniel Polman

Presentations (including names of presenting authors):

Beyond Certification: A Typology of Governance Actors and Strategies in Agri-Food Value Chains

Samuel Brülisauer

While certification of voluntary sustainability standards remains an important strategy to promote sustainability of agri-food value chains, various alternative and complementary governance approaches have emerged in recent years. These include increasingly common inclusive business schemes, such as company-owned responsible sourcing programmes, or purchasing practices aiming to eliminate unnecessary intermediaries, often referred to as 'direct trade'. Finally, also producer cooperatives and other organizations (co-)owned by producers have developed sophisticated governance strategies, as well as social enterprises whose purpose and business model centres around promoting producers' well-being or another societal goal.

This growing institutional diversity creates an empirical and theoretical challenge of mapping the range of governance actors and strategies, including the goals, theories of change, and precise instruments they deploy to achieve those goals. Existing typologies of value chain governance remain at a broad level, without disentangling the institutional details regarding, e.g., ownership, voice, and the distribution of benefits, risks, and costs. Moreover, expanding the scope of governance actors from mainly buyers and certifiers to producer organizations reflects an important shift that may not only reveal innovative 'bottom-up' strategies including producer-led value chain upgrading and coordination between like-minded actors, but also a more diverse range of goals, instruments and theories of change that go above and beyond dominant strategies of sustainability or supply chain governance.

This paper addresses this challenge by developing a typology of value chain governance actors and strategies based on the results of an extensive survey (n = 120) of organizations in Peru and Switzerland that are involved in the production, processing, trading, selling, and certification of coffee and cacao and derived products. It discusses how actors' ownership and organizational mission may affect the choice of governance strategies, and which strategies in contrast are used by a wide range of actors.

Advancing theories of change of private sustainability governance of coffee and cocoa supply chains

Christoph Oberlack

Conference Stream(s): Architecture and Agency
Democracy and Power

Production and trade of agricultural commodities such as coffee, cocoa, palm oil or soy are key drivers of deforestation and poverty traps. Therefore, companies, cooperatives and other private-sector actors experiment with diverse governance strategies. The most pertinent governance strategies include certification schemes, inclusive business and solidarity economy. Many of such strategies are underpinned by a theory of change, i.e. a causal model explaining how and why certain activities trigger certain outcomes and impacts for sustainable development, and which causal pathways to impact they expect. Different theories of change posit hypotheses that are partly compatible and partly incompatible with each other, even though multiple governance strategies interact with each other in shaping commodity supply chains and landscapes. However, the precise complementarities and antagonisms of multiple theories of change behind private sustainability governance strategies of agricultural commodities remain elusive.

Therefore, this contribution aims to increase our precision about theories of change that explain how, why and under which conditions private sustainability governance can overcome deforestation and poverty traps. Analytically, we adopt a theory of change methodology. Empirically, we draw on a survey of theories of change with n=85 companies and cooperatives along all stages of cocoa and coffee supply chains, which adopt certification, inclusive business and solidarity economy strategies in the cocoa and coffee sectors in Peru and Switzerland.

Our results show that, first, the private governance strategies differ significantly in terms of key actors, activities and involved stakeholders as well as their underlying rationales and entry points in supply chains. Second, despite this diversity there are archetypical causal mechanisms that explain how and why particular strategies generate particular outcomes. Third, using causal influence diagrams, we identify conditions that influence effectiveness of particular strategies, and we identify reinforcing and counteracting dynamics in theories of change of different governance strategies. Finally, we contrast the empirically identified theories of change used by actors in cocoa and coffee sectors with selected prominent theories of sustainability governance scholarship.

Transparency in agricultural supply chains: Impacts, limitations, and alternatives

Norman M. Kearney

In 2021, Switzerland produced 369,116 tonnes of meat and 3.8 million tonnes of milk. The production of these industrial quantities of meat and milk relies heavily on the use of concentrated feed (e.g., soy), most of it imported (e.g., from Brazil).

The chains through which Switzerland is supplied with soy for animal husbandry are not well understood, due to a lack of transparency. This makes it difficult to assess the sustainability of Swiss meat and milk production, on the one hand, and the effectiveness of international and domestic measures aimed at making Swiss meat and milk production more sustainable, on the other. Both the positive impacts (e.g., incomes for actors along the supply chains) and the negative impacts (e.g., deforestation) of Swiss soy imports remain unclear.

This paper has two objectives. The first is to bring clarity to Swiss soy-feed supply chains using available databases and literature. We identify key actors, processes, and contexts (e.g.,

regional/global food systems) and map their multi-level interactions. Our analysis reveals where knowledge gaps exist and where greater transparency is needed.

The second objective is to envision and test international and domestic processes through which the identified transparency needs could be realized (e.g., changes in public opinion, regulatory changes, changes in trade policy). We approach this challenge through modelling. We also envision and test alternative pathways for improving the sustainability of Swiss meat and milk production (e.g., dietary changes). By analyzing alternatives, we thereby assess the impacts of transparency vis-à-vis other strategies. We also consider how transparency-based strategies could interact with other strategies (e.g., revealing negative sustainability impacts could promote dietary changes) and how unintended consequences (e.g., unjust impacts on marginalized actors along the supply chains) could arise and be mitigated or avoided.

Our study highlights the impacts and limitations of transparency and suggests new strategies through which a relatively small player, such as Switzerland, could promote sustainability in supply chains that are embedded in regional and global food systems.

Deliberating in unlikely settings: an analysis of African agri-business partnerships

Greetje Schouten

Cross-sector partnerships are often conceptualized as part of a 'deliberative turn': attempts to democratize decision-making to enhance legitimacy and foster effective solutions. The understanding of deliberative democracy has primarily been developed with reference to the political sphere. However, over the past decades the concept has been applied to collaborative efforts to connect and coordinate investment and innovation processes in the private sphere, in an attempt to solve collective problems and enable transformative change. Deliberation in these processes has been studied to some degree, most notably through work on transnational environmental governance. In this paper, however, we focus on deliberative processes in local-level inclusive agribusiness partnerships in Africa. These partnerships are increasingly promoted as a tool to support sector transformation, through inclusion of marginalized actors as suppliers, processors, distributors, and/or consumers, and in doing so address environmental, food security, and equity goals. Deliberation is understood to be a central element of this transformation. Yet, the setting of these partnerships is not obviously conducive to deliberation, as they are characterized by power differences and set in unfavorable cultural and political contexts. Therefore, our study aims to explore the conditions influencing the character and quality of deliberative processes in inclusive agribusiness partnerships in Africa.

From the literature, we identify four elements that influence the quality of deliberation: (1) Deliberative context, and especially the dominant norms of political and economic coordination and decision-making; (2) Incentives for deliberation, or the perceived degree of issue salience and consequentiality; (3) Properties of the deliberating actors; participants' relative resources, capacity and power to deliberate, ideological distinctions and trust barriers; and (4) Properties of the deliberative forum; the design, arrangements and resources that shape the nature of deliberation. These categories form the basis of our analysis of deliberation within twelve agri-business

partnerships. Our case studies are selected to provide different configurations of factors relevant to deliberation, e.g. domestic deliberative norms, informed by a country's degree of democracy and press freedom, and its score on the Varieties of Democracy index. This resulted in selecting a variety of partnerships from Ethiopia, Kenya, Burkina Faso, and Ghana. Based on our analysis, we produce a framework of conditions influencing deliberative capacity in the context of agri-business partnerships. Our findings suggest that despite the conditions for deliberation being largely unfavorable in the researched partnerships, partnership facilitators and participants employed a range of mechanisms to at least partially mitigate these issues, with varying outcomes.

Parallel Panel: Human rights in earth system governance

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.112 / Zoom

Chair(s):

Danielle Celermajer

Presentations (including names of presenting authors):

(Green) Growth within Planetary Boundaries? A Human Rights Perspective

Andreas Buser

Earth System Science indicates the existence of planetary boundaries. Crossing these limits means leaving the safe-operating space for humanity provided for by the relatively climate-stable epoch of the Holocene. In the Anthropocene, humanity - and in particular its richer parts - have become a factor destabilizing the earth system. What is relatively clear is that economic growth as we know it would lead to destabilization with devasting consequences particularly in the Global South. What is far less obvious is whether green growth within planetary boundaries is possible or whether a more radical degrowth agenda needs to be pursued. In particular, as both proponents of degrowth and green growth each claim that only by adopting their policy prescriptions is it possible to overcome poverty and inequality. A legal discourse on this matter is almost absent. Yet, the paper argues that law is not oblivious to these questions. To do so, the paper builds upon critical literature on international environmental law to highlight the many "complicities" between law, inequality, and economic growth. Whereas this stream of literature tends to condemn "human rights as a hubristic and harmful organizing category", the paper promotes a more differentiated reading. Human rights may "not [be] enough" but they are one tool among others to address structural inequality. Despite persisting scientific uncertainties, a progressive reading of human rights and the precautionary principle require States to respect and protect planetary boundaries. In that sense, human rights may not require States to immediately shift from (green) growth to degrowth but in the long run some sort of stabilization will be required. In sum, by providing a minimum floor of social protection and upward ecological limits, human rights actually have the potential to transform Kate Raworth's "doughnut economics" into "doughnut jurisprudence".

Environmental Human Right Defenders – Change Agents at the Crossroads of Biodiversity, Climate Change and Cultural heritage

Fariborz Zelli

Environmental human rights defenders (EHRD) fight for political, cultural, social, economic and environmental rights alike, while often facing intimidation and violence for their work and activism. This paper summarises first results from a new inter-disciplinary project where we investigate to

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Conference Stream(s): *Justice and Allocation*
Architecture and Agency

what extent EHRD serve as important agents of change – at the crossroads of cultural and biodiversity conservation as well as climate change mitigation and adaptation.

We first develop an overarching conceptual understanding of EHRD that can be applied to different social and regional contexts. We then establish a theoretical framework to identify major socio-environmental discourses that underlie the motivations and goals of EHRD – and that inform their understandings of what is (not) cultural heritage and of what the cultural, ecological and social crises are they seek to address, as well as the priorities they may set thereby.

We apply this conceptual and theoretical framework to post-conflict Colombia, where EHRD assume a prominent yet precarious role as change agents. Although EHRD are legally protected, Colombia has become the most dangerous country worldwide for EHRD with more than 400 killings recorded since 2016. We select three regional study areas: the department of Putumayo in southern Colombia, the Amazon departments of Vaupes and Amazonas, and the Sumapaz region located in the central part of the country. In addition to the EHRD themselves, we include the groups and communities they belong to or represent, including their own gender, cultural and ethnic identities - and we scrutinize the degree of legitimacy the EHRD have as leaders within and beyond these groups.

Our analysis of EHRD, their groups and the dynamics between them is guided by the following research questions:

- Which major motivations, goals and underlying discourses inform EHRD and their understandings of the cultural, biocultural and climate change crises they seek to address?
- Which practices and strategies do EHRD employ to pursue their goals?
- Which successes and obstacles – including implications for their vulnerability –have EHRD faced in Colombia since the signing of the peace agreement in 2016?
- Which lessons can be learned with a view to supporting and protecting EHRD in Colombia across scales?

Across these steps, we use an interdisciplinary mixed-methods approach drawing on political science, human geography, sustainability science and law. Our expected findings seek to contribute to better understanding and supporting different groups of EHRD, through informing international and Colombian policy makers, civil society organizations and academics.

Courts, Access and Justice: Human Rights to Water and Sanitation Litigation in the Global South

PEDI OBANI

The importance of litigation for advancing justice and equitable allocation of resources, rights, and access is evident in the increasing number of climate change and just transitions litigation shaping transformations in earth system governance. During the COVID-19 pandemic, courts were also instrumental in securing access to essential services for populations in vulnerable situations. Similarly, within the context of water and sanitation governance, courts and quasi-judicial institutions have played an indispensable role in shaping the rules of allocation and distributing the costs and benefits of access. Understanding the modes of litigation on the human rights to water and sanitation is vital to delineating the impacts of courts (decisions) on allocation and

access, conceptualizing water and sanitation justice, and identifying legal opportunities for human rights to water and sanitation litigation in various contexts. Remarkably, countries and communities in the Global South have experienced multiple disputes and legal actions over water and sanitation justice. Hence, there is significant human rights to water and sanitation jurisprudence from the Global South which can advance global understanding of justice, access, allocation, and rights in water and sanitation governance. The knowledge of water and sanitation justice is also critical for assessing the implications of emerging water governance paradigms such as water futures trading. Against this backdrop, this paper addresses the question: What new demands for justice and allocation materialize from analyzing human rights to water and sanitation litigation in the Global South? The paper proposes a theoretical framework for understanding the modes of human rights to water and sanitation litigation and the pathways for justice and equitable access and allocation. The theoretical framework is valuable for understanding: (1) the role of the courts in water and sanitation governance; (2) drivers which influence the key actors shaping the trajectory of water and sanitation litigation; and (3) legal opportunities and the prospects of water and sanitation justice.

Human rights and environmental due diligence: The critical role of transnational civil society networks

Maria-Therese Gustafsson

The activities of multinational corporations have in many cases been linked to adverse human rights and environmental impacts in distant sites of production. Until recently, there have been few effective mechanisms at the national or international level to hold companies legally accountable for the adverse impacts caused by subsidiaries and suppliers. In recent years, governments in Europe have increasingly begun to adopt new laws building on a Human Rights and Environmental Due Diligence (HREDD) approach. HREDD laws obligate companies to assess and address negative impacts caused by subsidiaries and suppliers, thereby promising to contribute to corporate accountability across national borders. Whereas previous research has analyzed the contested policymaking processes and the legal design of new regulations, the effectiveness of HREDD laws also depends on the uptake of such laws by different actors in producing sites.

This paper discusses the role of civil society actors in pressuring companies to comply with their legal obligations and to improve their due diligence systems. 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.

Based on empirical material collected during a three-months fieldwork in Brazil, we provide for an in-depth analysis of how civil society actors in Brazil perceive and have started to make use of European HREDD regulations to enhance corporate accountability. We show that Brazilian civil society organizations have increasingly collected data for linking impacts on the ground to specific multinational companies and have enhanced coalitions with European organizations to create awareness of HREDD regulations as well as to disseminate evidence of the negative impacts of

Conference Stream(s): Justice and Allocation
Architecture and Agency

business activities. Whereas it is too early to evaluate the results of these actions, we expect that the pressure from these emerging transnational civil society networks will contribute to improve companies' due diligence systems and enhance corporate accountability. Based on our findings, we discuss how the capacity of transnational civil society networks can be strengthened and contribute to ongoing scholarly debates about the effectiveness of new regulations for enhancing the sustainability of global supply chains.

Parallel Panel: Renewable energies and a just transition

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Luis Ramirez Camargo

Maria Luisa Lode

Discussant(s):

Jens Lowitzsch

Session Overview: Renewable energies and a just transition

Developing energy systems that fully rely on renewable energy sources (RES) , such as wind and solar power, is seen as one of the main strategies to decarbonize our economy. Technologies to produce energy from RES have reached a high level of maturity and, for a wide range of locations in the world, the cost of producing energy from RES has dropped below the costs of burning fossil fuels to gain the same amount of energy. RES, however, also have drawbacks and impacts on the natural and social environment. While technological development can address many of the intrinsic shortcomings of RES (e.g. variability, low energy density per area unit, storability) a latent question is how to develop and implement such fully renewable energy systems in a just way that does not reproduce the failures and transgressions from the past related to (fossil) resources extraction and use. This panel discusses the development of renewable energy systems in various locations across the globe through the lenses of energy justice. Based on papers and the panelists' contributions reporting on case studies conducted with a variety of (participatory) methods, we shed light on the relevance of regulation, institutions, association and governance forms to address issues related to procedural, distributional, recognition, restorative, and cosmopolitan justice.

Presentations (including names of presenting authors):

Institutional Advocacy for Indigenous controlled renewable energy: lessons from a First Nations Power Authority proposal in British Columbia, Canada

Christina E. Hoicka

In settler colonial contexts, decolonizing energy transitions through Indigenous led renewable energy can be one important element of a just transition. Community led renewable energy resources are a potential local economic development strategy as part of a just energy transition. Community led renewable energy production as independent power producers and grid operators is a strategy that may allow community empowerment across widespread heterogeneous contexts. Despite strong interest and some implementation of renewable energy across many settler colonial settings, there have been few opportunities for collective forms of leadership in renewable energy by communities in many of these settings [1].

Conference Stream(s): *Justice and Allocation*

This study focuses on one example of potential just policy design. First Nations in British Columbia (BC), Canada, are embracing the implementation of the United Nations Declaration of the Rights of Indigenous People (UNDRIP) in law to advocate to create a regional scale "First Nations Power Authority" (FNPA) [2] to support the expansion of their opportunities as independent power producers of renewable energy and utility owners and operators [3]. This paper relies on policy, media and advocacy text analysis and incorporates findings from interviews with knowledge holders of First Nations in BC with experience in renewable energy development and the range of characterizing(s) of an FNPA institutional strategy. Lessons and learnings for other contexts will be highlighted.

References

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Wind In Conflict: A Legal Analysis of Public, Private and Common Interests on Wind Rights

Monika Bucha

As variable as wind, as variable the interests connected to its use: Wind park operators, investors and landowners are usually keen on maximising profits; energy users, including those afflicted by energy poverty, request affordable energy; and citizens living in the vicinity wish to be involved in permitting procedures and earning a fair share in the project. Within this mix of interests, the role of the state is to create a level playing field with the 'balancing of interests' being an established legal instrument used by public authorities and courts.

Defining the expansion of wind energy as an 'overriding public interest' – as of now for 18 months – in the Regulation (EU) 2022/2577 effective as of January 2023 resets this playing field potentially to the disadvantage of both local stakeholders and energy community initiatives acting slower than professional wind park developers. This poses the hazard, that 'green grabbing', i.e., appropriation of land and natural resources suited for the exploitation of renewables by multinationals, will spread due to the increasing economic value of wind following the dramatic push in the expansion of wind energy. Due to the lack of defined property rights in wind, we observe the formation of de facto property rights: Where one wind park is built no other can be sited. It is landowners that decide whether or not third parties can exploit the wind blowing over their property. Wind park operators have even sued other operators in their vicinity for 'wind-

theft'. Against this background local energy communities appear as the weakest actor and their rights vis-à-vis wind, remain unclear.

This paper dissects the possibility to formulate property rights in wind, the possibility of declaring it as a common, and the legal mechanism behind the 'balancing of interests' concerning wind energy. Following the Tenets of Transitional Justice, the following questions need to be addressed: How do the current legal systems of selected EU Member States distribute the ills and benefits connected to the construction and operation of wind parks, using the mechanism of 'balancing of interest'? (distributive justice); Do legislators and courts consider all conflicting interests in their 'balancing of interests', including those of typically underrepresented people? (justice as recognition); How can energy communities be empowered to actively shape the energy transition and what role does the state, e.g. by defining wind as a 'common good', play in this process? (procedural justice).

Energy justice through participatory processes? Learnings from three energy communities in South America

Maria Luisa Lode

Participatory multi-criteria analysis (PMCA) methods are increasingly used to inform decision-makers. The methodology can theoretically be used to enhance energy justice for sustainability transitions due to their participatory elements. This study examines PMCA applications in emerging energy communities in Argentina, Chile, and Colombia investigating how justice considerations were addressed and what implications PMCA had on the procedural, distributional, recognition, restorative, and cosmopolitan justice. In the case studies, PMCAs were beneficial for considering procedural and recognition justice by involving stakeholders and different justice considerations in the evaluation of transition scenarios, but had limited influence on distributional, restorative, and cosmopolitan justice. We found that if PMCA is applied with the aim to achieve energy justice, a broader transition process must be set alongside clear strategies to onboard vulnerable groups, and to support local initiators to harness the benefits of participation into the actual implementation.

Clean energies, dirty methods: The issue of recognition and communal land right in wind power development in Bahia, Brazil

Michael Klingler

The transition to renewable energy systems intensifies the global competition for land. Brazil is one example, where wind energy development has created strong incentives for land privatization, while reproducing historical patterns of conflict over the use and control of public land. In the state of Bahia, a large share of the mapped wind corridors is located on undesignated or 'vacant' public state lands (port. terras devolutas), although vast tracts have been historically occupied and collectively used by traditional communities as communal lands. In our analysis, we focus on Fundo e Fecho de Pasto communities, which are traditional pastoral groups that practice extensive cattle and goat herding on communal, open-access lands in the Brazilian semiarid of the state of Bahia. In particular, we address the implications of new government policies that aim to secure and regularize land access for renewable technologies, such as the Normative Instruction

01/2020 for the wind power development. By integrating decolonial perspectives to the concept of energy justice, we analyze i) the impacts of wind power development from the perspective of the Fundo e Fecho Pasto communities; ii) how energy (in)justices are related to structural and institutional issues of coloniality; and iii) what new insights a decolonial perspective can provide for the concept of energy justice."

Parallel Panel: Institutional Design: Waste and Chemicals

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.120 / Zoom

Chair(s):

Chris Höhne

Presentations (including names of presenting authors):

The Politics of Living Treaties

Jen Iris Allan

Global institutions sometimes endure relatively unchanged despite considerable changes in their external environment. Other institutions are built to change. Dynamism is an institutional design feature that allows these treaties to adapt to new circumstances. For some treaties, substantive amendments to the treaty can be made by a decision by the Conference of the Parties (COPs) without any need for lengthy procedures such as re-ratification. This paper uses the Mitchell database to show that this amendment procedure is present in 19% of all multilateral environmental agreements. While understudied, amendment procedures are characteristic of "living treaties" that can respond to new developments in the environmental issue that they address.

This paper investigates this potential by focusing on three living treaties, the Basel, Rotterdam, and Stockholm Conventions, which address different aspects of chemicals and waste. The Basel and Rotterdam Conventions manage transboundary movements of certain hazardous wastes and chemicals, respectively. The Stockholm Convention eliminates or restricts the production and use of persistent organic pollutants, among other related issues. The COPs of these treaties meet in tandem, negotiating and taking decisions concurrently. Yet, the politics of these living treaties vary. The Basel Convention has used its dynamism to address new waste streams, including ships, electronic waste, and plastics. The Rotterdam Convention struggles to list chemicals for prior informed consent, while the Stockholm Convention routinely lists new chemicals, including those widely used.

This paper argues that three trends associated with dynamic amendment procedures that, in turn, influence their effectiveness. First, political entrepreneurs can try to push or test how far the amendment procedures can be moved. This can lead to breakthrough decisions or lead some to question the legitimacy of the amendment procedures. Second, amendment procedures can expand the treaty's scope and, in turn, its economic effects. This can entice some economic sectors to seek to block or undermine decisions. Third, living treaties can more easily claim jurisdiction in regime complexes. As a result, some actors could use these treaties as more convenient options to advance new issues. Alternatively, this could be a disincentive for implementation, as multiple rules could work against one another. Together, these three trends shape how living treaties respond to pressing and equally dynamic environmental issues.

Conference Stream(s): *Architecture and Agency*

Evaluating the Basel-Rotterdam-Stockholm governance model: Integrated governance as a solution to problem-shifting between multilateral environmental agreements?

Işık Girgiç

Synergistic governance arrangements are often proposed as promising solutions to effectively navigate the normative and institutional fragmentation of the growing network of multilateral environmental agreements (MEAs). Yet, it is unclear whether such governance arrangements can offer effective tools to address problem-shifting, i.e., the negative spillover effects that flow from the design or implementation of one environmental regime to others. Synergistic arrangements between MEAs can involve different degrees of harmonization, ranging from mere sectoral coordination to integration of MEAs. An unprecedented integrated governance experiment that sits at the highest end of this spectrum corresponds to the normative and administrative integration of three MEAs on chemicals and waste. Also known as the BRS conventions, these are the 1989 Basel Convention on Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the 1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the 2001 Stockholm Convention on Persistent Organic Pollutants. In the past nearly two decades, the BRS conventions have gradually institutionalized their coordination efforts through synergies decisions, a merged secretariat, and conferences of the parties that are held in joint and parallel sessions (also known as 'TripleCOPs'). This experiment is unique in its institutional features, which aim to, among others, enhance efficiency in decision-making, strengthen implementation, and increase policy coherence. What remains to be determined is whether the BRS model had any effect on the problem shifts that have existed among these regimes prior to the integration process. These shifts result from the institutional and normative gaps, overlaps, and duplications created by the fragmented regulatory framework of chemicals and waste management, and include degradations to the planetary environment, socioeconomic discrepancies, as well as bureaucratical inefficiencies. In this paper, we conduct an empirical analysis to explore the conditions under which the BRS model has emerged, whether it has been able to achieve its objectives, and whether these objectives have minimized negative spillovers. We combine text analysis (e.g., of TripleCOP decisions) with semi-structured interviews with government officials, the BRS secretariat, and relevant NGOs to identify and compare the independent variables determining the problem-shifting prevention capabilities of the TripleCOPs and the BRS secretariat. Based on our findings, we reflect on potential paths for improvement, as well as on the transferability (or lack thereof) of this governance model to other international environmental issues.

Estimating problem shifting from the Minamata Convention on Mercury

Sem Wille Jans

The challenge of global environmental governance lies largely in implementing effective solutions to environmental problems as articulated in multilateral environmental agreements. These agreements are narrowly focusing on their own problems and the implementation of measures

can create new problems which may impact different people, places, and time, a phenomenon we refer to as problem-shifting. The nature of problem-shifting originating from multilateral environmental agreements has not been examined in a systematic manner. In this study, we make a first step by focusing on the Minamata Convention, which is tasked with the management of anthropogenic mercury emissions. To allow for a comprehensive assessment of the occurrence of problem-shifting the measures taken by countries to implement the Convention, we used national reports to extract nearly 1500 implementation measures, which we categorized into over 100 distinct types, based on the source of mercury, and type of measure implemented. These types are then thoroughly examined against environmental literature to determine the nature of new problems that these measure types create. For instance, the identified measure regarding the prohibition of using dental amalgam displaces the problem due to the increased occurrence of restorative actions needed. Our analysis has identified a number of measures that cause problem-shifting, generating problems in issue streams related to temporal shifts in mercury management, and product management. This assessment on problem-shifts largely outlines various types of problem-shifts occurring, the drivers and burden-holders of the shifts, and potential magnitudes of shifts. We also identify the risk of problem-shifting into the social domain. These results undermine the need for preventative and responsive measures to be established within multilateral environmental agreements, to avoid and mitigate the occurrence of such shifts. The methodology provided in this research may also be applied to the assessment of other agreements.

Principles and best practices of evidence use for sustainable policy and practice: the case of pesticides

Benjamin Hofmann

Recent research on the manifold barriers to evidence use in policy and practice has shown the difficulty of acting on the widespread call for increased evidence use to better address sustainability challenges. Considering these barriers, our inter- and transdisciplinary paper asks what principles and best practices could enhance evidence use for sustainability using the illustrative case of agricultural pesticides. It expands recent scholarly contributions on principles for legitimate science-policy-society interfaces for food systems and comparable sustainability challenges.

We develop a normative model with principles and best practices for the five stages of evidence use: evidence production, evidence uptake, the influence of evidence on decisions, sustainability effects of evidence-informed decisions, and feedbacks into new evidence production. Our starting point are the ideals of deliberative democracy and biosphere stewardship in socio-ecological systems. Deliberative democracy refers to policymaking based on reasoned argumentation. Biosphere stewardship advocates responsible management practices that support biosphere-based sustainable development by reflexively drawing on diverse kinds of knowledge and evidence. Based on these guiding concepts, we synthesize a set of core principles of good evidence use from the existing literature on evidence-based and -informed policymaking and practice.

We then apply the core principles of good evidence use to the case of agricultural pesticides. Reducing the environmental and human health risks of pesticide use is a complex sustainability challenge at the food-health-environment nexus. We operationalize the synthesized core principles to derive a set of best practices of evidence use in pesticide policy and practice. We empirically illustrate these best practices using examples from interdisciplinary research and from the experiences of practitioners engaged in the transformation of pesticide governance and use in Switzerland. We argue that such best practices can serve as bright spots to inform future change towards more evidence-informed decision-making for sustainability.

We conclude by providing recommendations on how the identified best practices can be strengthened in the case of pesticides and in relation to other sustainability challenges. Our conclusions speak to scholarship on evidence use and its governance, science-society interfaces, deliberative environmental decision-making, and biosphere stewardship. They can also guide actions of policymakers and practitioners for increasing evidence use in the governance of pesticides, food systems, and other sustainability challenges.

Advising treaty decision-makers: a new typology of subsidiary scientific committees

Veronique Fournier

The role and influence of international scientific advisory committees to environmental treaties is understudied. International relations scholars mostly focused on stand-alone global scientific committees which are the Intergovernmental panel on climate change (IPCC) and the Intergovernmental science-policy platform on biodiversity and ecological systems (IPBES). This paper provides a new typology of the science-policy relationship in environmental treaties, by investigating how treaty makers and scientific committee members design the knowledge production process to support treaty decision-making. Mobilizing literature from the field of science and technology studies (STS), it focuses on two design dimensions of the scientific committees: the diversity of the membership and the interactive or linear process of knowledge production. These dimensions characterize the presence of boundary work between science and policy. These dimensions permit comparing 20 cases of scientific committees' organizational structures from a new perspective coming from the STS field. Based on a document analysis of the committee's terms of reference and procedures and a survey of scientific committee members about their operations, this paper finds that these two dimensions vary widely among different treaties. In line with STS literature conclusions, this variation may lead to varying uptake levels of scientific knowledge in different international environmental organizations. The typology is a new data-driven tool that will allow cross-case comparisons and which can be used both as the dependent or independent variable in future studies.

Innovative Session: Action-oriented knowledge for making inter- and transdisciplinary integration happen in practice

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.136

Chair(s): Lisa Deutsch, Sabine Hoffmann

Presenter(s): Donata Dettwiler

Action-oriented knowledge for making inter- and transdisciplinary integration happen in practice

Integration is both the core feature and key challenge of inter- and transdisciplinary (ITD) research (Hoffmann et al., 2017). It can be defined as a multidimensional interactive process during which previously unrelated perspectives and expertise become connected with each other (cognitive dimension), different expectations and working routines by team members are accommodated (social dimension) and a respectful atmosphere for learning and collaborating is created (emotional dimension) (Pohl et al 2021, Boix-Mansilla et al 2016). Despite the promising potential of ITD integration for addressing complex societal problems, such as those concerning the ESG research agenda, it is inherently challenging to make integration work in practice. Leaders and members of ITD initiatives face manifold challenges arising from different structural levels such as team dynamics, as well as from the incentive system in place at the institutional level. This innovative session provides a space for exploring strategies and sharing lessons learned for dealing with those challenges among conference participants. It will be held in a workshop format, starting with a short input by the chairs on the challenges of ITD integration and the role of current conditions in place (max. 15min), followed by discussions in groups by applying a reversal technique (45min):

- What conditions need to be in place at the individual, team, project/program and institutional level for making sure that ITD integration fails in practice?
- What actions can you (and your colleagues) take in your (research) group, department, or institution for creating more favorable conditions to ITD integration?

The session will be wrapped up by sharing key insights from the group work in the plenary (15min) and rounding it up by presenting ways forward from the literature (15min). To allow for productive interactions, we propose to limit the number of workshop participants to 30 people. The total duration of the workshop is 90 minutes.

Innovative Session: European Union's Regulation on Deforestation-free Supply Chains: Green Protectionism or Paving Way for Global Decarbonization Pathways

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.129 / Zoom

Chair(s): Hans Bruyninckx

Presenters(s): Sven Wunder, Eeva Primmer, Seline Meijer, Danielle van Oijen, Darren Thomas

European Union's Regulation on Deforestation-free Supply Chains: Green Protectionism or Paving Way for Global Decarbonization Pathways

For over three decades now the European Union and its member states have helped develop, promote, and in some cases administer, a range of global policy interventions for reducing tropical deforestation. From promoting eco-labelling initiatives such as the Forest Stewardship Council, to participating in criteria and indicators for sustainable management following the Rio Earth Summit to subsequent efforts on forest legality compliance, the EU has played a key role in global efforts to develop sophisticated market mechanisms with which to help maintain, conserve, and restore tropical forest ecosystems.

The purpose of this dialogue is to generate thinking about the potential challenges and opportunities behind the EU's latest attempt: this time centring around the specific task of fostering "deforestation free" supply chains known as the "European Union's no deforestation regulation". This effort is both narrower, but also in many ways bolder, than its emphasis on "voluntary partnership agreements" as a means to foster and reinforce, domestic forest sustainability initiatives.

What do we make of this latest effort from the EU? Is it destined to become yet another policy tool demarked by the "policy creation euphoria, implementation depression" phase of global environmental governance? Or, will it best seen as part of a "green protectionism" that, as highlighted by EU-US debates over domestic green subsidies, has spurred a range of cross border adjustment mechanisms that target production and responsibilities beyond national and regional borders. Or might it be designed to help foster and accelerate what are now a flurry of decarbonization efforts taking place at multiple scales?

This panel seek to bring together ESG network scholars to explore these questions and generate a dialogue on how to engage in, and think about, policy calibration and settings in the EU context that might foster, rather than detract from, just transitions and tropical forest conservation.

The dialogue is a follow-up on the semi-plenary session on 24th October (12.30-2.00 pm), discussing the implications of EU's deforestation regulation policy changes on the demand-supply dynamics in Europe & beyond. It aims to bring together ESG network scholars and EU based policy practitioners to explore potential challenges and opportunities of this latest policy intervention that aims to drive deforestation free supply chains. Through engaged deliberations, we hope to generate meaningful insights about how to engage in, while considering policy calibrations and

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Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

settings in the EU context that might enhance, rather than detract from, just transitions and tropical forest conservation.

Speakers:

- Dr. Eeva Primmer (Research Director, Finnish Environment Institute)
- Dr. Seline Meijer (Senior Advisor Food & Agriculture at WWF Netherlands)
- Ms. Danielle van Oijen, Programme Coordinator, Forests at Friends of the Earth Netherlands)
- Dr. Sven Wunder (Principal Scientist, European Forest Institute)
- Mr. Darren Thomas (Co-founder & CEO, Double Helix Tracking Technologies)

Parallel Panel: Food System Transformation Imaginaries and Policy Paradigms

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.160

Chair(s):

Adam Calo

Gerry Alons

Presentations (including names of presenting authors):

Transforming uban food systems through critical governance principles

Ana Moragues

The last twenty years has seen a resurgence in academic and applied interest in governing urban food systems. This interest is the result of the intersecting of a number of issues, including dissatisfaction with the food system and its economic, ecological and social distantiation/alienation; the rise of complex systems thinking; increased political power of local governments and particularly cities; and the emergence of novel co-governance approaches. By and large, emergent urban food governance has been informed by the increasing appreciation of urbanization and its impact on food security and food systems. This process has been coupled in some contexts by a wave of decentralization of powers from national to local government which has shifted attention of global development agencies and donors to urban realities, devolved austerity measures and/or contributed to the rise of cities as key powers in transforming the food systems. Historic urban food governance processes have shaped how food is produced, transformed, distributed, consumed and disposed around the globe. At the moment, the intersection between the food system and the urban is resulting in different forms of malnutrition. Indeed, the majority of overweight and obese adults and one in three stunted children live in urban areas. Furthermore, largely cities and towns are responsible for different forms of resource depletion and climate change. It is urgent to transform urban food systems.

The vision is to create urban food systems that are good for people, places and planet, and where future generations will be able to feed themselves with good food.

The transformation of urban food systems will look differently for each city, these pathways need to be developed by citizens and consider the following principles to support more equitable and effective urban food governance:

1. Time matters Adopting both historical and future-focused perspectives supports planning for uncertain and evolving urban food.

2. Place matters : Implementing a place-based approach to urban food governance optimises the relevance of proposed actions.

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3. Relations matter: Scales, spaces, and agencies of urban food governance are co-constituted through structural and fluid interactions.

4. Diversity matters: Dynamic and diverse critical theories, frames, and practices can help deal with complexity and co-produce new political possibilities

5. Power matters: Engaging with normative processes and values and making a commitment to fairness requires navigating uneven patterns and relations of power.

Policy instruments for the transition to a circular food system

Daniel Polman

Breaking the linear produce, consume, dispose chain is frequently seen by both scholars and practitioners as a crucial step in the transition toward more sustainable food systems. Therefore, circularity is an increasingly popular concept when thinking about the future of food systems, resulting in numerous policy developments for more circular food systems. As the outcomes of food systems are very context dependent, there are different visions on how to organize this transition. Hence, there is a wide variety of (combinations of) tools and mechanisms through which governmental authorities attempt to steer actors in the food system to make it more circular. However, there is limited systematic knowledge on the full spectrum of circular policy instruments, as well as how these contribute to more circular food systems.

In order to improve our understanding on these different policy pathways envisioned by scholars and policymakers, we conduct a systematic literature review of academic publications on how policy instruments can contribute to more circular urban food systems. The literature review follows the protocol for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), and coding of policy instruments is done using the software Atlas.ti. Following this review, we first provide an overview of the academic field, by looking at the number of publications, the distribution across academic fields, and geographies. Second, we synthesize which types of circular food policy instruments are proposed in the literature or implemented in practice; what their policy goals are; which aspects of food systems are prioritized; and how circularity in relation to these different instruments is appraised or evaluated.

The findings outline our current understanding about the different policy pathways toward a more circular food system by providing lessons and insights about how different circular food policy instruments work across levels and regions, and how they are embedded or related to other policies. Moreover, we conclude by discussing the wider trends that emerge from the current developments in circular food system policies. Thereby offering a systematic overview for both practitioners and scholars working toward a more circular food system.

Concepts to Understand and Research Transformative Change for Biodiversity & Equity (TC4BE)

Verina Ingram

The complexity of agro-food systems which characterised by globalisation processes, large geographical scales, opaque value chains, flows of resources, power and values in contexts of highly inequitable power relations which displace decision making far from communities and nation states where food systems originate and externalise negative socio-environmental impacts, with global calls to action on food security/environmental public goods suggests that deep, systemic changes are necessary with alternative transformation pathways which push back on globalised narratives of scarcity and crisis and which involve more autonomous and regenerative trajectories. Thus concepts embrace production to consumption, finance and investment, governance arrangements and power relations. However, understanding and consensus on how to achieve agro-food system transformations is lacking. Given this concept, the new [project name removed to anonymize] aims to generate evidence and tools to advance understanding on how to achieve transformative change in agro-food system to enhance biodiversity and equity outcomes and strengthen stakeholder transformative change capacity. [project name] targets telecoupled agrofood systems which drive land use change and create negative biodiversity and equity impacts, including in biodiversity-rich production locations in the Global South. In this paper we propose using socio-ecological / socio-technical systems as a lens to understand agrofood systems using telecoupling and relational theory, This critical interrogation will be conducted from different perspectives (disciplines, global north and south, indigenous....). As with critiques of globalisation theory, we will reflect on the ontology of societal and environmental change that underpins transformative change and which alternatives exist. Relationality theory calls for co-production of situated knowledge and recognizing different world views and relational values – but there are tensions (how to engage in an equitable, transdisciplinary way, without imposing categories; how to produce situated knowledges drawing on/generating plural forms of knowledge – while recognizing the nesting of living socio-natural systems, hegemonies (over ideas, land uses, purpose of economic exchange etc) and the role of distance / connection to place. This conceptualisation aims to pave the way for empirical work on leverage points for sustainable transformative change pathways, expanding the boundaries of current thinking about future agrofood systems, especially those with far-reaching values and economic rules shifts.

Food Security and Equity Implications of Land-Based Mitigation in IPCC IAM scenarios

Aravindhan Nagarajan

Modelled mitigation pathways based on Integrated Assessment Models (IAMs) rely on the rapid deployment of land-based mitigation measures to meet temperature goals of 1.5 and 2 degree Celsius. These modeling results have been a significant driving force behind the global climate policy, promoting the rapid implementation of land-based mitigation measures as a cost-effective solution that benefits not only climate change but also supports healthy diets and other sustainable development objectives. However, what is poorly understood in the policy uptake of these modelled outputs is the unequal distributional burden borne by the Global South to achieve the global climate targets. In this paper, we analyse the projected outcomes related to food security for different world regions from IAMs in the Intergovernmental Panel for Climate Change (IPCC) Sixth Assessment Report's scenario database. We choose 1.5 and 2 degree scenarios that report results for a 10-region classification since this enables us to examine the differences

between developing and developed regions with better precision. Applying this criteria we examine around 350 scenarios across 5 models. We find that the modelled mitigation pathways perpetuate an unequal world where food prices rise more for developing regions than for developed ones. Moreover, the per capita food demand especially demand from livestock products in developing regions remains well below developed countries even at the end of the 21st century. To achieve temperature targets, the scenarios appropriate large amounts of land in developing regions for afforestation and bioenergy crops, thereby increasing competition for land and negatively impacting food prices. These mechanisms contribute to a world where millions of people are at risk of hunger, even in 2050 and 2100, with some modelling studies suggesting implementing food aid programs for alleviating the situation. This IAM-generated imagination of an inequitable world raises serious questions about their policy relevance and uptake. Alternative imaginations which consider the distributional effects of land-based mitigation measures on different regions are essential to ensure that climate goals are achieved while prioritizing global equity and sustainability.

Parallel Panel: Reforming trade and economies

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.133 / Zoom

Chair(s):

Norichika Kanie

Presentations (including names of presenting authors):

Civil society involvement at the trade-environment nexus: Successful submissions on environmental law enforcement

Noemie Laurens

Preferential trade agreements (PTAs) increasingly include public participation provisions in their environmental chapters. While these provisions are typically vague and poorly enforceable, one procedure is more elaborate: the submission on enforcement matters (SEM) process. The latter was originally created by the North American Free Trade Agreement (NAFTA) and later diffused to other US PTAs concluded with Latin American partners. SEMs are written documents filed by civil society members asserting that one of the PTA's parties is failing to enforce its environmental laws. They are compiled and assessed by a secretariat and can lead to the production of a factual record if the secretariat considers it warranted. Factual records consist of an investigative report including interviews with government officials and analysis from independent experts.

As the final step of the SEM process, the production of a factual record can be analytically investigated as the "success" of a submission. In this sense, the vast majority of SEMs are not successful. This paper investigates why this is the case and what conditions make SEMs more likely to succeed. It relies on a new dataset compiling the 158 SEMs submitted between 1995 and 2022 under the framework of PTAs concluded by the United States. Using qualitative comparative analysis, I test the effect of three conditions for success: the government concerned with the SEM; the type of submitter (an NGO, a citizen, or a coalition); and the nature of the environmental issue (related to human health or not).

Factual records are not binding on the parties and the SEM process is not exempt from limitations. Nevertheless, the process is not costless either, as it requires in-depth investigation from the secretariat and responses from the parties. Further, the SEM process is one of the most advanced civil society participation mechanisms in environmental governance, including in environmental treaties. 54 SEMs have been submitted in the last 10 years, suggesting that environmental NGOs and citizens still find a use to the procedure three decades after the conclusion of NAFTA. Therefore, finding the conditions under which SEMs are most likely to result in a factual record provides lessons on how to improve civil society participation in environmental governance. This is critical to ensure that state environmental commitments are implemented, which could partly appease the backlash PTAs have been facing in recent years. In sum, this paper contributes to the

literatures on participatory environmental governance, government accountability, and trade-environment politics.

The Implications of Climate Policy for Trade: Evidence from the Trade-related Climate Policy Database

Alexandre San Martim Portes

Climate change is undoubtedly one of the most crucial challenges for the survival of humankind. In response to the increase in climate effects, many countries have designed a myriad of policies to achieve net zero emissions. Several policies that nominally have climate change mitigating objectives also have substantial trade impacts, be they implicit or explicit. These trade-related climate policies are proliferating and their impacts on global trade are growing rapidly. For example, promoting environmentally sound products and standards can impact the production and commercialisation of goods in several sectors of the global economy, including agriculture, mining, and manufacturing. In addition, emerging economic strategies concerned with rising international competition, national security issues, and green industrial development are becoming more integrated into climate policies. Despite the growing relevance of climate policies for international trade, the global landscape of trade-related climate policies has not been systematically studied and compiled into a single database. Although existing databases provide information on climate or trade policies, they do not capture the elements that make climate policies crucial trade instruments. To address this gap, we introduce the Trade-Related Climate Policy (TRCP) Database. The TRCP database includes policies from all G20 countries since 1990, compiling information on policies' regulatory elements and trade impact. Our database provides evidence for researchers and policymakers to understand the implications of climate policy for trade and promote policies in the least trade-restrictive way possible.

Conceptualizations of Discourses on Circular Economy's Social Impacts in the Global North versus Global South: a Critical Review of Similarities and Differences

Ilaha Abasli

Recent academic and policy discussions on the Circular Economy (CE) gained traction in sustainability and social sciences literature not only in the context of highly industrialised countries but also in the Global South. They attempt to bring an alternative model to replace the current linear production-consumption model through more extended material use and staying within planetary boundaries.

Natural sciences and engineering scholars have mainly articulated the concept of CE. By contrast, social science has criticised techno-optimistic conceptualisations and the lack of empirical and contextual knowledge from the Global South. Critical scholars called attention to the circular economy's privileging of neo-colonial and neo-liberal approaches to development. The focus on Global North demonstrates an emphasis on well-being, decoupling benefits, and high-technology solutions and predominantly focus on circulating high-value materials in the Global North. By contrast, the focus on Global South by scholars and practitioners in the Global North points to

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

promoting 'green growth' through waste management jobs, focusing on certain types of material circulation practices, such as installing recycling plants for hazardous and low-value materials and neglecting the social implications for the informal sector in the Global South.

Such divergence in conceptualisations and academic discourses on the Circular Economy concept and especially on its social and justice implications instrumentalises the Circular Economy as an International Development tool in the context of the Global South. It frames it as a sustainability model with the benefits of addressing climate change and transforming lifestyles and social-economic-environmental relations in the Global North. However, these divergent conceptualizations potentially re-produce and replicate pre-existing inequalities in development and create silos on equity and justice considerations of the Circular Economy concept.

This paper conducts a critical narrative review of selected academic and policy literature published from 2010 through 2022. It investigates fundamental conceptualisations and discourses around the Circular Economy while attempting to find out how and to what extent such conceptualizations differ in the context of the Global North and Global South. The paper contributes to the developing critical scholarship on the Circular Economy from the angle of socio-ecological impact.

Environmental Impact Assessments of Trade Agreements – A New Dataset

Simon Happersberger

The environmental impact of trade agreements has been a controversial political issue since the early 1990s. Trade participants were prompted at an early stage to conduct environmental impact assessments (EIAs) of trade agreements. For example, in 1993 the OECD Council of Ministers recommended that "governments should examine or review trade and environmental policies and agreements that have potentially significant implications for other policy areas". In 2017, UNEP and IISD developed recommendations for conducting environmental impact assessments of trade agreements in terms of timing, geographic and topical scope, and types of assessors. Surprisingly, there is no systematic assessment of how trade participants implement EIAs for trade agreements and the extent to which current practices for EIAs for trade agreements comply with these recommendations. Our study examines the design of environmental impact assessments of trade agreements. Who performs environmental impact assessments and how are they implemented for which trade agreements? To what extent do trade participants include environmental risks in trade agreements? By collecting and reviewing environmental impact assessments of more than 100 trade agreements notified to the WTO since 1995, we categorize this information according to the four criteria recommended by UNEP IISD, which provide a baseline for assessing the quality and effectiveness of EIAs.

We illustrate the significance of this new dataset by analyzing the EU's regulatory approach to the environmental impact assessment of trade agreements from a comparative perspective with other trade actors performing similar trade transaction assessments (i.e., the United States, Canada, China, the United Kingdom, New Zealand, South Korea, and Japan). Our preliminary results indicate that the EU is leading the international field, with 35 (85%) EIAs in 41 EU trade agreements, engaging independent consultants for EIAs of trade agreements, and conducting EIAs for both parties involved. However, current environmental impact assessments of trade

agreements fall far short of UNEP recommendations, especially in terms of impact on third parties, ex-post analysis assessments, and standard indicators of environmental impact. The dataset we created in the design of trade agreement EIAs provides longitudinal and comparative insights into how and to what extent environmental risks are incorporated into unilateral, bilateral, and regional trade policies. We focus here on the European Union, but the dataset will also contribute to broader academic and policy debates on the institutional design of trade agreements, coordination of trade and environmental policies, environmental impact assessment, and risk regulation.

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Navigating sustainability transformations: Governance strategies and pathways to resilient futures

Date & Time (Amsterdam Time): October 25th 12:30:00 PM - 2:00:00 PM

Location: GR 1.125 / Zoom

Chair(s):

Devon Cantwell-Chavez

Presentations (including names of presenting authors):

Time wealth – a disregarded lever for sustainability transformations

Lorenz Erdmann

In late-modern societies more and more people value time over money. Both, time wealth and material wealth are closely related to individual consumption patterns and its environmental footprints. Currently, scientific knowledge on time wealth and its environmental implications is marginal and transformation policies hardly consider time wealth explicitly. However, as time wealth is increasingly valued it could turn out as an emerging key lever for sustainability transformation of consumption.

In a recently finished inter- and transdisciplinary research project we shed light on time wealth from different disciplinary angles (psychology, social sciences, industrial ecology) and synthesized the knowledge in a prospective simulation model. Time wealth was conceptualized and measured on a psychometric scale encompassing the five dimensions speed of life, plannability, synchronization, time sovereignty and free time.

An empirical survey among people at working age in Germany was conducted to measure individual time wealth, time use patterns and adoption of time-efficient practices and to assess associated consumption patterns (before, during and after the COVID-19 lockdown). We observe the adoption of time-efficient practices across different consumption areas such as food and mobility depending on the level of time wealth. For example, people using the fastest means of transport frequently also tend to eat more often cold than warm meals. Age and time wealth correlate best with consumption patterns.

The simulations show that only the combination of time wealth level and age class sufficiently explains the greenhouse gas emissions of consumption of population groups, which makes generations with different time wealth levels meaningful target groups for sustainable consumption policy. Moreover, many positive and negative environmental impacts of different time uses cancel each other out. The major cause is rooted in the property of time: time cannot be saved, but is always filled with activities. Consequently, there is a full rebound effect of time in relation to time-efficient practices albeit different time uses go along with different carbon footprints.

With our paper presentation, we aim for two objectives. First, we want to present major research findings and discuss the usefulness of a time-wealth perspective for the promotion of sustainable consumption with the international sustainability community. Second, we want to reflect upon a number of issues we encountered when working in this highly interdisciplinary context, such as fragmented research communities and institutional preconditions for time-wealth-based sustainability policies.

Unlocking and reconfiguring lock-in dynamics to accelerate adaptation

Meghan Alexander

Responding to the declared climate emergency demands systemic and transformative change in policy and governance systems, and decisive adaptation action to be taken now. Yet, a long-standing 'adaptation gap' continues to prevail. This is often symptomatic of hidden path dependencies and self-reinforcing 'lock-in' dynamics that work to preserve current regimes and make them highly resistant to change. Uncovering these hidden dynamics is a vital first step, but what this information holds for targeting interventions and designing 'unlocking' strategies remains unknown. Taking this next step, this paper examines how an understanding of lock-in dynamics can be used to leverage transformative change and accelerate adaptation action.

Based on empirical research conducted within the [citation removed to anonymize abstract], we draw examples from three countries (UK, the Netherlands and Germany) and across different problem domains (such as coastal adaptation, water scarcity and biodiversity), to illustrate different types of lock-in mechanisms and dynamics in action. From this, we identify certain types of 'unlocking' strategies that could be employed to dissolve lock-ins and formulate a typology based on the mode of leverage required (e.g. actor, rule or resource-based) and the point of intervention within complex systems. Observations are made about the extent to which these strategies may be shared or unique to certain types of lock-ins, reflecting on examples of innovative approaches currently taking place in these countries. Attention is also given to critical questions about the potential for reconfiguring lock-in dynamics to 'lock-out' maladaptive pathways and prevent detrimental lock-ins for occurring in the future.

Understanding transformative governance and the process and sequencing of mechanisms for improved resilience outcomes in US wastewater systems

Chesney McOmber

With rising environmental pressures on water resources and infrastructure due to climate change, governments are urgently working to build resilience. Within the United States the effort to transform governance of water resources and infrastructure to prepare for intensifying climate effects- including rising sea levels- is especially urgent. While technological innovation can support climate response, technology alone may be insufficient for building resilience. Rather, building resilience requires substantive change in multiple dimensions such as technology and infrastructure, institutional processes, culture, and values, ultimately necessitating a

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

transformative governance approach. Emerging scholarship on transformative governance and resilience suggests building collaborative and inclusive relationships with stakeholders, ensuring reliable funding for resilience programs, establishing legislative support for policies, and the emergence of strong leadership with a vision to move policies forward are important processes for transformation. While process identification helps, little is known about how particular processes work together or how to sequence or bundle processes to achieve transformation in practice. Our study relies on 31 interviews with state wastewater management officials in four New England States- Connecticut, Maine, Massachusetts, and Rhode Island. We analyze these interviews using the method of process tracing to code 11 critical processes of transformative governance in key resilience programs within each state. We find that there appears to be important patterns in sequencing of transformation processes and that the co-occurrence of some processes lead to better resilience outcomes than others. The findings from this study present a pathway of priority areas for policy makers to consider when implementing programs to ensure sustained and transformative governance when planning for a climate resilient future.

Transforming our world through multi-stakeholder partnerships: Factors, mechanisms, and pathways for sustainable development

Maximilian Sebastian Tassilo Wanner

Only seven years remain to achieve the Agenda 2030 and its Sustainable Development Goals (SDGs). From the start, there have been calls for the transformation of societies so that the ambitious goals can be achieved. Since several of the SDGs seem out of reach, we turn to one of the promised "key factors" for transformation: multi-stakeholder partnerships (MSPs). MSPs are understood as voluntary collaborative agreements between public actors (incl. international organisations, and states or sub-state public authorities) and non-state actors (incl. non-governmental organisations, companies, and foundations) as a specific form of governance architecture with shared objectives. Earlier assessments have provided mixed results whether MSPs can deliver on the promise.

We ask, if, when and how MSPs can bring about structural and long-lasting effects, what we call transformational effects. To answer this, we distinguish between partnership effects, external effects and transformational effect and investigate what and how mechanisms link these different effects to each other. Our research contributes to the growing literature seeking to understand how and under what circumstances MSPs can contribute to sustainable development.

By exploring successful partnerships, i.e. MSPs with the potential for transformational effect or that have achieved such transformation, led by a diverse set of actors, providing different functions across all pillars of sustainability, we identify factors and mechanisms and combinations thereof (called pathways) that enabled substantial contributions to sustainable development. Cases are chosen based on their (potential for or achievement of) transformational effects, a wide geographical distribution (covering Asia, Africa, Europe, Latin America, and global), and who the lead actor of the MSP is (IO, public or non-state actor). Diversity of cases is also reflected in the selection MSPs focusing on different forms of sustainability (social, economic, environmental).

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Drawing from literatures on MSPs (and policy success?), potential factors may include aspects such as institutional design and committed resources of the partnering actors; while mechanisms refer to processes and synergies that are achieved throughout the partnership, enabling not only the fulfilment of goals of individual partnerships but also external effects or even transformational effects.

We thereby not only contribute to advance the research field, but provide avenues through which MSPs can enhance their transformative power in order to achieve the sustainability needed. Thereby, we want to support the MSPs to deliver on the supposed promise to bring transformational change.

Conference Stream(s): *Architecture and Agency*
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Climate change and biodiversity: Challenges for financing, governing and achieving fair outcomes

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.170 / Zoom

Chair(s):

Cristina Yumie Aoki Inoue

Karen M. Siegel

Guilherme de Queiroz Stein

Discussant(s):

Karen M. Siegel

Session Overview: Climate change and biodiversity: Challenges for financing, governing and achieving fair outcomes

Tackling climate change and promoting biodiversity conservation are two closely related objectives. This panel discusses these issues based on research in Brazil. Brazil is a mega-biodiverse country and has been in the international spotlight for some time due to concerns over Amazon deforestation with implications for the global climate. Over the last years Brazil has gone through rapid political changes, but a significant socio-environmental concern remains the situation of indigenous peoples who have faced exclusion in economic and political terms for centuries and also suffered disproportionately from the Covid-19 pandemic. At the international level, there are various norms and commitments that seek to address this, not least the 2030 Agenda which has pledged to "leave no one behind". However, such international norms do not always produce the desired effects when implemented. At the national level, too, Brazil has several innovative mechanisms to improve access and benefit-sharing for indigenous peoples and other communities in the Amazon and rural areas, but here it is also crucial to examine how these play out in practice. This panel therefore looks at the interplay between the commitments, norms and mechanisms at different levels and seeks to examine how effective they are in implementing various conceptions of justice and allocation in a context that is marked by strong power and resource asymmetries. As the demands for a sustainability transition increase internationally and in Brazil, central questions include how costs and benefits of such a transition are distributed and how rights and livelihoods are affected, but also what new demands are emerging. The panel seeks to examine the capacity of various governance arrangements to produce fair and equitable allocations, to recognize the diverse voices and knowledge that permeate them, and to act to repair the history of social exclusion and environmental destruction.

Presentations (including names of presenting authors):

Bioeconomy in the Brazilian Amazon: New Solution or New Threat?

Fabio de Castro

Conference Stream(s): *Justice and Allocation*

The Amazon is the world largest tropical forest facing multiple demands from global, national and local actors. Strategies to reconcile multiple (and sometimes conflicting) demands - e.g., conservation, social justice, and economic growth - have been highly contested in the region. On one side, market-based mechanisms - e.g., carbon trade, compensation schemes, certification models and agrofuel projects - have been proposed as win-win situations with no regards to environmental degradation, inequalities and territorial dispossession. On the other side, territorial rights, community-based governance, sustainable production systems, and forest-based policies have been crafted by local actors to address social justice and nature conservation but with limited success in scaling up their local economies. In the context of increased global crises (climate, health, economy) and national political tension over the last decade, bioeconomy or bio-based economy has emerged as a new promise to tackle the Amazon dilemma. This 'new' economic strategy for forest-rich regions claims to reconcile market-based with social justice perspective through promotion of nature-based sustainable production systems and inclusion of traditional and peasant populations. The fast-growing use of this term by a large range of actors, from international donors to local governments raises concern on how this 'new' perspective is conceptualized, by whom, and under which grounds. The paper takes a political ecological perspective and offers a critical analysis of bioeconomy and bio-based economy as a polysemic term appropriated by actors with contrasting views on nature and development nexus, power positions, and economic assets. I will describe how the bioeconomy paradigm is unfolding in the Brazilian Amazon by describing the ways bioeconomy/bio-based economy is being used across different actors at international (e.g., OTCA and IDB), national (e.g., MMA), subnational (e.g., Amazonian states) levels, and networks and programs (e.g., Parceiros pela Amazonia, Science Panel for the Amazon, Amazon 4.0). I will analyse commonalities, contrasting and connecting elements across these initiatives, and will address counter-narratives from marginalized actors rejecting or re-appropriating it to their own purposes. The discussion will address the possible outcomes of this new trend - space for agency from local actors to develop their local economies or a new trap for the creation of a 'forest frontier'?

Podáali indigenous fund: transformative governance in the Amazon?

Verônica Korber Gonçalves

Finance for climate change mitigation and biodiversity conservation have been debated since the 1990s. Indigenous Peoples (IP) have also been calling for direct access to funding for keeping their livelihoods and protecting their territories, whilst mitigating climate change and conserving biodiversity. This new development emerges in a context in which most of the existing finance mechanisms affect their cultures, traditions, and territories, but very little goes to indigenous and local community land tenure and forest management. The research's objective is to identify and analyze how IP define financial instruments in the context of indigenous organizations' demand to have a seat at the negotiating table for climate-forest policy funds in their territories. Firstly and foremost, they demand recognition of their knowledge in combating climate change and conserving biodiversity, their rights to their traditional lands, and their fundamental rights. However, as these mechanisms are situated in a broader political economy and political ecology context, they may perpetuate the current system and risk co-opting resistance. The research focus is on Podáali, the Indigenous Fund for the Brazilian Amazon, developed in 2017 by the

Coordination of Indigenous Organizations of the Brazilian Amazon (COIAB). Indigenous peoples created this mechanism to ensure their autonomy in decision-making for implementing local projects designed by indigenous communities. The paper maps the fund's characteristics- main actors, guiding principles, governance structure, potential partners and financiers, scope and autonomy justifications - and its implications. The paper also explores how Podáali has been presented at COPs side-events to potential donors, investors and governments. The main sources of information are interviews, news articles, meeting minutes, and Podáali website. Finally, the research assesses to what extent Podáali represents an attempt to reconceptualize or present an alternative narrative to climate justice, mitigation, biodiversity conservation and well being, or to recognize different ways of living and managing forests, carbon, and financial resources (epistemic justice). By examining this case, the paper aims to understand governance processes by focusing on the voice and experience of indigenous peoples in creating pluralistic arrangements in the Brazilian Amazon, and also in dealing with the challenges involved in translating and negotiating with financiers that operate with the political economy logic.

State capacities and payment for environmental services in Brazilian municipalities

Carlos Eduardo Frickmann Young

Connecting biodiversity, climate change, and the bioeconomy while prioritizing justice and allocation requires collaboration among governments, businesses, communities, and civil society. To achieve this, several initiatives have been proposed, including the implementation of Payment for Environmental Services (PES) programs. PES aims to promote environmental conservation or recovery through economic incentives and has been praised for creating business opportunities for the private sector while meeting environmental policy objectives. However, the limited experiences with PES in developing countries demonstrate a gap between the theoretical framework and the actual implementation of the program. In Brazil, the potential resources estimated for PES are much higher than the actual value of the few projects that have been implemented, due to difficulties in public policy implementation. These difficulties include institutional weakness, lack of political interest, and a limited number of stakeholders. The purpose is to identify the relationship between administrative and political capacities and the existence and continuity of payment for environmental services in Brazilian municipalities. This study presents results from empirical research, with data extracted from the Survey of Basic Municipal Information (MUNIC) carried out by the Brazilian Institute of Geography and Statistics (IBGE) in 2017 and 2020. The results show that PES programs are restricted to only 15% of municipalities and less than one-third of the municipalities that had positive answers in 2017 repeated their response in 2020. The study found that population, territory, regional location, and institutional capacity for environmental management are associated with the continuity of PES programs. These results highlight that there is no one-size-fits-all solution for the successful implementation of PES programs and that it depends on specific circumstances, including local institutional capacities. This conclusion requires further attention and research in environmental economics literature, which tends to present PES as a universal solution.

Promoting a fair and equitable sharing of benefits? An analysis of the new Brazilian biodiversity law

Guilherme de Queiroz Stein

The use of biodiversity holds significant economic potential which could potentially also foster social inclusion and biodiversity conservation. However, a major issue is how the economy of biodiversity will be regulated to comply with international treaties such as the Convention on Biodiversity and the Nagoya Protocol, which aim to establish a fair and equitable sharing of benefits generated by access to genetic resources and the traditional knowledge of indigenous peoples and local communities. There are trade-offs between the impact of regulation on bioprospecting activities and its ability to promote social justice. Regulations that are too restrictive may prevent the benefits to be shared from being produced. Regulations that are too lax may encourage biopiracy and fail to ensure that holders of traditional knowledge receive a fair value for their knowledge. In addition, it is necessary to define what modalities will be available for benefit sharing, the form of payment, and the parameters that establish the amount to be paid. In this context, Brazil established new legislation on biodiversity in 2015, regulating access to its genetic heritage and access to associated traditional knowledge. The new law sought to streamline biodiversity-based business and provide legal certainty for bioprospecting activities. To this end, it established precise mechanisms and legal parameters for benefit sharing. This paper analyzes how well the new Brazilian governance system for access and benefit sharing can generate fair and equitable benefit sharing. For this purpose, we analyzed data from interviews with representatives of different social sectors, policy papers, and quantitative data on benefit sharing in Brazil. The results show that, although the new legal framework made progress in the definition of legal mechanisms, the results in terms of benefit-sharing are negligible due to design problems, implementation failures, and lack of government priority.

Parallel Panel: Overcoming the dichotomy of humans and nature in Earth System Governance research (I): An innovative approach to address the complex, intertwined, and coevolving social-ecological nature of governance challenges

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.139 / Zoom

Chair(s):

Elke Kellner

Rodrigo Martinez Peña

Discussant(s):

Udita Sanga

Session Overview: Overcoming the dichotomy of humans and nature in Earth System Governance research (I): An innovative approach to address the complex, intertwined, and coevolving social-ecological nature of governance challenges

Earth System Governance scholars have repeatedly pointed out the urgency to overcome the traditional dichotomies of humans versus nature. However, many governance frameworks capture social and ecological factors separately and conceptualize the ecological as contextual factors. In this panel, we present an innovative approach, the Social-Ecological Action Situations (SE-AS) framework, which helps to understand complex adaptive systems and multi-scale structured interactions between humans and nature to capture emergent social-ecological phenomena, such as governance outcomes. The first presentation of this panel introduces the nascent SE-AS framework. Although the framework's initial purpose was to map system understanding with respect to a particular phenomenon and support hypotheses formulation, the presentation shows how researchers have used it in recent years for various alternative purposes. The following three presentations demonstrate examples of how the framework could be used: (1) for comparison of case studies analysing fisher-trader relationships in small-scale fisheries, (2) as a transdisciplinary boundary object to bridge between domain-specific knowledge systems and support scenario thinking, and (3) to map a social-ecological trap in biodiversity conservation. The panel will discuss the strength and challenges of the SE-AS framework in overcoming the dichotomy of humans and nature in Earth System Governance research. The panel will be complemented by a second panel on navigating a landscape of different frameworks and an innovative session exploring the different uses of the SE-AS framework and providing room for more in-depth discussions in smaller groups.

Presentations (including names of presenting authors):

Multifunctionality and explanatory power of the SE-AS framework

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Maja Schlüter

The social-ecological action-situation (SE-AS) framework is a thinking tool that incorporates understanding about complex adaptive systems, and multi-scale structured interactions between humans and nature to make sense of emergent social-ecological phenomena. Although the framework's initial purpose was to map system understanding and support hypotheses formulation, researchers have used it for various alternative purposes, including explanation making. This reveals an unexpected breadth in its functionality but raises questions about the role of conceptual ambiguity, what practices enable its multiple functions, explanatory power, and underlying causal reasoning. In this paper we review the studies that have taken up the SE-AS framework since its publication in 2019 to scrutinize how it has been used and in what constellation of practices. We also report the outcomes of a seminar series where authors discussed possibilities and limitations for the multiple uses, as well as the framework's ability to capture for key dependencies that explain social-ecological phenomena.

The framework's underlying causal reasoning spans social-ecological intertwinedness, macro-to-micro influence on agents, agents' interaction, emergence of causal configurations within and between action situations, and across scales, co-evolutionary processes, and transformational change. Explanations are context-dependent and must consider alternative mechanisms, but the framework helps to account for them. The need to be explicit about the causal dimension of the framework varies in degree when it is used for non-explanatory purposes, but it allows thinking systematically across functions.

On addition to explaining phenomena, we identified seven alternative functions: as a means to compare case studies and theorising; as boundary object to create shared systemic understanding in participatory processes; as a kit to build scenarios; as a visual resource to map one's own understanding of a case; as tool to describe case studies and explore interesting interactions; as a way to operationalise meta-theory from other traditions into a SES approach; and as an interphase between case studies and agent-based modelling that allows to account for social-ecological intertwinedness. We found that the visual representation of action situations, arrows connecting them, and the emerging phenomenon provides heuristic guidance across uses; likewise, the ambiguity of these elements allows the framework's flexibility and multifunctionality. Each of the different uses is enabled by a different set of practices into which authors embed the framework. Since we believe that it is key to specify these practices to keep methodological and conceptual rigour, we systematically disclose them to provide further guidance to scholars interested in using the framework.

Mediating pathways of change: the role of fisher-trader relationships in small-scale fisheries responses to social-ecological disturbances

Kirill Orach

Small-scale fisheries (SSF) are likely to experience an increasing frequency and magnitude of environmental and socio-economic change. These affect the well-being of fishery actors and the overall social-ecological system (SES). The way SSF respond to impacts of global change is in many cases influenced by fishers' relations to traders. Such fisher-trader relations (FTR) constitute a link between markets, small-scale fishers and the marine ecosystems they are dependent on. The

dynamics of how FTRs respond to fast and slow change and how their responses then influence other relations and fishery's capacity to respond to various disturbances are, however, poorly understood. Our contribution to this research gap focuses on relations within the fishery, such as the FTR, to understand its responses to change, rather than properties of actors or institutional structures. Here, we explore how FTR, embedded within other social, ecological, and social-ecological relations mediate change, such as environmental disasters, new policies or market demand. We do this through mapping of the interactions, key for understanding the mediating role of the FTR, and a qualitative synthesis across five published case studies of small-scale fisheries.

To map a constellation of interactions, which together with FTR influence fishery response to change we use a social-ecological action situation framework (SE-AS). The framework also works as collaborative tool to co-develop representations of causal pathways that link social-ecological change and FTR responses together with case study experts. Using the SE-AS representations we develop an analytical framework, which allows us to reconstruct the mediating role of FTR across cases and address how their interplay with change in a social and ecological context influences SSF responses. Comparing the case studies with the help of the analytical framework, we develop a typology of interactions that affect capacity of SSF adaptability and highlight the diversity of mechanisms that lead to different adaptation outcomes. FTR can carry out a diversity of roles within the fishery and in doing so they may amplify or absorb the effects of change for the whole fishery. This process depends on the nature of the change, but also on internal characteristics of the FTR. This advance allows other cases to more systematically analyse FTRs and draw on the relevant theories. It highlights the importance of adaptation of relations and combinations of relations rather than individual behaviours.

Anticipating lake futures with social-ecological action situations

Romina Martin

Freshwater biodiversity is under pressure from multiple global and local stressors. Particularly lakes experience a combination of climate induced stressors like heat waves interacting with eutrophication from land use which create highly uncertain outcomes for biodiversity and ecosystem services. Diverse interests for the use of lakes as a resource create trade-offs and synergies among them and interactions with the wider water catchment, as well as multi-level governance constituting the complexity of managing lakes as SES. The interpretation of current ecological and socio-economic evidence thus needs to be accompanied by continuous learning among stakeholders to enable adaptive management and even anticipatory governance in the face of unexpected change.

Scenario thinking as a participatory method enables to explore uncertain future pathways and deliberate over strategies that support diverse outcomes to unfold. A combination of participatory modelling, visioning and backcasting was conducted with stakeholder groups around two case study lakes in the project [project's name removed for anonymous review process] to reflect on learning processes in lake governance. Here, we explore the use of social-ecological action-situations (SE-AS) as a transdisciplinary boundary object to bridge between domain specific interactions, enable a reflection over emerging outcomes and demonstrate how they link to each

other. Our conceptual model of lake management within the SE-AS framework represents diverse social-ecological interactions various actors are engaging in around a lake. They comprise drivers for degrading water quality through excessive nutrient input in the catchment, responsive and potentially proactive monitoring and restoration activities, as well as the main ecosystem services and benefits.

We hypothesize that SE-AS representations in a transdisciplinary process support the reflection over SES as ‚moving targets', the need for continuous adaptation, reframing of goals, norms and values, and by this transformative learning.

Social-ecological trap in biodiversity conservation on private lands in Quebec province, Canada

Louis Tanguay

Biodiversity conservation has been on the agenda of the Government of Quebec, in Canada, for several decades now. In recent years, following global trends, the provincial government has attempted to engage in conservation efforts on private lands. In doing so, the need to shift conservation governance from a mostly top-down process to one which involves the participation of stakeholders became manifest to attenuate perceived social and environmental injustice in the face of imposed conservation efforts. However, citizen participation has mostly focused so far on symbolic participation, with a lack of true citizen involvement beyond consultation sessions.

In this work, we illustrate a double-loop social-ecological trap (SET) that we foresee for conservation measures deployed on private lands in Quebec when those lands are used for production purposes. To do so, we use the SE-AS framework, developed by [authors' names removed for anonymous review process]. The framework proposes to design a stylized model of a social-ecological system (SES). This includes action-situations (AS), in which interactions take place between and among actors and ecosystem elements; outcomes that result from those AS; a configuration formed by the ensemble of AS and their outcomes; which together give rise to an emergent phenomenon. Hence, focusing on a SET as the emergent outcome, we design an AS configuration illustrating the potential evolution of conservation efforts on private lands.

We propose that including merely symbolic landowner participation to design collaborative measures might lead to a misunderstanding of the production ecosystem dynamics and of landowners' needs, interests and concerns. This could lead to conservation efforts on private lands that are not harmonized with production objectives, hence to a deficit in production and to the disengagement of landowners. This could in turn result in a perceived failure, by decision-makers, of participative efforts, and a return of top-down decision-making with the resulting perceived social and environmental injustice and none-compliance, hence completing the double-loop SET. We conclude by arguing that only true citizen, or in our case, landowner participation through active involvement in cooperative planning could lead to the development of venues that would allow integration of landowners' knowledge and concerns, which in turn, could lead to a more harmonized integration of conservation efforts with production activities.

Parallel Panel: Building a climate policy design lab in Southeast Asia: lessons from global environmental governance scholarship

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR -1.070 / Zoom

Chair(s):

Benjamin William Cashore

Discussant(s):

Ingrid Visseren-Hamakers

Session Overview: Building a climate policy design lab in Southeast Asia: lessons from global environmental governance scholarship.

This panel intends to engage the global environmental governance scholarship to discuss and debate on climate action policy discourses in Asia and the Southeast, while drawing lessons from international practices to better understand how those policies could be adapted in the Southeast Asian context.

The core research orientation integrates conceptual, explanatory, and prescriptive research to identify policy design lessons for accelerating effective decarbonisation and just transition pathways. The panel would involve both theoretical and empirical papers examining policy trajectories in addressing environmental and sustainability challenges, including climate adaptation or mitigation pathways at global, regional, and local geo-political settings.

We are also interested in papers that explores policy learning around technological innovations in climate adaptation or decarbonisation pathways. Similarly, we encourage studies employing comparative analysis or case-study approach to draw lessons on why some policies emerge resilient or durable in the long-term while some dies out before achieving any outcome.

The panel deliberations will feed into an ongoing collaborative research program spearheaded at the [Program's name removed for anonymous review process], a policy think-tank housed at the [Affiliation removed for anonymous review process]. [Program's name removed for anonymous review process]'s mission comprises strengthening policy design capacity in Southeast Asia to provide a deliberative arena and analytical insights through which countries in the South may realize their sustainability objectives, while facilitating greater interaction of ASEAN and Asian voices within global and transnational sustainability processes.

Presentations (including names of presenting authors):

Learning from failures to design for success: towards durable carbon pricing and finance governance in Southeast Asia.

Maitreyee Mukherjee

Conference Stream(s): *Adaptiveness and Reflexivity*

BOOK OF ABSTRACTS &
INNOVATIVE SESSIONS

The roadmap towards a low-carbon climate resilient economy requires urgent action equipped with drastic and bold policy changes. Carbon pricing is a dominant policy instrument used by governments to generate economic incentives towards cleaner low emission technologies, while facilitating market innovation through private sector involvement.

Our paper aims to compare and analyse the policy trajectories of carbon pricing tools in diverse geo-political settings, considering both successful and failed cases. The paper would examine what factors entrenches certain policies to failed outcomes or a durable policy regime. What are the enabling factors or policy triggers, if any, that ensures a stable pathway towards effective, targeted outcomes? What are the roles of state, non-state actors and emerging market opportunities in facilitating durable pathways? The findings would inform prescriptive policy design toolkits to ensure durability of emission reduction policies and on a broader scale other climate policies.

Policy learning and the complexities of sustainability transitions: How do policymakers learn about effective policy design for technological innovation?

Sebastian Sewerin

The need to rapidly ratchet-up policy ambition for tackling sustainability transitions seems at odds with public policy literature's assumption that policy change generally is incremental. Paradigmatic policy change, if it does occur, is driven by high-level ideational change like that from Keynesianism to Monetarism in the 1970s/80s. Yet, recent studies have argued that pathways to paradigmatic policy change need not be top-down per se but can be bottom-up, stemming from small policy design changes that create sufficient feedback in the policy mix and thus 'escalate' to paradigmatic policy change. While this important conceptual debate has only just started, further questions emerge: How capable are policymakers to intentionally design such 'virtuous' policy feedback loops that lead to paradigmatic change? Research on policy learning focuses on individual policies and mostly black-boxes the interplay of policies in a mix. In addition, learning about technological innovation and the feedback it produces, while crucial for sustainability transitions, is not systematically addressed in the literature. This paper aims to present a research agenda that tackles these issues by bringing together public policy literature on policy change, policy learning literature as well as technology and innovation studies on policy design. The aim is to understand how policymakers tackle a dually complex design challenge: (a) designing policies that positively affect technological change in accordance with long-term socio-technical transitions while (b) also designing policies in such a way that they cater for the complexities of interplay in complex policy mixes and are capable to create 'virtuous' policy feedback loops. Understanding how policymakers deal with these design challenges allows us to better appraise realistic policy pathways that are effective while not getting 'stuck' in politics or backlash.

Pathways to Transformational Environmental Policy Change: Evidence from Global Forestry Regulations

Gus Greenstein

From climate change to the biodiversity crisis, the global environmental challenges we face require transformational change in environmental public policy. Recent policy studies scholarship suggests one way forward: the possibility for certain policy designs to trigger political processes that encourage the adoption of more ambitious policies in the future. We explore the potential for

Conference Stream(s): Adaptiveness and Reflexivity

design-induced "upward" environmental policy change in the context of global forest conservation. To do so, we characterize five "on-the-ground" environmental forestry regulations---annual allowable cut requirements, clear-cutting allowances, road building restrictions, riparian buffer zone requirements, and reforestation requirements---for eight national and subnational jurisdictions spanning Brazil, Canada, Indonesia, Australia, and New Zealand. To enable comparability across regulations, jurisdictions, and time, we use an analytical framework that consistently characterizes each policy's "setting" and level of "prescriptiveness". We track each regulation for the 2007-2022 period, permitting a systematic view of policy change across 120 jurisdiction-years. Next, we draw on historical institutional analysis to examine key drivers of policy change, paying special attention to the ways in which earlier policy characteristics may have encouraged change, and compare drivers across regulation types and jurisdictions. This study contributes a framework for analysing how policy design may unlock positive environmental policy trajectories, with concrete policy implications for forest conservation.

Existing commitment to climate action strengthens durability of cities' climate actions beyond Covid-19

Tanya O'Garra

Cities worldwide have emerged as critical actors in efforts to reduce greenhouse gas emissions and to adapt to climate change. However recent years have witnessed social and economic crises brought on by the Covid-19 pandemic, Russia's invasion of Ukraine, and increasing climate disasters; the impacts of these crises have been most notable in cities and large towns, where ~57% of people live and ~80% of economic activity is based. Given predictions of increasing economic pressures across the globe due to climate change and conflict over scarce resources, a key question is whether cities will continue to lead the way in climate action.

To address this question, here we present a global analysis of the impact of Covid-19 on cities' climate actions and climate finance. Covid-19 has had a truly global impact, causing the deaths of almost 7 million people and a 3.4% decline in global GDP in 2020. As such, it may be considered one of the main crises of our times. We use self-reported data, provided by ~500 cities around the world to the CDP disclosure platform. Specifically, cities were asked to report the effect of Covid-19 on their climate actions and available climate finance, thus providing insights into how the pandemic has affected cities' climate action pathways.

More crucially, we ask - what factors influence the 'durability' of cities' commitments to climate action given Covid-19? Using multilevel regressions in which we control for Covid-19 impacts (proxied by mortality; changes in economic activity), we examine which city- and national-level factors influence whether cities report an 'increase', 'no change' or a 'decrease' in climate action and climate finance.

We find that a majority (79%) of cities report no change or increased climate action, while 64% report no change or increased availability of climate finance due to Covid-19. Statistical tests confirm that climate action and available finance are correlated. More durable climate actions and finance are found in cities with higher pre-Covid19 levels of commitment: collaboration with business on sustainability issues, membership of international climate networks, and a greater number of greenhouse gas targets (pre-Covid-19) correlate with more durable commitments (i.e.

'no change' or an 'increase' in climate action and climate finance). These findings highlight tangible actions that cities can take to increase the resilience of their climate commitments to shocks and economic crises, and show a way forward for cities to continue to lead the way in climate action.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Decolonial Sustainability

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.109 / Zoom

Chair(s):

Joyeeta Gupta

Presentations (including names of presenting authors):

Towards a Planetary Justice: On Achille Mbembes Postcolonial Perspective

Téwéché Korassi

Most theories of planetary justice are formulated by scholars from the North. However, there is a notable absence of Southern academics, especially from Africa, in the debates. My paper would like to examine the issue of the foundations of planetary justice from a postcolonial African perspective, i.e. that of the Cameroonian philosopher Achille Mbembe. In his book Brutalisme (2020), Mbembe writes: "What had initially appeared to me as a specific feature of what I had called the postcolony began to lose its singularity as my work was reappropriated in various contexts. I realised that this was a frame whose scale was much larger than the African continent." (Mbembe 2020: 15)

Although Mbembe's argument is formulated in 2020, it is earlier, around the 2010s, with the publication of texts such as Necropolitics(2006) and Critique of Black Reason (2016), that a reflection on planetary rights and justice is formulated. He argues in these essays that the absence of rights and justice, whether political, economic or environmental, are not the exclusive traits of African states. "Africa, Mbembe writes, was, in truth, only a laboratory for global changes. Since then, it is to reflect on this planetary turn of the African predicament and its counterpart, the African future of the world, that I, along with others, have set out." (Mbembe 2020: 15)

My paper will focus on two questions: a) What is planetary justice according to Mbembe? b) How does this concept differs from those elaborated among Western scholars, of which Biermann, F., Kalfagianni, A et al. wrote an excellent synthesis in issue 38 of the Earth System Governance paper? (Biermann, F., Dirth, E., Kalfagianni, A., 2020) Furthermore, I will discuss the contribution of potcolonial theories to Mbembe's foundations and principles of planetary justice. Based on a close analysis of Mbembe's works Necropolitique (2016), Brutalime (2020) and The Earthly Community (2022), I will conclude by examining the pertinence and limits of Mbembe's potcolonial approach to the concept of planetary justice in contemporary debates on planetary governance.

Energy, coloniality, and justice: An analysis of the Amazonian hydroelectric power systems from a decolonial energy justice perspective

Jéssica Duarte

Conference Stream(s): Justice and Allocation
Inter- and Transdisciplinarity for Sustainability Transformations

This work aims to contribute to the discussions on energy justice in the Global South by addressing the electrical energy systems in the Amazon from the perspective of decolonial energy justice. The disputes in the Amazon related to energy projects compose a scenario of historical energy injustices and persisting colonial power relations. While presenting high rates of rural energy poverty, the Brazilian Amazon energy system is considered the country's hydro-energy frontier, with large hydropower plants in operation and many others planned for construction. Large energy projects in Brazil date to the geopolitical vision of the military dictatorship in the 1970s. Back then, the Amazon was understood as terra nullius and was subjected to national development projects aiming for a supposed regional occupation and integration. In this context, the expansion of energy production in the Amazon took place mainly through hydroelectric power plants, which introduced the region into the national division of labor. This movement led to substantial social and environmental injustices, including genocides and the displacement of traditional people and indigenous groups, which persist nowadays.

Traditional discussions on energy justice, which originated in the Global North, are concerned with the social distribution of benefits and expenses of the energy systems and related decision-making processes. A decolonial perspective on energy justice sheds light on the social relations of energy, pointing out that energy systems are one of the pillars of current modernity and capitalism. As much as the concept of energy is imagined and implemented by the occidental epistemology and development narrative, the traditional definition of energy justice reproduces such hegemonic power relations. A decolonial energy justice framework recognizes the interaction between energy injustices and colonial power, especially in the Global South, and aims to encompass diverse conceptions of justice, culture, and identity.

The goal of the present study is to explore the decolonial energy justice considerations investigating the development of energy systems in the Brazilian Amazon, especially regarding the context ensuing on the Belo Monte hydropower plant. The decolonial energy justice analysis accounts for the persistence of the Colonial Matrix of Power in the structure of energy systems and for the social relationships that energy systems produce, maintain, and destabilize. Decolonizing energy justice expands the significance of energy justice discussions and its contribution to just transformations, highlighting colonial power relations and enabling the emergence of diverse emancipatory energy projects.

Climate coloniality and cognitive justice: Pluriversality, spirituality and indigenous knowledges in transnational climate activism

Tobias Müller

One of the main criticisms of the recent wave of climate protests of Extinction Rebellion, Fridays for Future and others has been that they are inadequately addressing the knowledge structures that underly extractive capitalism and what Farhana Sultana has called "climate coloniality". In response to this criticism, various groups are advancing the notion of cognitive justice, which aims to centre ways of knowing and being that have been marginalised by Western modernity and colonialism, especially indigenous, spiritual and ancestral knowledges and practices. This paper investigates these newly emergent trends by analysing the case study of a transnationally

operating climate justice group, the Extinction Rebellion Being the Change Affinity Network (BCAN).

Based on two years of ethnographic research and 60 qualitative interviews with movement actors in 12 different countries, I will investigate how advancing cognitive justice and planet repairs draws on various forms of knowing, including religious, indigenous and ancestral epistemologies, and how these are mobilised as an alternative to what is seen as a predominantly science and technology centred perspective on the climate crisis. The paper will show how these advocates for a pluriversal world order not only put forward certain political demands but try to enact a paradigm change in which different epistemologies and ontologies, particularly those marginalised by Christian missionaries, Western science and political secularism, are at the centre of the change they are trying to achieve—in climate politics and the communities they are connected to across the globe. The paper thereby contributes to the debate on the relation between ecology, science and religion by investigating how decolonial, spiritual and indigenous languages and rituals embody a new form of ecological politics. Finally, the paper establishes a new analytical framework to conceptualise the blurred boundaries between traditional, indigenous, and ancestral knowledges.

Climate colonialism in global climate finance governance: a critical review and research agenda

Hyeyoon Park

Green finance governance has become one of the major pillars of the current global climate governance. Transnational climate governance institutions increasingly initiate green finance policy instruments, such as climate-related financial risk disclosures, and build new allies to mobilize money that could accelerate a global net-zero transition. These new types of climate finance governance steer transnational financial flows and determine for whom the money is allocated. Despite rapidly growing climate finance, developing countries remain lacking in funds and investments to cope with climate challenges. Moreover, some climate financial tools reproduce the disparity between the Global North and the Global South (e.g., small-scale farmers' purchase of crop insurance due to severe droughts in Africa). This normative aspect of green finance governance has been marginalized in policy and academic debates but needs to be centered for just transition. This paper explores emerging issues of global inequality and justice in global climate finance governance through the lens of climate colonialism. Climate coloniality has been shaped by extractive capitalism, and it (re)produces unequal exchanges between the Global North and the Global South in multidimensional aspects, including ecological and epistemological inequalities. In that sense, the existing climate finance governance architecture seems to be a venue of climate colonialism based on the dominant influence of financial experts and elite groups. How and when do global climate finance instruments trigger multi-layered global inequalities? What types of asymmetrical power relations are behind the inequalities? Who has the agency to set governance rules and agendas for whom? As the first step to understand the sociopolitical dynamics in global climate finance governance, this research conducts a discourse mapping based on a systematic review of academic literature across disciplines and policy documents published by selected global green finance governance initiatives (from 2000 to

present). This mapping exercise aims to find major policy and academic discourses on equity and justice issues in the global climate finance governance realm. It shows what knowledge network does or does not shed light on the global disparities. Based on the findings, I suggest some research agendas to support equitable climate finance policies and argue that inter- and transdisciplinary approaches are necessary to develop the research direction.

Decolonizing Climate Change and Water Governance from Indigenous Perspectives

Ranjan Datta

This decolonial collaborative study (as an interdisciplinary research team of Indigenous Elders, knowledge-keepers, and Indigenous and non-Indigenous scholars) responds to decolonizing climate change and drinking water goverance with Northern Indigenous communities in Canada. We explore how the recent climate crisis (and interpretation) is challenging Indigenous drinking water sources; and what is at stake in processes such as consultation, impact assessment, regulatory hearings, approvals (including negotiation of benefits), and monitoring. And, what reformed processes can build Indigenous community capacity and supports robust decisions? We focus on Indigenist community-led decolonial approach to climate justice and the connectivity between climate change and water governance and sustainability related to the interactions and inter-dependencies with health security, Indigenous environmental and cultural value protection. Indigenous knowledge-ways have much to offer in support of resiliency of climate change and water infrastructure in Indigenous communities, an intercultural reconceptualization of research methodologies, environmental sustainability, and educational programs which support Indigenous communities.

Focusing on decolonial community perspectives on climate change impact management and drinking water protection, our collaborative offers insight into Indigenous culture and community responsibilities of Indigenous climate justice to inform protecting drinking water performance review policy development. Our Indigenist designing, coordinating and hosting a traditional interdisciplinary story sharing on the relationship between climate justice and drinking water protection.

Developing effective and trustful engagement dialogues to build self-determination among Indigenous Elders, Knowledge-keepers, and scholars. Our collaborative study findings may have many meaningful implications for climate justice policy documents local, provincially, and nationally and assist in the articulation and practice of drinking water source protection as culturally and community informed.

Parallel Panel: Knowledge Systems

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.112 / Zoom

Chair(s):

Gerdus van der Laarse

Presentations (including names of presenting authors):

Boundary work on ocean space: Competing knowledge claims in the making of marine protected areas

Silvia C. Ruiz Rodríguez

States have endorsed an exercise to designate ecologically or biologically significant marine areas under the Convention on Biological Diversity. They identify marine areas in need of protection through regional workshops and shared criteria for future marine protected areas. The identification process of ecologically or biologically significant marine areas provides a unique case for studying interrelations between science and Indigenous and local knowledge, along with the role of knowledge in multilateral environmental policy-making. We combine the 'boundary work' concept with insights from critical geography and practice approaches to elucidate boundary practices. These highlight actors' efforts to demarcate ecologically or biologically significant marine areas; limit what could be considered Indigenous and local knowledge; negotiate the boundaries of marine areas needing protection, and the boundaries between science and Indigenous and local knowledge. We problematize conventional ocean protection views and knowledge selection patterns that solidified ecologically or biologically significant marine areas. We draw on ethnography during the 14th and 15th Conferences of the Parties to the Convention on Biological Diversity, four Workshops to identify ecologically or biologically significant marine areas, and interviews to reconstruct boundary practices and analyse how boundaries between knowledge types were negotiated on-site. Our analysis shows that political and territorial interests are deeply embedded in the process of identification of ecologically or biologically significant marine areas, challenging the integration of science and Indigenous and local knowledge. This highlights the need to conceive the ocean as a fluid space where territorialism hinders marine biodiversity protection.

The role of "knowledge" in water quality governance in the United States

Elphin Tom Joe

Worsening water quality around the world impacts human and ecological health; restoring and preserving water quality for current and future generations requires collaborative governance approaches that balance sometimes conflicting or competing values and diverse knowledges to

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

form evidence-based, implementable solutions to address water quality challenges. A critical step in this process is the sourcing, synthesis and application of data and knowledge from a variety of sources, including inter-alia scientific research, traditional ecological knowledge, and community-based or state led monitoring programs as well as navigating different data and information management systems. While prior research recognizes the importance of knowledge in good water quality governance, there is yet insufficient understanding of how the context in which this knowledge is developed influences its sourcing, synthesis, and application in water quality governance. In this paper, we conduct a systematic review to look at "what" and "whose" knowledge and "how" that knowledge came to be produced and applied in water quality governance in the United States. The objective is to shed light on the polycentric nature of knowledge production, the mechanisms of its utilization, and the actors, institutions and networks involved in marshalling knowledge for water quality governance. By illuminating the dynamic interaction between these elements, we hope to better understand how different types of knowledges and knowledge systems are used or not to shape water quality governance in the United States.

Here to Stay? Challenges to Liberal Environmentalism in Regional Climate Governance

David Krogmann

While regionalism is highly relevant in many policy fields today, regional idiosyncrasies have been poorly understood in the literature on multilateral climate governance. This article explores regional ideas of climate governance by comparing the Caribbean Community (CARICOM) and the Council of Baltic Sea States (CBSS). As international climate governance has institutionalized a normative compromise of liberal environmentalism since the 1990s, the article further assesses ideational challenges to this compromise. It examines how these ideas have evolved over time and explains variation between the organizations through the advent of new knowledge. Relying on qualitative content analysis of published documents as well as interviews with officials, the article finds that both CARICOM and CBSS have supported and reproduced liberal environmentalism in the past. More recently, CARICOM has started to connect climate change with notions of survival and justice, implicitly challenging liberal environmentalism, while CBSS firmly remains within established discourses of sustainable development and green growth. The article then argues that the advent of new knowledge from both scientific as well as anecdotal sources can explain the evolution of ideas in regional organizations. Problem definitions of climate change may evolve within regional organizations when officials gain new insights into scientific data from climate research, and are able to combine or confirm them with anecdotal experience from their day-to-day work.

Deliberation for Transformation: Exploring approaches for (self-)reflexivity and deliberation on the responsibility and ramifications of safe and just operating spaces for humanity and the planet

*Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations*

Sofie Gonnie Ryan

Reflexivity, as a general governance capability, has long been suggested as a valuable element of environmental governance, both due to the inertia in the systems that need to be changed and the complex nature of environmental problems that are also often characterized by complexity, often surrounded by uncertainty, and have implications for core dimensions of modern societies. Ecological reflexivity is a more specific elaboration of reflexivity in governance and has been conceptualized, in brief, as the capacity of an entity to recognize its impacts on social–ecological systems, rethink its core values and practices in light of this and respond as elaborated further below. In this paper, we seek to operationalize how actors/stakeholders in diverse institutional contexts (private–public–civil society) can acquire some degree of ecological reflexivity as an element of engaging in change processes. Based on a review of conceptual and empirical literatures on requirements for and experiences with deliberation and reflection in relation to environmental challenges, we explore diverse approaches to help individuals and groups in various contexts engage in inclusive deliberation on their own role and responsibility. As a concrete anchor point for such deliberation of responsibility, we use the concept of safe and just operating spaces for climate change, biodiversity, and people. Learning how to systematically and inclusively reflect on their own potential role in the required change and deliberate on action is, we propose, an essential capacity for becoming agents of (transformative) change.

Who sits at the table for the oceans? Access, participation, and inequality in representation in BBNJ and deep-sea mining negotiations

Thales Jéferson Rodrigues Schimitt

In the 21st century, ocean governance has been characterized by increasing transformations driven by technological advances, pressure from industrial sectors to expand the exploitation of marine resources and the need for sustainable use. Thus there is a growing concern with the regulation of human activities in areas perceived as gaps in global ocean governance architecture, which is translated into multilateral negotiation initiatives. In this respect, two issues are relevant and currently being negotiated, conservation and sustainable use of biodiversity beyond national jurisdiction (BBNJ) and deep-sea mining. The aim of this paper is to understand these negotiation processes through an investigation of access and participation of delegations, contributing to the study of agency and representation asymmetries within ocean governance. Based on international negotiation and bureaucracy studies, it is proposed an analytical framework of delegations profile in multilateral negotiations, which assesses quantity, diversity and institutional links of delegates, as well as an examination of constraints in access and participation in these formal settings of bargaining. Our hypothesis is that lack of transparency, barriers to access and inequality in representation lead to power asymmetries and negotiation capacity disparities, thus raising questions of equity in ocean governance. Regarding our object of investigation, we analyze lists of participants, official documents and reports of the Intergovernmental Conference on BBNJ, beginning in 2018 and currently in its fifth session, and the 27th Session of the International Seabed Authority. Subsequently, data from the multilateral meetings are interpreted and

Conference Stream(s): Architecture and Agency
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

compared in the context of negotiation processes. Initial results show that both conferences presented constraints to access to negotiations, especially in the context of the COVID-19 pandemic. In the latter sessions, participation of civil society has been limited, incurring a lack of transparency. Furthermore, there is inequality in participation, not only due to a lack of recurrent presence of developing states in negotiations but also due to variations in the composition of delegations. At the BBNJ Conference, there are asymmetries of representation in favor of those few actors who have great marine resource exploration capacities. In negotiations, larger and more diverse delegations use their resources, while delegations with greater limitations acknowledge structural adversities and seek alternatives. It is concluded that progress in global ocean governance is constrained by power disparities among agents, reproduced in multilateral settings through inequality in participation, raising concerns about the scope and the effectiveness of potential international agreements, as well as questions of equity.

Conference Stream(s): *Architecture and Agency*
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Democracy and citizen engagement

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Basil Bornemann

Presentations (including names of presenting authors):

Populating the Democracy Cube. Assessing Power Delegation, Participant Interaction and Representation in Participatory Governance

Jens Newig

The model of the "democracy cube" has led researchers internationally to assess the intensity of participatory governance in the dimensions of (1) power delegation, (2) participant interaction and (3) representation. This research contributes to the debate on assessing participatory governance in two ways: First, we discuss the dimensions of the democracy cube as to its empirical applicability, with a special view to whether and how each dimension constitutes a quantitative scale in the sense of "more" or "less" intensive participation, also drawing on recent literature that explicitly tests the model. Second, we perform a quantitative "test" of the model by drawing on a meta-analysis of 305 cases of (more or less) participatory governance from 22 countries in three continents To this end, each dimension was operationalised into one or more different items that were coded by three independent raters for each case. Also, more specific data on the participatory processes at hand, their contexts and outcomes were coded.

Perhaps most strikingly, we find the three-dimensional space as defined by the cube to be hugely unevenly populated. In particular, the dimensions of power delegation and participant interaction are highly correlated such that few cases exist which are high in power delegation but low in participant interaction and vice versa. When comparing average values of power delegation and participant interaction for different participatory formats (such as hearings, public meetings, roundtables or public referenda), those two corners of the cube remain virtually unpoluated. This raises questions about the independence of the two dimensions. The dimension of representation – who sits at the table – is most difficult to operationalize in a quantitative "less and more" fashion. Therefore, we defined a number of different items such as the number of participants, the share of participating professionals, and the mode of participant selection (targeted versus open). While some of these also shows a certain correlation with the dimension power delgation, the space is more evenly populated here. We conclude by discussing the usefulness of the democracy cube model for assessing participatory governance and propose suggestions for improvement.

New perspectives on citizen engagement in flood risk governance – a social practices approach

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Dries L.T. Hegger

The roles and responsibilities of citizens in flood risk governance and in climate adaptation more generally are receiving increasing attention. Citizens' involvement is deemed crucial to make societies flood-resilient. Besides that, more general policy discourses centring on 'community resilience', 'the Big Society' (UK) and 'the Energetic Society' (Netherlands) attach an important role to citizens. An emerging body of flood risk governance literature examines how institutions relate to citizens through processes of facilitation and co-production. Also risk awareness, action perspectives and motivations of individual citizens are more and more studied, mostly from social-psychological and behavioural economics perspectives. I argue that these perspectives need to be combined, integrated and enriched to arrive at better insights into citizens' roles and responsibilities. For this, I propose to use the social practices approach as developed in general social theory and further specified in environmental sociology. This approach takes the actual practices in which citizens engage as its main unit of analysis. Flood-relevant social practices include gardening (opportunities for inclusion of rainwater catchment technologies); refurbishing one's house (opportunities for dry or wet proofing, instalment of green roofs); building, buying and selling of a house (opportunities for prevention of urban development in flood-prone areas), amongst others. These practices are more holistically defined than the more narrowly defined policy domains of institutional actors. Applying the perspective provides opportunities for governance since it broadens ideas about the array of actors that can potentially play a role in flood governance and highlights a wider set of mechanisms through which citizens' flood-relevant knowledge, skills, attitudes and resources can be enhanced. Initial empirical examples from the Netherlands show the analytical and practical added value of this approach. There are emerging examples, for instance in the Dutch municipality of Dordrecht, where governmental actors made the effort to connect closely to the rationalities and concerns of citizens and discovered that the 'license to operate' that institutional actors had in the eyes of citizens was broader than expected. For instance, from the citizens' viewpoint, it would make perfect sense that the same institutional actor addresses mitigation and adaptation action taking. In conclusion, the social practices approach has the potential to connect and integrate individual-centred and institution-centred approaches and to complement them with new perspectives that help identify a broader array of governance options. Hence, the approach addresses an essential missing link in current research and practice on citizens' roles in flood risk governance.

Opening up and closing down citizen participation in the development of a new sustainable residential city quarter

Bernd Siebenhüner

Citizen participation has become a vital element both in research and technological development and innovation contexts and in decision-making and planning. It thus is a vital element of the governance of sustainability transformations addressing questions of democracy and legitimacy as well as reflexivity and transdisciplinarity. However, participatory processes are generally complex and dynamic and undergo various phases of opening up and closing down due to

mutually co-constituting phases of appraisal and commitment. In this paper, we therefore address the question of when and why participation processes are opened up and when and why they are being narrowed down. Based on the development of a conceptual framework, in this paper we seek (i) to analyse a relevant case study with regard to the participation process and its processes of opening-up and closing-down in the course of time; and (ii) to identify reasons for those opening-up and closing-down processes.

To study these research questions, we analyse the participation processes conducted as part of a development process of a new city quarter with about 900 new apartments in a municipality in Northwest Germany. It involved citizens from the community, the municipality itself as well as scientists from the local university in different phases of the planning and transformation of a former military air base into a multi-purpose residential, commercial and recreational city quarter. In this case of a new neighborhood, technological innovations towards a carbon-neutral smart city are tightly linked to social innovations and spatial questions such as community development, sustainable development, equality, and quality of life. The participatory process was launched in 2015 and developed in several phases until the present day. Data has been drawn from participatory observation in workshop events, six expert interviews, and document analysis of meeting minutes, evaluation data, and official planning documents. Results show that normative, substantive and instrumental imperatives support opening-up processes. The closing down could be observed in the narrowing of thematic, spatial, participatory, and methodological scopes. Reasons for closing down comprise financial conditions and external legal conditions as well as conflicting interests, corona restrictions, and stakeholder fatigue. However, narrowing the scope of participants proved critical for the legitimacy and the acceptance of the process by citizens and other stakeholders, it therefore merits critical attention in almost all participatory processes.

Talking towards transformation: exploring the potential of dialogues in sustainability transitions

Sanne Akerboom

Universities are called upon as agents of change to contribute to transformative change addressing sustainability challenges. This role concerns their immediate contributions to greenhouse gasses, but also how education and research activities are organized. For instance, the latter addresses the role of universities in public debates and stimulates researchers to engage with the broader public. It can moreover entail the way research is organized, with whose input and collaboration. Transdisciplinary collaborations, e.g., processes of mutual learning between science and society, often aim to address specific sustainability challenges and can take many different shapes and forms. Academics for instance organize workshops, roundtables, transition arenas, dialogues and other meetings and projects aimed at co-creating knowledge for sustainable futures. Moreover, scholars are increasingly collaborating with artists and designers within these meetings and projects. However, the contribution of such initiatives towards solving grand sustainability challenges is diffuse and difficult to evaluate.

Conference Stream(s): Architecture and Agency
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

In this paper, we will explore the potential contribution of multi-stakeholder dialogues as a form of transdisciplinary collaboration that is aimed at contributing to transformative change. Specifically, we look at the role of artists and designers in enhancing the quality of the dialogues using art installations and arts-based methods. We will first conceptualize the transformative potential of dialogues and the role of artists within that and secondly investigate a case-study of an ongoing transdisciplinary research network in the Netherlands [Network removed for anonymous review process].

First, we will briefly explain the nature, characteristics and possible outcomes of transdisciplinary collaborations and conceptualize transformative change. Second, we will focus specifically on the method of multi-stakeholder dialogues, as these interactions hold explicit benefits over other types of interaction. For instance, dialogues challenge participants to listen, and make explicit the values underlying their opinions, allowing for socially constructive conflicts. The way these dialogues are held, and especially within what spaces and how knowledge is shared is pivotal to unlock the sketched benefits. A positive contribution is attributed to use of arts, arts-based methods and the sharing of knowledge and data through visualizations, but little is known about how art can be optimally used to support transdisciplinary collaborations, or multi-stakeholder dialogues. Therefore, we will thirdly investigate how the role and contribution of art has been conceptualized in literature thus far, drawing lessons for the upcoming Sustainable Industry Dialogue. Lastly, we will explain the background and work of [Network removed], specifically focusing on the Sustainable Industry Dialogue.

Conference Stream(s): Architecture and Agency
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Urban transitions and transformations

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.120 / Zoom

Chair(s):

Karina Barquet

Presentations (including names of presenting authors):

Just, urban transformations through resilience innovations? Comparing the policy implementation in cities of the Global South and North in the 100 Resilient Cities network.

Elisa Kochskämper

Local innovations and experimentation are highlighted for policies and practices that lead to urban transformations through spatial and temporal expansion and diffusion. However, scholars criticize that rationales for and narratives on urban innovation and experimentation frequently maintain the political and economic status quo and reproduce socially unjust urban realities. Moreover, a major research gap remains on the actual implementation of local action that strives for transformation. Empirical findings are particularly missing when it comes to comparative research on systemic urban resilience that goes beyond climate adaptation. The 100 Resilient Cities (100RC), now the Resilient Cities Network, represented a transnational municipal network that financially supported the development and implementation of local resilience action in participating cities under a broad resilience definition. Partaking cities had to identify potential external shocks and systemic stresses, i.e. present underlying problems for vulnerabilities, across a spectrum that included ecological, economic, societal and built environment spheres. Based on these perceived shocks and stresses, cities had to craft related policy actions in a resilience strategy to establish adaptation pathways for the future.

Against this background, this paper asks: Have urban resilience innovations been implemented and scaled to support socially just transformations? The study examines (1) to what extent and (2) in which thematic areas 100RC cities incorporated innovations and experimentation, (3) whether temporal and spatial scaling was foreseen, (4) which rationales and narratives surround the planned practices (e.g., techno-centric, socially just, challenging/ maintaining the status quo) and (5) whether and how they were implemented and potentially expanded temporally and spatially, including foreseen and actual participating actors.

To explore the research question, in total 1200 actions were systematically coded in 30 of the 74 resilience strategies in cities from the Global South and Global North. The first results show that experimentation and particularly the continuation of (social) innovations only make up a small part of planned actions in the Global South and North alike (120 and 65 actions in total respectively). For this study, I will analyze these actions according to the first four research

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categories presented above through qualitative and discourse analysis. Subsequently, I trace their implementation through a survey on and interviews of implementing actors mentioned in the actions. Based on this analysis, I compare the results to explore emerging patterns in implementation and the role given to social justice in urban innovation and experimentation across cities in the Global South and Global North.

Insider-outsider dynamics in mobility transitions: A comparative study of German cities

Daniel Peter

As part of reaching a sustainable society, our collective mobility behavior needs an urgent transition to sustainability. Such large scale change requires challenging and disrupting beliefs, routines and institutions, i.e. what is considered normal by most. This process necessarily has to be initiated and facilitated by certain actors who have been categorized in the sustainability transition and transformation literature in a variety of ways: niche agents, entrepreneurs, activists, intermediaries or generally forerunners and change agents. However, to understand and enable this change better, the interaction dynamics between these change agents and regime agents requires further research.

In our study, we take the novel perspective of viewing these agents as a kind of outsiders: Individuals, that are fundamentally deviating from the norm paired with their attempt to change society. Specifically, we are interested in what we call epistemic outsiders, i.e. agents whose beliefs differ from a reference system substantially. These epistemic outsiders have a particular transformative agency, lying in convincing other agents of their different viewpoints, practices and strategies to initiate disruptive change in social systems. Convincing regime agents in crucial roles to effectively disrupt core structures within regimes' sub-systems are essential for unlocking system stability and enabling change.

With this theoretical framework in mind, we will look at insider-outsider dynamics in different German cities on the topic of transport modes. We aim to identify key properties and relations for fostering change towards sustainability in the local mobility domain. We use an interdisciplinary approach of transition studies and psychology in an observational study. First, we will identify important stakeholders in each city (i.e. different types of outsiders as described above and regime agents, which we view as epistemic insiders) and examine how they relate to each other with a stakeholder mapping. We then use repertory grid interviews and cognitive-affective mapping as well as additional semi-structured interviews to look at the belief systems of stakeholders and their perspective on interactions, conflict and corresponding spatial relations between different agents. This approach combines qualitative and quantitative methods to provide detailed insights on the insider-outsider dynamics in the local mobility domain in the cities.

Insights about how interactions between usually conflicting groups can become more fruitful in the sustainability transformations context are indispensable and so far underrepresented in research. A better understanding of the underlying dynamics between insiders and outsiders does inform governance approaches and policy interventions to foster sustainability transitions.

Conference Stream(s): Justice and Allocation
Architecture and Agency
Anticipation and Imagination
Inter- and Transdisciplinary for Sustainability Transformations

Comparing US and Canadian federal frameworks for the governance of metropolitan regional transport decarbonization

Mark Purdon

In this paper we report on a comparative investigation into the governance of the decarbonization of transportation systems of major metropolitan regions in the US and Canada. It draws on over thirty key informant interviews in Montreal, Toronto and Los Angeles over 2020-2021. Results point to differences in terms of governance organizations as well as institutions that might be attributed to different federal institutional frameworks. First, unique multilevel governance organizations in the US exist for institutionalizing the regulation of transport-related pollution, namely federally mandated Metropolitan Planning Organizations (MPO). These have been harnessed by the Californian state government to advance climate objectives at the metropolitan regional level. Such organizations have no analog in Canadian federalism, where the transportation planning process is more politicized and provinces have traditionally played a stronger role. Second, we find considerable differences in institutions for land-use planning. In the US federal system, land-use planning is vested in local governments and outside the jurisdiction of MPOs. This has made coordination for transport decarbonization at the regional level challenging. In contrast, under Canadian federalism, land-use planning is a matter of provincial authority, given that local governments are treated as "creatures of the provinces". Our results suggest that a combination of US and Canadian institutional elements might be more effective. Finally, we discuss findings in light of theories of transnational and multilevel climate governance.

Factors influencing city adoption of climate change policies: A global systematic review

Christopher J Orr

Cities around the world have emerged as critical actors to adapt to and mitigate climate change. However, research on the factors that drive city climate action have focused on the global North and these factors have not been systematically studied at a global scale. Understanding this global picture is important because cities face different contexts, challenges, and opportunities related to climate change. Cities that attend to the range of factors that influence their success can achieve targeted and effective climate action. This global systematic review investigates the factors that influence whether cities adopt, continue, increase, or abandon climate policies and actions. We identify differences in the factors studied, their strength of influence, geographical focus, methods, and focus on climate mitigation, adaptation, and resilience. We find that factors related to government capacity are studied the most, while environmental factors and factors related to the built environment are understudied. Fiscal capacity, city climate network membership, and motivations of politicians and governments have the strongest influence. In the global south, few studies have considered environmental factors, city structure, or the built environment, while government structure has received more attention. Few studies that focus on the global South use large-N quantitative methods, with an absence of quantitative analyses in some regions.

Environmental factors such as extreme events and proximity to coasts influence adaptation more than mitigation. This global analysis reveals strengths, research gaps, and emerging trends that can improve how cities govern climate change and make city climate policies more targeted, effective, and ambitious.

Innovative Session: Co-creating novel nature-based governance: a coevolutionary perspective

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.125 / Zoom

Chair(s): Tatiana Kluvankova, Juha Hiedanpää

Presenter(s): Claire Hardy, Marco Janssen, Mia Pihlajamäki, Carsten Herrmann-Pillath, Martin Spacek, Olena Shelvytska

Co-creating novel nature-based governance : a coevolutionary perspective

Nature-based solutions (NBS) are arrangements or doings that co-benefit both particular human groups and their natural environment. As practices currently stand, NBS have not sufficiently managed to include local communities, especially the marginalized and vulnerable human groups and nonhuman actors as true beneficiaries and co-creators of these solutions. Horizon Europe project **COEVOLVERS** ("Coevolutionary approach to unlock the transformative potential of nature-based solutions for more inclusive and resilient communities") offers a new view by critically assessing the socio-political-ecological contexts of NBS for more inclusive and resilient communities, i.e. showing a vision and practice for good NBS governance and sustainability transformation. Coevolvers is engaged with seven Living Labs representing different communities and challenges across Europe including a social hub for human-nature contact in Scotland, Payment for ecosystem services for wildfires in Catalonia, health rehabilitation in Hungary, digital commons for cross border water sharing on the Czechia and Slovakia border, greening post-industrial site in Finland, multispecies community forest in Estonia and saline park in Sardinia https://co-evolvers.eu

Session explores **co-creation an original coevolutionary approach** with the use of digital tools as well as **behavioural and art-based** creative methods to boost **transformational change** of NBS through experimentation and social learning and empirical experience from participating living labs (LLs). Each panelist will prepare a short introductory presentation (6 minutes) which will be followed by moderated discussion, along with posters wall to represent Coevolvers LLs. Key questions to address are:

(i)How can cocreation increase legitimacy of NBS to address socio-political dimension?
(ii)How digital and art based tools contribute to NBS governance and inclusion of Non humans and vulnerable groups?

Parallel Panel: Governing synergies and trade-offs at the intersection of biodiversity and climate change

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR -1.075

Chair(s):

Ina Lehmann

Jonas Hein

Jean Carlo Rodriguez-de Francisco

Session Overview: Governing synergies and trade-offs at the intersection of biodiversity and climate change

Environmental governance increasingly seeks to address the interlinkages between biodiversity loss and climate change. We observe such attempts at different political scales, in different governance approaches, and in conservation instruments such as nature-based solutions (NbS) and protected areas. However, the modes, effects and the interplay of governance at the intersection of biodiversity and climate change are only beginning to be researched and understood. This panel unites papers that, viewed together, address biodiversity-climate interlinkages from global to local levels and through different approaches. In synopsis, the papers show where synergies and trade-offs arise, how these are reinforced by existing governance mechanisms and how synergies could be strengthened and trade-offs minimized. The panel kicks off with a discussion of biodiversity-climate interlinkages in the Kunming Montreal Global Biodiversity Framework, GBF. In particular, the authors elucidate what lessons the GBF's non-state action agenda can learn from the non-state action agenda under the Paris agreement for better alignment of biodiversity and climate action. This is followed by two papers engaging with the rapidly rising but highly contested concept of NbS, meaning measures that claim to be inspired and supported by nature to tackle societal challenges like climate change. [Author's name removed for anonymous review process] and colleagues discuss the challenges that arise for the legitimacy and effectiveness of NbS as project cycles are frequently neither aligned with the long duration of ecosystem processes nor with the timing of institutional reform processes. Thereafter [Names removed] further point to the importance of context sensitivity and show how exclusionary NbS can undermine environmental justice in its distribution, participation and recognition dimensions. The final paper [Names removed] analyses conflicts between social and ecological objectives in Caribbean marine protected areas in the context of climate change. In particular, it asks whether initially consensual stakeholder agreements may have detrimental ecological consequences.

Presentations (including names of presenting authors):

An action agenda for the Kunming-Montreal Global Biodiversity Framework: aligning goals for nature and climate

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Idil Boran

In December 2022, 196 countries agreed to new goals and targets to halt and reverse biodiversity loss by 2030. The Kunming-Montreal Global Biodiversity Framework (GBF) has four overarching goals and 23 targets to halt and reduce global biodiversity loss. After years of negotiations and delays, the adoption of the GBF is seen as a breakthrough bringing a new hope for the world to halt and reverse the global biodiversity crisis. The success of the Global Biodiversity Framework, however, depends on its implementation. During the negotiations, the presence of non-state actors stood out, particularly forward-looking voices from the business and financial sectors, civil society and Indigenous Peoples associations and networks around the world. Such engagement gives a glimpse of the role actors beyond governments could play in the implementation.

This paper's goal is to set a theoretical framework from a planetary health perspective to support a research and policy outreach programme for a biodiversity action agenda. The Convention on Biological Diversity (CBD) has an opportunity to mobilize an action agenda to keep the momentum created by civil society, business, and subnational actors during the negotiations to support implementation. Similar agendas exist, the largest being in support of the implementation of the Paris Agreement on climate change. An action agenda tailored to the GBF has an opportunity to draw lessons from these examples and develop design principles that support specific goals. These include alignment with climate goals, reducing trade offs, setting criteria for credibility of actions and monitoring progress, and integration of human health, and social and equity goals in line with respect of the rights and acknowledgement of the efforts and knowledge of Indigenous Peoples and local communities in nature recovery and protection.

We conduct a rapid literature review on the global climate action agenda and the emerging literature on a biodiversity action agenda to identify key issues and design principles that have been proposed. Then, a systematic document analysis of policy documents and gray literature before and after the adoption of the Kunming-Montreal Global Biodiversity Framework allows for setting priorities for the GBF. We present the findings and discuss in light of example cases of community-centered nature protection and restoration initiatives in the Amazon. The discussion focuses on how the proposed design principles can respond to context-specific opportunities and challenges for scaling up local actions and alignment with climate goals, followed by opportunities for future research and policy engagement.

Taking time. How research and practice take account of the temporal dimension of the governance and management of nature-based solutions

Ina Lehmann

Nature-based solutions (NbS) are an increasingly popular approach for addressing the interwoven climate and biodiversity crises. According to the definition by IUCN, they are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature. While the capacity of NbS interventions to deliver social and environmental benefits has been critically scrutinized ever since the emergence of the concept, we argue that an important factor influencing their implementation has been largely neglected so far: their temporality.

NbS interventions are commonly designed as projects with a duration of a few years. However, ecosystems may take longer to respond to new management practices and ecosystem governance or management may also change rather slowly. Looking beyond project periods is thus of major relevance. Moreover, the pace of ecosystem and institutional change may vary and it is not yet clear how such divergences affect the implementation and outcomes or even impacts of NbS interventions.

In this paper, we analyze if and how research and practice consider the temporal dimension of NbS and identify key factors that need to be considered in order to match the design of an NbS initiative with the time frames of ecological and institutional processes. We base our analysis on a systematic review of academic literature on NbS as well as on a review of the self-reported activities of international cooperative initiatives (ICIs) in the field of NbS. ICIs can be composed of different types of actors and therefore capture the move of sustainability governance beyond purely state-based rule setting and implementation.

Overall, we find that the temporal dimension of NbS is underacknowledged by both researchers and in the practice of ICIs. That said, our more fine-grained findings include: It is not sufficiently taken into account how different types of NbS require different project time scales. In most cases, NbS planning needs to be much more long term, including notably long-term community involvement, long-term monitoring and long-term financial commitments. In particular, risks change over time in response to climatic, social and institutional changes. We conclude by outlining the need for much more interdisciplinary approaches to account for different social, institutional and ecological temporalities of NbS.

Senses of environmental (In)justice on Nature-based solutions in Colombia and Ecuador

Jean Carlo Rodriguez-de Francisco

Many governments, businesses, academics, and practitioners support Nature-based Solutions (NbS). NbS are a cornerstone of various international agreements that seek to address pressing societal and ecological issues, among them the Sustainable Development Goals, the Paris Agreement on Climate Change and the post-2020 Global Biodiversity Framework (GBF). NbS are actions inspired and supported by nature to tackle societal challenges like climate change and benefit biodiversity and human well-being. While the global perception of NbS is mainly positive, critical social research has questioned their win-win framing by pointing out their limited capacity to address (in)direct drivers of climate change and biodiversity loss (transformative powers) and how they can reinforce or create negative social implications. This article analyzes information on three different NbS projects (area-based conservation, ecosystem-based adaptation and ecosystem-based mitigation) to assess them from an environmental justice perspective. It employs the concept of 'senses of (in)justice' amongst Indigenous Peoples (IPs) and Local Communities (LCs). It draws on semi-structured interviews, focus groups, and participant observation data. The paper demonstrates the interlinkages between different dimensions of environmental justice (i.e., distribution, participation and recognition) and the importance of accounting for political-economic and historical context when designing and evaluating NbS. While these projects can be socially transformative at the local level, exclusionary practices (e.g., related to who is allowed to participate in decision-making, supporting elite natural resource control) and

lack of traditional knowledge uptake prevent the projects in question from reaching that potential in terms of distribution, participation and recognition of diverse worldviews. NbS are implemented not on empty social landscapes, power asymmetries shape NbS priorities, whose knowledge counts, and how rights, resources, and benefits are distributed and so are injustices created or reinforced.

Take the fish out – marine conservation revisited

Yvonne Kunz

Climate change and rapid loss of biodiversity, accompanied by growing social inequalities, are among the most pervasive challenges facing humanity. Recent literature urges us to think about climate change and biodiversity loss as being intimately intertwined. Marine Protected Areas (MPA) aim to preserve marine biodiversity. At the same time, MPAs offer, according to the IUCN (2017), "nature-based solutions to support global efforts towards climate change adaptation and mitigation". A paradigm illustration of the interconnectedness of biodiversity and climate change in governance perspective. But, how are these intersections negotiated on the local MPA level? How do narratives, prominent in the conservation scene, unfold on the local level? This paper aims to explore some of the key tensions and contestations informing the conservation of marine biodiversity in the Caribbean islands of Bonaire and Aruba. Making use of interviews carried out by an interdisciplinary team of social scientists, natural scientists, and practitioners, the paper takes as its point of departure a critical examination of what [Author's name removed for anonymous review process] calls "conservationland," that is, the "social worlds, institutions, values systems, worldviews, emotions, and everyday labour" of conservation professionals. Our aim is to shed light on some of the key debates and contestations that have arisen between conservation professionals and other social groups on the islands. Disagreements that appear to be relatively minor from an ecological point of view – such as local people's rights to fish – turn out to become near-unsurmountable once they take the shape of cultural clash, thereby severely constraining conservation efforts. This begs the question of whether the opposite also occurs. Are stakeholder agreements that look positive and constructive from the outset – about the importance of ecotourism, for instance – potentially disastrous ecologically?

Innovative Session: Exploring "Planetary Health" in the Context of Earth System Governance

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.133 / Zoom

Chair(s): Kathryn Bowen, Annabelle Workman

Presenter(s): Charles Ebikeme, Sharon Friel, Rosalind Warner, Godfred Boateng, Alexandre San Martim Portes, Scott Carlin

Exploring "Planetary Health" in the Context of Earth System Governance

This innovative session will bring together researchers, policy makers and practitioners interested in the concept of "planetary health" for a roundtable/workshop to discuss the diverse definitions of "planetary health" and what the evolution of the concept means in the context of the Earth System Governance project. Discussions from the roundtable will feed into the research agenda of the ESG Working Group on Planetary Health Justice.

The workshop will be designed to facilitate:

- discussion on how planetary health synergises and differentiates itself from other concepts such as One Health;
- agreement on the parameters of a working definition of "planetary health" for the purpose of advancing discourse around environmental, human and animal health in the Earth System Governance project;
- meaningful knowledge exchange on existing evidence and application through presentations from select researchers, policy makers and practitioners in attendance; and
- knowledge gap identification through brainstorming and workshopping with participants.

The session is intended to extend conversations within the community that have begun and will progress in 2023 through a special issue (currently being proposed and developed in consultation with ESG journal co-editors).

Parallel Panel: National institutions for climate and sustainability transformations

Chair(s):

Marta Berbés-Blázquez

Presentations (including names of presenting authors):

National sustainability institutions in a global comparison: introducing a global data set

Okka Lou Mathis

Governance is a bottleneck in the quest for the transformation to sustainability; hence, many scholars claim that (democratic) political institutions need to change in the context of the Anthropocene and long-term challenges. One aspect is whether and how governments adapt political decision-making to consider profound global and long-term challenges like the climate and sustainability crises. Against this background, I focus on the role of specialized political bodies for sustainability, which I call "sustainability institutions".

In the proposed paper, I introduce a cross-sectional data set offering an overview of roughly 200 diverse sustainability institutions that countries across the world had implemented by 2020 at the national level in order to promote sustainability in the executive and legislative spheres. The data set comprises sustainability institutions in the sense of public, cross-sectoral and permanent bodies, aiming to promote sustainability in terms of socio-ecological well-being with an orientation towards the future and embedded into global frameworks.

The data set covers variables on basic information about national sustainability institutions including their name, country, and world region, the year of their implementation etc. Further, it includes variables on both their structural dimension such as their links to the executive and the legislative bodies, and their substantial dimension in terms of their covered sustainability areas, future-orientation and reference to UN sustainability agendas.

The data set serves various purposes: First, the data set is an original contribution to the research and policy fields of sustainable development because it combines data on different types of sustainability institutions that were so far scattered over different databases or those with limited regional foci. Second, the data set facilitates comparisons regarding countries' institutionalisation of sustainability according to key features. Third, the dataset serves as a basis for further research on the empirical phenomenon of sustainability institutions, e.g., as point of departure for in-depth case studies, or as a building block for large-n analyses like potential relationships with other variables such as progress on sustainable development, levels of democracy, or the like.

In the paper, I introduce the data set in terms of methodology and present findings from a descriptive comparative analysis regarding the main features and peculiarities of national

sustainability institutions around the globe. The paper mainly contributes to the ESG research streams of Architecture and Agency as well as Democracy and Power.

Climate Transparency in Australia: Furthering or Distracting from Meaningful Action?

Ellycia Harrould-Kolieb

Australia has long been termed a 'climate laggard' in international climate negotiations and policy making. Nevertheless, Australia has one of the best records for reporting within the climate regime. It has long been assumed that with better reporting will come better state behaviour. Thus, it could be expected that given Australia's extremely strong track record of reporting under the transparency requirements of the United Nations Framework Convention on Climate Change and subsequent climate agreements, that there would be a convergence with strong climate policy. This, however, has not borne out. Therefore, this research asks, what, if any, are the impacts of reporting and review on Australian climate policy.

This paper first provides an historical account of climate policy in Australia and it major turning points and actors. This is followed by a tracing of Australian climate reporting and review. This is achieved through document analysis and interviews to better understand who prepares the reports, how they are prepared and used, and how reviews of Australian reports are received and responded to. This tracing provides a detailed picture of Australian climate reporting and review processes, which to date, have not been documented. This also allows for an analysis of the convergence, or lack thereof, between climate policy making and reporting and review.

This research contributes to a wider body of transparency work which is attempting to understand the substantive effects of transparency requirements and whether such requirements truly result in positive change or simply act to distract from it.

Measuring China's climate policy mixes in the post-Paris era: climate policy mixes balance, design features, and beyond

Xiaoran Li

The Paris Agreement established a new international framework to accelerate the reduction of greenhouse gas (GHG) emissions in which countries agreed to maintain the global average temperature rise to well below 2°C above pre-industrial levels. As each member state of the Agreement defines its own nationally determined contributions (NDCs), a key condition for achieving the Paris goal is domestic climate actions of large emitters. Hence, national climate policy (i.e., sectoral or overarching policies aimed at lasting emission reductions), plays a central role in governing climate change under the Paris Agreement and is now a focus of the literature on climate governance. As the world's largest emitter of GHGs, China plays an essential role in meeting global climate goals, and it requires a variety of public policy interventions to steer its direction. However, to date, the characteristics of China's national climate policy mixes remains underexamined, and this knowledge gap prevents researchers from objectively and systematically assessing the progress and ambition of China's efforts toward its climate commitment. In this

study, we investigate China's climate policy mixes through a two-level, bottom-up approach that examines the "Macro-level (policy mix balance)" and the "Meso-level (policy intensity)" characteristics. Particularly, policy mix balance is measured by evaluating the dispersion of policy instruments across different instrument types by applying the International Energy Agency's categorisation of policy instruments along nine different types. On the other hand, policy intensity, i.e., the strength of policies toward specific goals, is measured by a revised version of [citation removed to annonymize abstract]'s (2015) Index of Policy Activity (IPA), which is an aggregation of six indicators: objective, scope, integration, budget, implementation and monitoring. More specifically, we compile a novel dataset of 342 national climate policies published from 2016 to 2022 by the Chinese central government, assess each policy with this two-level analytical framework, and then aggregate systematically at the policy mix level. Our contribution unfolds into two parts: first, we unpack the policy mixes that China has adopted and identify their key design features and temporal dynamics, e.g., the instrument balance and intensity among different sectors and the preference for adopting some specific type of instrument. Second, based on the aggregate results, we further examine the strength and weaknesses of China's national government's efforts to implement climate policies to influence long-term policy change and fulfill its NDCs.

Imagining Future Power Production Futures in Saskatchewan, Canada

Margot Hurlbert

Solving climate change mitigation in relation to power production systems to achieve Paris Commitments of maintaining waring well below 2 degrees Celsius is daunting. Involving people in strategizing and imagining a decarbonized future shows promise. This article reports on two day Citizen Juries held in four communities from 2021-2022 in Saskatchewan, Canada. Historically a fossil fuel, oil and gas region, Saskatchewan is an appropriate case study for transitioning to clean and renewable power production.

Two day deliberate focus group discussions in the communities were preceded and followed by surveys to measure preferences for power production sources, priorities in relation to strategy, and social learning. Qualitative analysis of discussions and strategies and recommendations for climate mitigation were anlayzed for case study comparisons and differences.

The four communities exhibited place based attachments and priorities dependent on both surrounding industry and power production sources. Coal, oil and gas communities continued to support fossil fuel generation together with carbon capture and sequestration to a greater extent than other communities. While there is high support for renewables, a wind power generation community made interesting comments and expressed concerns over expansion of this source of power production, but did evidence social learning. This community ranked natural gas pre citizen jury as the preferred source of power production, but revised this after learning about its Greenhouse Gas Emissions (GHGs). The four communities expressed divergent perceptions surrounding Small Modular Reactors (SMRs); all communities favour renewables (wind, solar, hydro-electricity).

While cost of power production sources and impact on Gross Domestic Product was a significant concern at the beginning of the citizen jury, it decreased substantially by the end of the citizen jury. Participants stated, "cost shouldn't hinder the goal' of addressing climate change. Full life cycle costs of all power production sources need to be considered. Jurors made concrete recommendations for government surrounding leadership, education and citizen participation.

Identifying and mapping interactions of policies within policy mixes for climate change mitigation: a network analysis

Valeria Zambianchi

The structure of policy arrangements for the governance of climate change mitigation is defined as complex. Existing literature suggests that adopting a system perspective on such structures allows to unfold the complexity and it does so by employing the concept of policy mixes. This argument originates from the observation that governments have adopted an ever-increasing number of policy instruments which co-exist and evolve together over time as policy mixes for the mitigation of the climate crisis. Yet, to date, we have limited knowledge on if (and how) policies within the same policy mix interact with each other in addressing the climate crisis.

This paper focuses on this knowledge gap by employing a network lens to the study of policy interactions within mixes for climate change mitigation. It researches the case of the electricity sector in the United Kingdom (UK) and its national level policy mix from 1956 (year of adoption of the Clean Air Act, considered a milestone in the UK environmental legislation) to 2022. This paper initially delineates this historical mix and populates it with policies, which is innovative for two reasons. First, I take a historical perspective, while most studies on policy mixes consider one point in time or a shorter time span. Second, drawing on archival research, I include both explicitly labelled climate policies and policies impacting the process of climate change mitigation in the electricity sector without the climate policy label, e.g., financial acts.

Next, I build a network where nodes are policies included in the mix and edges are the bilateral interactions between policies. This paper considers "shared target" as a mode through which policies interact with each other. It refers to the bilateral interactions between policies sharing ends and/or aims, as stated in policy texts. Halting the generation of fossil fueled electricity and uptaking ready-to-deploy renewable energy technologies are urgent steps to pursue to mitigate the climate crisis. Thus, fuels and technologies are the targets under analysis for this paper. Once fuel and/or technology targets are identified for each policy, potential target-interactions are detected and classified as either synergistic or conflictive for climate mitigation. The analysis maps policies in a network and ultimately shows if policies have historically interacted with each other in synergy or in conflict for mitigation of the climate crisis. In conclusion, this study analyses policy interactions to better understand the architecture of policy arrangements addressing the climate crisis.

Conference Stream(s): Architecture and Agency
Anticipation and Imagination

Parallel Panel: Business-led partnerships and government: constructive engagements for sustainability transformations?

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.129 / Zoom

Chair(s):

Marijn Faling

Greetje Schouten

Discussant(s):

Hilde Toonen

Session Overview: Business-led partnerships and government: constructive engagements for sustainability transformations?

Business-led partnerships, e.g. focusing on inclusive business or sustainable value chains, are central to development policies and projects. Such partnerships originate from the premise that complementary resources from different sectors are needed to successfully address sustainability challenges, and that an active role for business contributes to well-functioning markets and growing economies. However, the past decades have demonstrated that the effectiveness and legitimacy of such partnerships require critical scrutiny.

Although partnerships may be instigated by a push away from government, the relationship of partnerships with government is vital. Most importantly because partnerships unfold in existing institutional settings, which are for important parts co-shaped by government. As such, connections with the public sector are expected to matter in realizing development objectives. To name but a few examples of how partnerships and government are related, governments might be essential in addressing or coordinating fragmented aid landscapes, government support may be vital for scaling and sustaining partnership initiatives, partnerships might need to tailor their practices and processes to locally embedded practices of problem-solving, may need to include government to address existing asymmetric power relations, or may hold corporations to account and regulate or curb unwanted corporate practices.

However, the ways in which connections with (local) governments foster the functioning of partnerships remain conceptually understudied. Although the critical role of governments is increasingly acknowledged, articulations of partnership – government relations frequently reduce public institutions to passive 'enabling environments' or may suggest bypassing government institutions entirely to avoid unwanted practices associated with government, including poor quality state institutions or clientelism.

In this panel we would like to explore the ways in which partnerships may (constructively) engage with government and explore how the connection between partnership and government interacts with objectives of inclusive development.

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Presentations (including names of presenting authors):

Understanding system change: government crowding in on inclusive agribusiness

Marijn Faling

Inclusive agribusiness (IAB) is increasingly viewed as a means to transform food systems. The approach aims to include small-scale producers and entrepreneurs equitably in agri-food chains and enable resource-scarce consumers access to nutritious food, in a commercially viable manner. By addressing market failures and coordination problems, inclusive agribusiness is assumed to transform the fabric of the food system. However, many IABs remain isolated and have limited effectiveness in addressing the root causes of poverty, inequality, and environmental degradation. Despite growing support for inclusive business approaches by the public sector, it is largely unknown how inclusive business may foster change beyond their direct interventions to support the transformation of wider institutional contexts.

Crowding in, whereby other actors in the food system adjust their practices in reaction to and in accordance with the inclusive business, frequently features as a pathway towards system change. However, there is limited conceptual unpacking of crowding in, and much is still unknown regarding the conditions and processes of crowding in on inclusive business initiatives. In this paper, we focus specifically on processes of crowding in related to the public sector. We aim to identify conceptual pathways of crowding in by public actors on inclusive business, detail the conditions for crowding in, and identify leverage points to foster crowding in.

To that end, we take an abductive strategy and use inductive and deductive elements to connect conceptual approaches with empirical observations. We explore various relevant literatures including institutional political economy, value chain literature, partnerships literature and public administration, to conceptually capture pathways of public actors crowding in on inclusive business. Simultaneously, we study an empirical manifestation of crowding in related to KDPL, a farmer-owned dairy company in Kenya, supported by the Dutch incubator program 2SCALE. We focus on a case of crowding in by the County Agriculture Office, which increasingly acknowledges the inclusive business as linkage between county and farmer, resulting in increased support for the objectives of the inclusive business.

Tentative results demonstrate the government deploys a combination of two pathways: one organizational-interests-informed, whereby public actors align with IAB to stimulate more proactive social and environmental improvements, and one issue-informed, whereby the public sector incentivizes inclusive business as a source of jobs, innovation, or growth. We conclude that under conditions of resource scarcity inclusive business might complement county government resources, in turn enjoying a 'license to operate' from the government, functioning as flywheel effect of reciprocity.

Assessing the Transformative Potential of Multi-Stakeholder Partnerships for the Sustainable Development Goals: Evidence from 179 Case Studies

Oscar Widerberg

Multi-stakeholder partnerships are expected to play a significant role in realizing Agenda 2030 and the Sustainable Development Goals. However, there is a lack of understanding about the

transformative potential of these partnerships and the type of transformations they enact. This paper addresses this gap by examining whether transnational multi-stakeholder partnerships use transformative frames when describing their purpose and goals and, if so, what type of instruments for achieving transformations are proposed. The study operationalizes four frames of green transformation to analyze a sample of 179 partnerships. These frames include technocentric, marketization, state-led, and citizen-led transformations.

The study applies a dictionary of key words and concepts, derived from academic and grey literature, on the mission statements, annual reports, and other text-data produced by the partnerships. The framework uses automated content analysis and structural topic modeling to analyze 179 active transnational multi-stakeholder partnerships for sustainable development. The results of the analysis are then used in a multivariate regression model to determine which type of partnership uses which frame of transformation.

The results suggest that multi-stakeholder partnerships are biased towards state-led and technocentric frames of transformation, rather than disruptive – citizen-led – frames such as degrowth or post-growth. The results raise questions about the capacity and ambition of these partnerships to contribute to transformative societal changes. The findings are discussed in the context of renewed interest in multi-stakeholder partnerships for achieving the sustainable development goals and the reasons behind the preference for certain frames over others.

Making the last count first

Nicky Pouw

Inclusive development refers to "development that includes marginalized people, sectors and countries in social, political and economic processes for increased human well-being, social and environmental sustainability, and empowerment". Inclusive development interventions and policies should therefore focus on how 'to make the last count first', instead of 'leaving no one behind'. This implies that development stakeholders, create the necessary conditions and criteria for the most marginalized to be reached and empowered to participate primarily on their own conditions and priorities. Many private and public sector stakeholders have been paying lip-service to 'inclusive development' without thinking deeply about whom, what and how to include the marginalized and how to work with them for longer term sustainable impact. Private businesses and companies want to increasingly realize a positive social and/or ecological impact, in line their own inclusive development aims, or in relation to an external framework such as the UN 2030 Sustainable Development Goals or the Green Transition. Irrespective of the framing, the governance of realizing inclusive development objectives hinges on (i) internal alignment with employees' values and work ambitions (ii) external alignment with real-life issues and challenges in the (local) context of business operation, and on (iii) strategic leadership that has internalized a transition towards inclusive development business outcomes. This implies the development of internal and external connections that are meaningfully centered around the priority developmental issues and stakeholders. Private sector businesses and companies could liaise with governments to build such networks, define inclusive development protocols for different sectors and monitor the advances made by the field.

Partnerships as element of a policy instrument mix

Katrien Termeer

A growing body of literature suggests that sustainability partnerships contribute to transformational change. They provide a platform to build trust, facilitate new interactions across boundaries, encourage partners to take action in their own companies and develop joint actions to address sustainability challenges However, the past decades have demonstrated that the promises of such partnerships are not always met. This results, amongst others, in new calls for legislation, emphasizing the divide between government-led and business-led sustainability measures. An example is the political debate about replacing RBC partnerships by legislation or searching for mutual synergy.

This paper will analyse the mutual synergy between government-led measures and business-led partnerships. It will do so by departing from the classical (and possible controversial) public administration debate about policy-mixes and policy coherence. A policy mix refers to the idea that to effectively address complex challenges, such as sustainability, different policy instruments must be integrated into policy mixes that deal with the different dimensions and leverage point of a problem. It is up to governmental actors to design and implement coherent sets of policy instruments that avoid clashes between them and to take advantage of their potential complementarities.

Our case study is about the Dutch partnerships for international RBC. Companies, trade unions, civil society organisations, who operate in the same sector (e.g Garments & Textile, Banking or Gold) are engaged in RBC partnerships. They jointly identify risks in their supply chain, develop measures to address them and organize access to remedy. These multistakeholder partnerships result in agreements to commit to tangible outcomes based on the OECD Guidelines for Multinational Enterprises and the UNGPs. What is the role of these partnership in an effective and inclusive due diligence policy mix of the Netherlands and the EU?

Finally the paper will critically discuss the pros and contras of the policy mix perspective on analysing relationship of partnerships with governments

Parallel Panel: Law and Litigation

Date & Time (Amsterdam Time): October 25th 5:00:00 PM - 6:30:00 PM

Location: GR 1.143 / Zoom

Chair(s):

Jean Frederic Morin

Presentations (including names of presenting authors):

Governing in their Own Image: How Environmental Lawyers Created Accountability for International Development

Susan Park

The importance of transnational advocacy networks in resisting, challenging, influencing and constituting global governance is well known. Yet we are only just beginning to understand how authority held by specific activists within networks shapes campaign outcomes. This article argues that the type authority held by activists within a network shapes not only how an issue is governed but also by whom. In the case of the transnational advocacy network Multilateral Development Bank (MDB) campaign, environmental lawyers at the centre of the network held both principled and expert authority, which shaped specific understandings of what constitutes accountability for the Banks. In response, the MDBs created quasi-judicial accountability mechanisms to provide recourse for people adversely affected by the (in)actions of the MDBs in financing international development projects. This in turn created a new cadre of accountability officers or international development accountability professionals who agreed on how to fulfil their tasks according to their shared conception of competence. The cadre of officers are over-represented by American trained lawyers from a few institutions, working to hold multilateral institutions to account for their environmental and social impacts on the ostensible beneficiaries of development in developing countries. The overly technical, legalistic, and adversarial accountability process would then be challenged by the private sector and people harmed by Bank financed projects, leading to the addition of mediation processes to the accountability mechanisms, which in turn may reconstitute how development financers are held to account and the profile of accountability professionals.

Litigation in Earth System Governance: Agency within, of and beyond the case

Phillip Michael Paiement

Courts, and litigation before them, have developed into a principal site of legal and political action for preempting governance transformations around the ongoing challenges of climate change, biodiversity conservation, large-scale land use transitions, and pollution. As insufficient political and policy action continues to raise the likelihood of a more than 2 degree Celsius warming scenario, climate litigation will likely continue to expand as it shifts to include more claims about

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

reparations and Loss & Damage compensation, alongside mitigation-focused cases. Despite the growing activities of public interest or strategic litigation about the aforementioned environmental challenges, the agency of the litigators involved in these cases is poorly understood. This paper aims to account for three dimensions of agency in strategic environmental litigation. First, it draws on legal opportunity structure frameworks to account for the agency of litigators within cases. This includes an account of their ability to shape claims and evidence in their effort to obtain a favorable outcome. Second, it will examine accounts of litigation within political, economic and social movement literature in order to identify the various understandings of how strategic or public interest litigation can affect institutional and behavioral changes, as well as drive interest group formation processes. This second focus seeks to account for the agency of a case as it looks to drive legislative or policy transformations, recalibrate the economic behavior of a group of (corporate) actors and / or gather public attention in the development of broader social movements and political campaigns. Finally, the third section of the paper looks towards literature on transnational professional networks and the sociology of transnational legal practice in order to understand the organizational settings that facilitate and structure litigation practice that leads to these cases. In doing so, it seeks to account for the agency of transnational environmental litigation communities beyond the case, describing how these professional communities see their legal practice within the broader context of their national legal professions. Through these three avenues, the paper intends to provide the first comprehensive account of agency frameworks related to public interest and strategic litigation in Earth System Governance.

International environmental law in domestic climate litigation: contested cases, contested norms

J. Michael Angstadt

Earth system law scholars advocate urgent legal transformations to address pressing Anthropocene challenges, including climate change. However, as a waypoint to such broader reconfiguration, judges and litigants are employing innovative practices in existing domestic courts. Many such efforts seek to attach greater domestic accountability in the context of climate change's global character, connecting institutions across scales to systemic challenges. In particular, researchers have noted efforts in pleadings and court opinions to incorporate norms and principles of international environmental law (IEL) into domestic climate litigation to bind governments, polluters, and other parties. The mechanisms by which these norms are incorporated, and how they are interpreted and reconciled with domestic sociolegal contexts, pose important yet understudied questions in the context of norm dynamics, norm contestation, and Earth system law scholarship. In earlier research, we presented evidence of the incorporation of IEL norms and principles in domestic climate litigation, and we identified indications of differing interpretations and linkage of norms and principles in domestic contexts. In this paper, we present an extended survey of domestic litigation and attendant contestation surrounding IEL norms and principles. Through qualitative review and coding of existing climate change litigation opinions from diverse domestic contexts, we seek a robust and inclusive characterization of (a) vertical efforts to incorporate IEL norms and principles into domestic litigation, (b) internal dynamics that facilitate or impede the adoption of IEL norms and principles, and (c) evidence of normative

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contestation that accompanies such international/domestic exchange. Ultimately, our paper reflects three emphases relevant to Earth system governance researchers. First, it directly extends examinations of existing legal architectures and their capacity to engage with the challenges posed by global environmental change. Second, it explores the effect of networked and multiscalar normative exchanges and contestation among courts and domestic judges in addressing climate change. Third, it directly addresses efforts by Earth system law scholars to evaluate how, in practice, systems-level insights and science can support the reimagination of existing environmental law structures.

A pathway for transforming agroforestry law from an Earth system law perspective

Marina Klimke

With the rise of the Anthropocene, light has been shed on the shortcomings of current environmental law to react to the complexity of social-ecological systems. This is also the case for European farming systems that are a key driver for sustainability challenges such as biodiversity decline and climate change. Accordingly, approaches that focus on 'land sharing' and integrate nature conservation into agriculture, are receiving increasing attention. Agroforestry, that is the integration of woody perennials into agricultural fields, is an example for a multifunctional farming practice beneficial for biodiversity, climate and soil. Moreover, by bridging the spheres of agriculture, forestry and nature conservation, agroforestry promotes a human-in-nature perspective and is a prime example of 'land sharing'. However, legal hurdles are a major constraint on the adoption of agroforestry by farmers in Europe and Germany and the current governance architecture is characterized by a high degree of fragmentation and conflict between sectoral laws.

Based on the concept of Earth system law, this paper aims to map out a pathway for transforming the current legal framework for agroforestry. To this end, we take an interdisciplinary perspective on agroforestry and integrate insights from environmental sciences and law. We draw on previous research on the legal possibilities and limitations for agroforestry in Europe and Germany as well as on workshops and semi-structured interviews with actors from agriculture, forestry and nature conservation. By applying Ostrom's social-ecological systems framework, we depict the complex interactions between agroforestry systems, farmers, administrative staff and the legal rules of the governance system and show how an Earth system law approach can allow for a holistic governance architecture for agroforestry beyond human-nature dichotomies.

Parallel Panel: What is needed to make voluntary Net-Zero climate actions by corporate, nonstate and subnational actors 'high-integrity'?

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.133

Chair(s):

Birka Wicke

Oren Perez

Discussant(s):

Sander Chan

Session Overview: What is needed to make voluntary Net-Zero climate actions by corporate, nonstate and subnational actors 'high-integrity'?

To limit average global heating to 1.5/2C, net atmospheric additions of greenhouse gasses will need to reach zero by 2050. Non-state actors, such as businesses, investors and civil society organizations play a crucial role through their own mitigation targets and advocacy for public policies that align with net-zero goals. Recent years have seen a great number of non-state actors stepping up with net-zero targets. However, scholars and civil society have warned against greenwashing, questioning the credibility of non-state net-zero pledges and calling for high integrity standards. Accordingly, a High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities convened by the UN Secretary General has offered recommendations to ensure high integrity of net-zero commitments by industry, financial institutions, cities, and regions.

This panel gathers researchers from academia and expert organizations, with the aim to steer voluntary climate action towards high integrity. The papers and panelists will discuss the credibility and integrity of net-zero action, including: the alignment of commitments with climate and sustainability goals; transparency, monitoring and accountability; creating more trustworthy compliance frameworks; the role of offsets and credits; just transition; and climate-nature linkages. The panel will pay particular attention to corporate net-zero commitments in food, agriculture and land-use, and carbon markets.

Presentations (including names of presenting authors):

Integrity of corporate net zero pledges: Analysis of major food and beverages companies

Sybrig Smit

Many companies have set net-zero emissions targets in recent years to help keep global warming below 1.5°C compared to pre-industrial levels. However, the potential impact of these targets on future emission levels is unclear and uncertain. Food and beverage companies have a crucial role to play in cutting emissions not only because they are vulnerable to climate change themselves

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Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

but also because the global food and beverage sector is a major driver of emissions, accounting for approximately 30% of global greenhouse gas (GHG) emissions directly and indirectly. This study analyses corporate net-zero targets in the global food and beverages sector and the potential impact of the targets on their value chain emissions. We also assess the possible scale of offsetting and carbon dioxide removal (CDR) assumed under their targets, and shed light on the role of various contentious CDR and offsetting strategies arising in the agrifood sector.

We estimate that 20 major food and beverage companies with net-zero targets collectively accounted for well above 1 GtCO2e of emissions in 2019. Our preliminary findings indicate that, on average, less than a third of the total estimated emissions footprints are covered by the targets. This is mainly due to the poor coverage of scope 3 emissions, either in their net-zero targets or in their self-reported emission inventories.

Almost all companies intend to rely on CDR within or outside their value chains to realise net-zero targets, but few companies specify to what extent. When excluding the role of offsetting and CDR, our first assessment shows that the net-zero targets of these food and beverage companies only translate to 10-20% emission reductions by 2030 and considerably less than 50% emission reductions by 2050, compared to value chain emissions in 2019.

Overall, only a minority of the assessed companies has targets that are in line with global benchmarks for the sector, highlighting that the food and beverage sector is currently not on track to limit global warming to 1.5°C. Our preliminary findings thus suggest that the food sector companies' net-zero targets cannot be taken at face value and are not consistent with the emerging standards on corporate net-zero target integrity (e.g. UN High Level Expert Panel, ISO). Finally, we discuss how these net-zero integrity standards could be operationalised in the food and beverages sector.

Making Climate Pledges Stick: A Private Ordering Mechanism for Climate Commitments

Oren Perez

Corporate climate commitments are an important part of the global response to climate change. However, critics have warned that many of these pledges constitute greenwashing – empty commitments whose credibility is difficult to assess at best. Government regulators in the European Union and United States Securities and Exchange Commission have taken initial steps to regulate corporate climate behavior and disclosure, but they have demonstrated little appetite for robust regulation of corporate climate pledges. The weakness of the contemporary regulatory framework means that there is little confidence that companies will fulfill their pledges. This Article responds to this regulatory challenge by developing two novel financial instruments that will enable companies to make credible commitments by entering into irrevocable forward contracts with third parties. The two instruments, which we term: a carbon letter of credit and a climate pledge green bond create a mechanism that binds the company far into the future and ensures that its past commitment will be executed. By providing a costly mechanism that allows companies to issue a binding climate pledge, we enable climate leaders to credibly distinguish themselves from greenwashers, facilitating the emergence of a separating equilibrium. Public and private regulators can insist on the use of these instruments, and corporations can use them to support their reputation and gain access to green finance. Our focus is on corporate climate commitments,

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

but the instruments we propose can also be used by other organizations and can also be used to back commitments on non-climate topics.

Assuring a high-quality carbon market

Danick Trouwloon

The paper seeks to critically review the current shortcomings of voluntary carbon markets and discuss strategies on how regulatory initiatives that involve both hard and soft law instruments can address current weaknesses. The objective of the paper is to develop the constituting elements of a governance framework that can assure the credibility of carbon markets.

Voluntary carbon markets hold signification potential to channel funds into climate mitigation action. However, voluntary carbon markets in their current form lack regulatory oversight to ensure the quality of generation and use of carbon credits. Investments are held back by insecurities among buyers, investors, and consumers as to whether a carbon credit represents a true, additional and real emission reduction. Spurious corporate claims compound the problem. The misleading use of carbon credits as offsets and their association with wide-spread corporate greenwash limits the value of carbon credits in the eye of corporates and consumers.

To ensure that carbon markets can play a role in effective climate action, the lack of quality assurance in carbon credit supply and demand must be addressed. While carbon crediting programs and standards seek to assure the certification of emission reductions and removals, the certification processes suffer from methodological weaknesses and conflict of interests undermine the confidence in the relevant certification procedures. The use of carbon credits, so far, lacks any assurance that would ensure compliance of corporate climate claims with the pre-requisites and principles established by regulators or private standard setters.

The proposed paper will propose the core elements of a governance framework for voluntary carbon markets with the goal to enhance confidence into the market. In doing so, it will discuss the complementarity of private and public regulatory efforts and the need for a meta-governance that ensures harmonization of efforts internationally and facilitates a convergence of various efforts towards recognized product and use standards. This includes the development of (i) options to improve the quality assurance in the supply of carbon credits, and (ii) assurance options for corporate climate claims.

Exploring the Adoption of Net-Zero Commitments in Cities: A Quantitative Text Analysis Study

Lauri Peterson

The rise in global temperatures have made it imperative for cities to take action to reduce their carbon emissions and combat climate change. As a result, many cities around the world have announced "net-zero" targets, meaning that they aim to balance the amount of greenhouse gasses they emit with the amount they remove from the atmosphere.

While there is growing concern about the integrity of these net-zero commitments, there is still a lack of research that has aimed to explain the adoption of more net-zero commitments. This study uses computer-assisted text analysis to examine the focus of 4966 climate policies from 106 cities reported by the Carbon Disclosure Project between 2019-2021. The research aims to review the

current state of net-zero commitments and uncover the key factors that influence the adoption of net-zero targets. The findings contribute to the active literature on urban climate policies by shedding light on cities' net-zero targets. Moreover, the study encourages the fruitful use of quantitative text analysis methods in climate policy research, especially when dealing with large corpora of documents produced by local bureaucratic agents who are influenced by both organizational and political pressures.

Parallel Panel: Struggles over Climate Policy: Linking Institutions, Elites, and Mass Publics

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.136

Chair(s):

Ksenia Anisimova

James Patterson

Session Overview: Struggles over Climate Policy: Linking Institutions, Elites, and Mass Publics

Realizing durable and ambitious climate policy remains deeply challenging across the world. Despite continued policy activity and some moments of policy success, overall progress toward decarbonization remains vastly insufficient. While struggles over policy adoption are crucial, the post-adoption phase is equally important and equally contested. For example, policy may be questioned, eroded, or even repealed. Nonetheless, critical assessment of existing policies remains crucial to ensure that they do not stall climate action through entrenching counterproductive path dependencies.

In recent years, scholars have examined patterns of variation in climate policy action/inaction and diverse experiences of contestation in response to introduced policy. Institutional arrangements, political elites, and mass publics play crucial roles in both policy generation and in conditioning responses to introduced policies. It is now timely to step back and critically examine this confluence between institutions, elites, and mass publics within pre- and post-adoption politics of domestic climate policy. The panel tackles this challenge from multiple angles, including investigating responsiveness of political elites to citizens' demands, mismatch between public preferences and policy design, and mass public responses to climate policies, among others. Overall, the panel contributes to understanding agency and power in the politics of climate policymaking, which is crucial to advancing sustainable transformations in governance and society.

Presentations (including names of presenting authors):

Sustainability and Preferences for Institutional Change: Towards Fair and Climate-Proof Fiscal Policies

Adrian Rinscheid

Working towards sustainability transformations requires a better understanding of the insti-tutions that sustain the status quo, and the forces that may help to shift these institutions. A particularly sticky type of institutions that often stand in the way of sustainability but have received surprisingly little attention in this context are fiscal policies. Some of these policies combine income redistribution from the bottom to the top and incentives for environ-mentally damaging

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Conference Stream(s): Architecture and Agency

behaviour. They are therefore at odds with emerging ideas about the Sus-tainable Welfare State as well as two cross-cutting SDGs – Reduced Inequalities and Climate Ac-tion.

We approach the phenomenon of unsustainable institutions by studying citizen preferences in the context of a fiscal measure in Germany. More precisely, we investigate popular attitudes regarding the Commuting Travel Allowance. This transport-related tax deduction scheme has been called the 'holy cow of German tax law' due to its stickiness and long history, which dates back to the German Empire. The policy is an example of a fiscal measure that entails income redistribution to the top and incentives for environmentally harmful behavior, leading to 4 million tons of CO_2 emissions every year. It frequently appears high on the po-litical agenda, not least in the context of the ongoing energy crisis. As the measure bluntly contradicts any conception of sustainability, it provides a suitable entry point to study the complex relationships between institutions, popular attitudes, and sustainability.

Previous research indicates that citizens in democracies, and in Germany in particular, prefer both a more equal income distribution and stronger environmental protection. Why, then, does the commuting policy still exist? And do citizens perceive it as fair? Based on a vignette experiment with n = 4,500 German residents (fielded in 2022), we investigate these questions and gauge preferences for comprehensive institutional change. Our analysis indicates that the current policy, which benefits affluent drivers, does not match conceptions of fairness held by the public. Moreover, due to its complex-ity, citizens are not aware of the policy's detrimental effects. Our experimental design allows to identify alternative policy design options that are in line with what citizens perceive as fair. Notably, these entail redistribution from the top to the bottom and incentives for environmentally benign ways of commuting instead of driving. Broadly, our work sketches how new research at the intersection of citizens and elites in environmental policy may help to identify leverage points for transfor-mational change.

Decarbonization Under Institutional Constraints: Case Study of South Korea's Feed-In-Tariff Policy

Asgeir Barlaup

Since the early 2000s, sustainable development and Green Growth have represented central themes in South Korea's national energy plans. Despite these aspirations, the government's renewable energy support policies have been characterized by inconsistent changes contributing to the country having one of the lowest shares of clean electricity generation among all OECD member states. This paper seeks to shed light on the political impediments toward decarbonizing the South Korean electricity sector by studying the repeal of the country's first clean energy support policy.

More specifically, it undertakes a longitudinal study of adoption, implementation and repeal of South Korea's Feed-in-Tariff (FiT) policy through three successive policy cycles (2002-2003; 2003-2005; 2005-2011), shedding light on how distributional policy effects influenced post-adoption politics over time. It applies process tracing methodology, leveraging data collected from 45 + interviews with relevant policy stakeholders and from relevant policy documents. The results suggest that the FiT was initially adopted to cater to the interests of large-scale wind developers, who enjoyed privileged access to policymakers and were able to convince them to adopt the FiT

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law on the premise that the policy would help establish a Korean wind turbine industry. Conversely, solar developers pursuing renewables expansion along alternative lines of reasoning, such as enhanced democratic participation, were initially heavily constrained by the electricity sector regulations during the initial post-adoption years, which prevented them for obtaining access to the subsidies - despite qualifying under the same law. Once larger, commercial developers entered the Korean solar field, the policy cost increased rapidly, leading the Ministry of Trade, Industry and Energy to eventually rollback the policy as it put an increasing financial burden on the publicly owned electricity distributor, KEPCO.

The preliminary results from the South Korean case emphasize that policy feedback dynamics are highly context-dependent. Relevance is given to the institutional arrangements governing the provision of electricity, as this reflects elements of an implicit social contract between elites and mass publics. More broadly, the study adjusts the policy feedback framework to the non-Western context and sheds light on the extent to which 'green developmentalism' constitutes a desirable (or feasible) transition strategy for policymakers in other jurisdictions.

From Cheap-Talk to Action: How Political Elites Respond to Environmental Demands

Silvia Pianta

Do political elites respond to voters' environmental demands? Addressing climate change is inherently a political challenge. While there is growing concern about the environment in public opinion, current policies will make reaching the Paris Agreement goals extremely unlikely at best. This paper studies the gap between mass preferences and policymaking by exploring the strategic behaviour of political elites. We focus on one actor who is most likely interested in responding: Green Parties. We provide a theoretical framework of different types of responsiveness: from talking on social media, to allocating candidates more in line with voters' preferences, to enacting actual policy. We study these different levels of responsiveness by combining geo-located data on Fridays for Future protests with novel datasets on the German Greens candidates' bios, speeches, and the policies they support. We use difference-in-differences and instrumental variable designs to identify this effect. We explore data on candidate selection and its regional variation, and data from other parties to understand how intra-party dynamics and ideology mechanisms influence our findings. This paper provides important insights for research on environmental politics and responsiveness.

Public Responses to Coercive Climate Policies: Limited Evidence of Backlash across OECD Countries

Ksenia Anisimova

Effective and rapid climate change action requires coercive policies (e.g., regulation, taxation/pricing, phase-outs) to accelerate low-carbon transitions. Implementing such policies at the national level is often subject to a fierce political debate and sometimes even large-scale public contestation (e.g., the Yellow Vests movement in France, acrimonious anti-carbon pricing protests in Australia, and court challenges to carbon pricing in Canada). Such responses threaten policy durability by undermining the effectiveness of climate policy instruments and the robustness of wider climate policy agendas. However, when, where, and why contentious public responses occur

(or not) remains unclear. This paper aims to systematically examine the variation and prevalence of public responses, both contentious and not, to coercive climate policies.

We develop and apply a typology of public responses to coercive policy spanning public opinion and public mobilization. We analyze a systematic sample of 55 cases of national-level coercive climate change mitigation policies across 23 OECD countries initiated between 2010-2022. Policy domains cover framework policies and energy policies for the sector with the largest CO_2 emissions per country. Policy types include taxation/pricing, regulation, and phase-outs, where the latter remain relatively understudied empirically. The medium-N sample enables comparison across a large set of cases, which is rare in climate policy scholarship, where small-N case studies are most common. Cases are interpretively coded using politically-centrist mass media (newspapers) sampled systematically and analyzed over a multi-year period. This approach enables an unbiased categorization and estimate of the prevalence of contentious and non-contentious public responses.

Findings reveal a relatively low prevalence of contentious responses to coercive climate policies. The sporadic picture of contention suggests that coercive policies are not always highly controversial. Contestation that does occur is mainly associated with carbon taxation/pricing. Furthermore, not all identified instances of contention can necessarily be classified as a fully-fledged backlash, despite increasing concern about this among climate scholars and practitioners in recent years. Overall, the paper illuminates agency of mass publics in the post-adoption politics of climate policymaking and suggests a need for comparative analysis of causes of variation in public responses, considering interactions between policy design, institutional architecture, and social context.

Parallel Panel: Biodiversity Governance: The Road Ahead

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.170

Chair(s):

Ines Dombrowsky

Presentations (including names of presenting authors):

The Paris Moment for biodiversity: is it actually good news for nature?

Ana Maria Ulloa

After the long road to the Kunming-Montreal Biodiversity Framework, it remains to be seen whether this post-2020 Biodiversity Framework adopted under the Convention on Biological Diversity (CBD) in December 2022 will effectively catalyse action to achieve nature-positive by 2050. The challenge ahead is steep. Not only has biodiversity kept declining at an alarming rate, but also the CBD has failed twice to achieve its objectives. As disheartening as it is, this is not an uncommon outcome in Global Environmental Governance (GEG). Five decades of strong international cooperation to safeguard our planet and its life-supporting systems have not resulted, for the most part, in better goal achievement or an improved status of the environment. This paradox is two-fold. On the one hand, there is the fact that states have increasingly favoured the adoption of lofty global commitments that are rarely backed up by enforcement mechanisms. On the other hand, the resulting weak regulatory influence of Multilateral Environmental Agreements (MEAs) has meant a reliance on normative influence to promote goal achievement in the form of accountability mechanisms. However, a proliferation of accountability mechanisms has not improved implementation, compliance, or environmental outcomes. During the negotiations of the post-2020 Biodiversity Framework, there was enthusiasm about nature finally having its Paris Moment — a reference to the Paris Agreement (PA) adopted under the United Nations Framework Convention on Climate Change (UNFCCC) in 2015 with the overarching goal of limiting climate change to 1.5°C by 2030. However, the PA has struggled to catalyse action to halt climate change and received critiques about accountability gaps. This begs the question: why does the PA bring so much optimism about the Kunming-Montreal Biodiversity Framework? Undeniably, the UNFCCC has followed a more rigorous path than the CBD, and climate change has had a more prominent profile in the international agenda than biodiversity. But is the PA well equipped to achieve net-zero by 2030? Because this paper argues that strengthening accountability is crucial to improve the effectiveness of MEAs, its objectives are to 1) examine the strengths and weaknesses of the PA accountability mechanisms, 2) examine the strengths and weaknesses of the Kunming-Montreal Biodiversity Framework accountability mechanisms, and 3) analyse what it implies for nature conservation that biodiversity is finally having its Paris Moment. Through the lenses of climate and biodiversity governance, this paper sheds light on how accountability can bring the transformative change needed in GEG to improve environmental outcomes.

Conference Stream(s): Justice and Allocation
Architecture and Agency

Regulatory Disengagement and the Shifting Politics of Biotechnology under the Convention on Biological Diversity

Florian Rabitz

The Convention on Biological Diversity (CBD) emerged during the 1990s as the international focal point for the regulation of diverse biotechnological developments with positive as well as negative implications for the conservation of biological diversity, its sustainable use as well as the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. During the past decade, however, the CBD has been trending towards regulatory disengagement: a mode of international rule-making that prioritizes procedural over substantive outcomes; and shallower over deeper forms of legalization, possibly reflecting a broader move towards "de-legalization" of international law. This trend recently culminated in the Kunming-Montreal Global Biodiversity Framework and other decisions adopted by the 15th session of the CBD's Conference of the Parties (COP 15) in December 2022. In what was otherwise a political landmark deal in global biodiversity governance, the COP 15 decisions on biotechnological issues are overwhelmingly procedural and, where they are substantive, are limited in their degrees of legalization. We assess regulatory disengagement on three key issues that have been on the CBD's agenda for approximately the past decade: digital sequence information on genetic resources; risk assessment for novel Living Modified Organisms; and synthetic biology. Starting from the notion that regulatory disengagement constitutes atypical behavior for international organizations, we propose that it indicates a profound reorganization of the international politics of biotechnology in the context of the CBD. Specifically, we suggest that the geographical diversification of global biotechnological research, development and innovation, which cuts across the traditional North-South fault line that defined the CBD during its first two decades, has led to the emergence of a broad coalition that seeks to deplatform the relevant agenda items. Tracing shifts in the revealed policy preferences of major developing countries over time, we show how commercial motives related to the potential benefits of novel biotechnologies have become increasingly dominant while biosafety and global justice as previous priority items undergo a marked decline. We conclude that regulatory disengagement and the underpinning shift in political power relations implies a major decrease in the CBD's governance capacity and interferes in various ways with the long-term goals and objectives of the Kunming-Montreal Global Biodiversity Framework.

Transforming biodiversity governance? Indigenous Peoples' contributions and the Kunming-Montreal Global Biodiversity Framework

Louisa Parks

The 2022 Kunming-Montreal Global Biodiversity arguably marked a radical rights-turn in global biodiversity governance. For the first time in the context of the Convention on Biological Diversity (CBD), the new global framework includes a strong focus on rights-based approaches, different value systems, and non-market-based approaches. It also includes specific clauses recognizing the rights of Indigenous Peoples and local communities (IPLCs) to land, territories, and resources. This

rights-turn was a surprising outcome, given that earlier drafts of the Framework gave little space to such approaches and clauses. The paper will assess this, combining legal and sociological analysis, based on a literature review, content analysis of UN documents, participant observation at CBD meetings, and interviews with key negotiators. It will first provide overviews of the contribution of IPLCs to the conservation and sustainable use of biodiversity and the evolution of the CBD framework to partially recognize such a contribution. It will then analyze how the Kunming-Montreal Global Biodiversity Framework came to take its rights-turn, and in particular whether this was the result of the meaningful participation of IPLCs or of other political processes. The paper will conclude with reflections on how the Framework may create new spaces for meaningful participation in CBD processes for IPLCs.

Not in my waters: Linking and unlinking marine biodiversity in the negotiations of the Kunming-Montreal Global Biodiversity Framework

Silvia C. Ruiz Rodríguez

Under the Convention on Biological Diversity, states make efforts to protect marine ecosystems in national and international waters by negotiating the Kunming-Montreal Global Biodiversity Framework. However, consensus is lacking with regards to the role of the Convention on Biological Diversity in the protection of marine biodiversity in international waters, encouraging states to argue that measures to protect such biodiversity should be discussed only during the ongoing negotiations for a new treaty on the conservation and sustainable use of use marine biodiversity in areas beyond national jurisdiction. The simultaneous negotiation of marine biodiversity measures in different fora gives the unique opportunity to study empirically the division and linking of marine biodiversity for the purpose of governance and economic gain. We apply the concept of issue linkage and insights from practice theories to shed light on linking and unlinking practices and question the current state of marine biodiversity governance and its suitability for environmental protection and sustainable use. We draw on ethnography and interviews conducted during the second part of the third session, the fourth and fifth sessions of the Open-Ended Working Group on the Global Biodiversity Framework, and the 15th Conference of the Parties to the Convention on Biological Diversity. Our analysis shows that states link and unlink marine biodiversity to facilitate compliance with international instruments and continue marine resources' extraction. This highlights the need to emphasize the connectivity of the ocean.

A fallacy of the commons in the making? Mapping science-patent relations to inform governance of marine genetic resources

Paul Dunshirn

Genetic resources from marine organisms are considered to be of great value to research and commerce (e.g. for the development of medicines or chemicals) and an important pillar to emerging blue economies. Technological advances are currently opening up new genetic materials in the high and deep seas and their scientific exploration is crucial to various sustainability and governance efforts. However, concerns persist over how the patenting of marine genetic

resources impacts innovation and marine science. While some marine scientists consider possibilities to patent findings as important to their research efforts, disproportionate and monopolized control over patents may disincentivize further research and constitute global imbalances in the distribution of benefits. Despite the significance of these issues, there is currently a lack of data and research to inform discussions on the link between marine science and patents. This paper aims to address this gap using large-scale data analysis. It first maps out the main scientific stakeholders in the marine genetic resource commons. It then explores factors behind the uptake of science in patent texts. Finally, it plots national science-patenting balances as a point of consideration for the design of access- and benefit-sharing mechanisms in international governance frameworks, such as the Convention of Biological Diversity or under UNCLOS. Overall, these perspectives on science-patent relations contribute to the better design of a marine genetic resource commons and open pathways for further research on the effects of patenting on marine science.

Parallel Panel: Democracy in the Anthropocene: Future-as-method in imagining more-than-human democratic governance

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.109

Chair(s):

Aysem Mert

Discussant(s):

Frederic Hanusch

Session Overview: Democracy in the Anthropocene: Future-as-method in imagining more-than-human democratic governance

The Anthropocene condition comes with multiple crises leaving us unprepared for uncertain futures. These multiple crises include not only environmental problems such as biodiversity loss and the extinction crisis, climate change, extreme weather events and disasters, unexpected droughts, famines, and other scarcities, but also crises emerging from our responses to these challenges, from the ways in which the technology and knowledge production of our time handles the ecological crises and anxieties of today (such as geo-engineering, transitions to clean/less polluting energy, transport, and food systems). The survival of human and more-than-human life in the Anthropocene will require different systems than what we have now, and different responses than those we have in our policy toolboxes. Accordingly, the political system that can address the challenges of the Anthropocene must be radically different from today's governance architecture. But what kind of politics and institutions can address the emergent/future sustainability challenges while furthering (even radicalising) democratic norms and values?

This panel gathers papers and presentations on the future(s) of democracy in the Anthropocene, regardless of their empirical focus. We are particularly interested in transdisciplinary dialogues and academic papers on future democratic institutions, imaginaries, values and practices, democratic legitimacy, democratic knowledge-production, experimentation, innovation and exnovation. The questions around which we have invited papers were:

What kind of democracies can address future sustainability challenges?

Which, among the current shifts and changes in democratic practices, promise to address the challenges of future societies better?

Do bottom-up, experimental, deliberative practices provide better ways to address future and more-than-human changes?

Can (and should) democracies of different scales be re-imagined for future democratic ESG?

Are recent experimentations with future-making a suitable method to re/construct new democratic norms and values?

Conference Stream(s): Democracy and Power

What is the role of knowledge production in safeguarding democratic and epistemic justice in the Anthropocene?

Presentations (including names of presenting authors):

Democratic Innovations for More Than Human Inclusion

David Schlosberg

Fundamental to the models of growth, progress, and governance in Western systems is an extractive relationship with other animals, forests, rivers, oceans and soils, (collectively the 'more-than-human'). The polycrisis, including climate change, deforestation, pandemics, biodiversity loss, inequity, and crises of food, energy and clean water, all demonstrate the highly negative outcomes this normalised extractive relationship generates, not only for beings other than humans but also for humans. To address this problem, democratic decision-making, at multiple levels, must be informed by an understanding of the fundamental connection between human and more-than-human interests. In institutional terms, this requires is a shift in the practices of representation to include representation of the more-than-human. This paper lays out a set of justifications and designs for the institutionalization of the inclusion of beings other than humans as subjects of justice in decision-making forums. We explore practical models that can be used in different forums and at different scales, and discuss three potential experimental designs: for a corporate board, a local government (in particular for resilience and adaptation planning), and a broader deliberative process (such as a citizen's climate assembly).

Sustainable Future-Making in the Democratic Anthropocene

Steve Vanderheiden

Politically, the Anthropocene is less about the ubiquity or scale of human impacts on the environment as it is on the highly dispersed agency that such decisions involve and the spatial and temporal distance between decision and outcome. Ironically, since the Anthropocene is named after the dominance of human influence over environmental conditions everywhere on the planet, the ability of each delimited human political community to control its environment is shrinking while the force of undifferentiated and undirected human agency grows. Choosing the sustainable path when others decline to do so becomes consequently far more challenging for those determined to exercise some measure of control over their environmental futures. Whereas Malthus worried about population growing faster than food supplies, the larger problem may be that the scope and scale of human agency over the environment grew larger and faster than did our political institutions, leaving us now with numerous global-scale problems that result from our undirected and oafish anthropogenic agency but no institutional means of directing it.

In this paper, I take up the challenge of identifying and explicating what Jedidiah Purdy called the democratic Anthropocene; that because "global ecology is everyone's" the governance of earth systems "should be everyone's authorship politically." In particular, I look at the role that has been played by deliberative mini-publics and other deliberative bodies in the development of local, national, and international responses to climate change. Utilizing case study research on several experiments in this innovative democratic form (all from the United States) as well as the incorporation of deliberative elements into more traditional social movement organizations, and

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engaging normative and empirical analyses of its role in popular mobilization toward sustainable transition (at scales from local to global), I aim to explore and assess the potential for such efforts and organizations in shaping a just, democratic and sustainable future, where democracy is understood in terms of inclusive authorship of shared planetary ecology and is oriented toward maintaining space for future ecological self-determination.

Synergies and tensions of scholarships of deliberative democracy and transformations to sustainability and justice

Hedda Reich

At present, there is a particular scholarly interest in studying deliberative mini-publics (DMPs) to understand if DMPs might be able to reshape democracy to address sustainability challenges and guide societies to a more sustainable and just future. Researchers working on the democratization of sustainability transformations have pointed out that there is a need for more collaboration between researchers on democracy and researchers who study the dimensions of sustainability transformation. Thus, this thesis aims to answer the following overarching research question:

What are the synergies and tensions of scholarships of deliberative democracy and transformation to sustainability and justice?

A selected sample of both the literature on deliberative democracy and transformations to sustainability and justice is inductively analyzed to develop a conceptual map. Then, concepts of deliberative democracy are integrated into a transformation framework to shed light on the transformative potential of DMP cases. To validate both the conceptual map and the framework, 10 researchers with expert knowledge on transformations to sustainability and justice and deliberative democracy were interviewed to gain further insights into their knowledge of possibly existing synergies or tensions between these two bodies of literature. I could identify synergies and tensions on a conceptual level, different underlying assumptions of both literature, and possible synergies between practical implementations of both deliberative democracy (DMPs) and transformations to sustainability and justice (t-labs).

By finding synergies and tensions between both DMPs- and transformations to sustainability and justice literature, this thesis offers an entry point for more collaboration between scholars working on deliberative democratic practices and scholars studying just transformations to sustainability. The identified common or contrasting components can be a starting point for further discussions between the different scholars.

Climate coloniality and democratic futures: Solidarity, cognitive justice and co-liberation in the climate movement

Tobias Müller

In face of the climate crisis, climate movements are key actors pressuring for a fundamental transformation of politics, economy and society. The scale of the catastrophe that looms, particularly in formerly colonised countries in the Global South, puts into question the state's capacity to protect its citizens, and thereby to fulfil its central obligation under the social contract. This condition has been called "climate coloniality" (Sultana 2022), under which those facing the worst effects of climate change while having done the least to cause it. Climate coloniality is a

central challenge for any designs for democratic futures in the Anthropocene, since models of global and planetary governance and the emphasis on the more-than-human frequently leads to side-lining past and present violences of colonial extractivism. Climate coloniality has become an analytical concept and a political project advanced by groups that seek to shape democratic futures where ecological concerns are not instrumentalised to delay or postpone questions of social, racial and cognitive justice.

This paper seeks to trace one such group, the Extinction Rebellion Being the Change Affinity Network (BCAN), where climate activists, ecofeminists and abolitionists are exploring democratic ways of decision making, practical solidarity and world-making that address climate coloniality as an intersectional polycrisis. The contribution traces the different forms of knowledge production that are used in this process, from trauma work, "co-liberation", emancipatory education to decolonial theory, and how cognitive and epistemic justice is linked to climate and ecological justice. The paper will build on the concept of climate coloniality and refine its analytical focus by centring the question of democracy and political subjectivity. The paper contributes to the debate on more-than-human democratic governances by using the ideas of an emergent grassroots movement to explore pathways to address climate coloniality in conceptions of democratic futures. The research is based on two years of ethnographic fieldwork and 80 interviews with activists in the Europe, North America and Africa, which will provide fresh empirical grounding for the theoretical explorations of core elements of democracy, including legitimacy, subjectivity and decolonial agency.

Parallel Panel: Enabling the energy transition on a local level: the case of electrical vehicles

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.112 / Zoom

Chair(s):

Bart van der Ree

Session Overview: Enabling the energy transition on a local level: the case of electrical vehicles

With unprecedented growth in installed photovoltaic (PV) solar energy systems in combination with increased use electric vehicles (EVs) in cities, dependence on fossil fuel sources for energy demand is much reduced, also leading to reduction in greenhouse gas emissions. This brings about new challenges that require trans- and multidisciplinary in-depth studies. On a technical level, local electricity supply and demand management is studied, including so-called Vehicle-to-Grid (V2G), technology, which allows EV batteries to be used as a source of flexibility in the electricity grid. Optimum management of electricity flows is also performed in relation to greenhouse gas emission reductions. However, the behavior of users of EVs, i.e., owners or users of shared EVs, may need to change. Hence, social science research focuses on the study of the willingness of end-users to adapt their behavior. While technical and social research will show what would be possible, this most probably is not allowed (yet) by law. Legal research therefore is also performed, which would lead to recommendations for regulatory changes. In this panel, researchers will discuss recent insights from their collaboration in the ROBUST project, funded by the Topsector Energy in the framework of the MOOI funding scheme.

Presentations (including names of presenting authors):

The role of legal research in transdisciplinary projects regarding the energy transition: harnessing flexibility for congestion management

Anoeska Buijze

The electricity system is in the middle of a far-reaching transition. Where it evolved to efficiently transport electricity that was produced in central locations to match demand whenever it occurred, it must now integrate sustainable production sources that are smaller and more dispersed, for which we cannot set when and how much they will produce. Rather than matching production to demand, we must now match demand to production.

One of the concrete issues we have to deal with is net congestion, where transport capacity at a given point in time is insufficient to meet demand. One of the solutions to this problem is to shift demand in time, for example through smart charging.

In the overarching project ROBUST, engineers work to model the potential of this solutions. Social scientists explore the willingness of end-users to adapt their behaviour. This paper explores the role of legal research within this project.

This purpose is twofold: first, the law determine what solutions are possible, and thus, to some extent, which solutions are to be modeled. For example, the Dutch Netcode determines that to participate in one type of congestion management, participants have to offer a minimum volume of 100 kW, which means that for EV's to participate in this type of congestion management, different charging points have to be grouped in order to reliably be able to offer this product.

On the other hand, the modelling feeds into critical analysis of the law. When a solution is potentially successful in solving congestion, but is not possible under current regulation, this raises the question of whether and how the law should be adapted to facilitate it. This paper illustrates how this type of analysis should take place by looking at the extent to which different connections can be bundled or 'pooled' for the purpose of providing congestion management services. It then proceeds to discuss in more general terms how this type of legal research should be conducted, going beyond the question of how the law should be adapted to facilitate technological solutions to discuss the question of how to determine whether such adaptation is indeed desirable.

Data-Driven Modeling of Electric Vehicle Flexibility for Congestion Mitigation Services: A Multi-Objective Optimization Approach Balancing Cost and Emission Reduction

Nanda K. Panda

The increasing number of Electric Vehicles (EVs) is causing congestion in the existing power network. While EVs have the potential to improve grid stability due to their flexibility, they can also worsen congestion if not properly managed. The aggregate analysis and control of the charging behaviour of EVs while reducing the costs and environmental impact is crucial to providing useful flexibility, as individual EV behaviour is highly unpredictable. The concept of electric vehicle charging flexibility is well-studied, but many challenges exist in turning feasible flexible solutions into practical ones. These challenges can range from insufficient incentives to complicated legal and regulatory obstacles.

In this paper, real-life data from EV charging sessions in the Netherlands is used to model charging behaviour, its impact on the grid under various scenarios, and the potential ability of the EV fleet to provide grid services and congestion products. Special emphasis is given to studying the dependencies of charging behaviour when cost reduction and CO_2 emission are considered as separate objectives.

The analysed dataset includes charging poles with varying locations, occupancy, accessibility, and sessions from both shared and privately owned vehicles. The charging sessions are categorised into groups based on their typical charging behaviour (e.g. residential private use), which is a key factor for both grid impacts and flexibility of charging patterns. The results show the benefits of using data-driven approaches to effectively manage grid congestion considering the cost and emissions caused by the increasing number of EVs.

Pareto efficient frontiers are explored for cost and emission reduction objectives (and combinations thereof). Moreover, a statistical model of charging behaviour is used to explore the

ability to deliver dependable congestion management services at various aggregation levels and types of service. These probabilities will help EV aggregators, such as charging point operators, make informed decisions about offering congestion mitigation products per relevant regulations and distribution system operators to assess their potential.

In conclusion, our findings emphasise the importance of using real-life data to understand the complex relationships between EVs, their impact on the grid and emission levels, and the ability of the EV fleet to offer ancillary services to the grid under multiple objectives. This research will be of significant interest to researchers, practitioners, and policymakers in the smart grid and EV integration field.

Willingness to participate in vehicle-to-grid program: An exploration of battery electric vehicle users with various driving needs and charging preferences

Yang Hu

The increased adoption of electric vehicles is beneficial to the environment due to less carbon dioxide emissions but also brings out new issues. In particular, concurrent and unmanaged recharging of EVs brings out much pressure on the grid and therefore results in overwhelming energy consumption. Vehicle-to-grid (V2G), a new technology that enables energy to be pushed back from battery of EVs to the grid helps the energy sector adjust its power distribution by discharging or charging EVs.

The whole concept is beneficial for grid optimization but may bring some inconvenience for the EV drivers, as it cannot guarantee a full-battery status when people are prepared to use the car. In practice, V2G participants have to indicate how much battery should be guaranteed when departure. EV users with various driving needs may have different preference for the guaranteed state of charge, which influence their willingness to participate in the V2G program. Recent studies have explored factors that impact users' willingness to use V2G, but how it works differently among different EV users with various driving needs has not been thoroughly investigated. These gaps will be addressed in this research and two research questions are formulated as follows:

1)   How do a series of factors (i.e., guaranteed battery level, remuneration, plug-in time, and discharge circles) impact people's choice for V2G?

2)   To what extent does the driving preferences moderate the impact of the aforementioned factors on the acceptance of V2G?

With the help of a marketing survey company, around 400 BEV drivers' information across the Netherlands will be collected by a questionnaire-based survey in March 2023. In addition to some basic information we have to collect such as age, gender, education degree, income, working status, and residential and work locations, EV use and driving preference were also collected in the format of a five-point Likert scale in the questionnaire. A cluster analysis was used to classify BEV users into different segments.

A state choice experiment was used to explore factors that impact the choice for V2G, among which four attributes were considered for the choice experiment design: 1) guaranteed minimum battery level (20/40/60%), 2) remuneration (200/600/1000€ per month), 3) average daily plug-in time (6/7/8 per day), 3) discharged circles (1/4/7 times per session). These attributes will be

interacted with the aforementioned different EV segments in the multinomial logit model to explore how their impact differs among EV users with various driving preferences.

Identifying Barriers and Facilitating Factors for Smart Charging Behavior of Electric Vehicles. Insights from applying the COM-B framework

Janna de Graaf

To curb climate change, the use of fossil fuels should be reduced, by using, for instance, electrical vehicles instead of conventional vehicles or using solar panels to generate energy. Therefore, electrical vehicle and solar panel use is expected to substantially increase in the coming years. This is likely to lead to problems for current voltage networks in Dutch cities such as net congestion, particularly in the evenings or on (very) sunny days. However, electric vehicles can, beside increasing difficulties, also serve as part of the solution to anticipate or avert congestion. For example by storing energy generated by solar panels in a smart way and waiting to charge vehicles until there is less demand. However, such 'smart charging' demands (increased) flexibility of end users. This study will provide insights into the willingness of Dutch city residents to engage with smart charging.

Findings will be presented from 75 qualitative semi-structured interviews conducted in five neighborhoods in a large city in the Netherlands, differing in, for example, socio-economic positions. The interviews are coded using the COM-B framework, allowing us to identify both barriers and facilitating factors in the capabilities, opportunities and motivations for residents of Dutch cities for the use of (shared) electric vehicles and smart charging of private electric vehicles.

Insights can provide entry points for the development of tailored interventions to stimulate the use of electric vehicles and smart charging of electric vehicles, and can inform policy making on potential ways to stimulate electric vehicle use and smart charging.

Innovative Session: Protecting global peatlands: phasing out the use of peat in growing media and as soil improver

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 12:00:00 PM

Location: GR 1.139

Chair(s):

Marjan Smeulders

Philipp Gramlich

Presenter(s): Christian Fritz

Protecting global peatlands: phasing out the use of peat in growing media and as soil improver.

Peatlands are wetlands and are important global carbon sinks. They therefore play an important part in reduction of CO2levels in the atmosphere. Peatlands are threatened by drainage for agriculture and by peat extraction for use as fuel, but also for use as growing media and soil improver in horticulture: our vegetables are grown on fossil peat and our flowers are grown on peat-based substrates. When drained and extracted, peat is decomposed and adds to CO2 emissions.

In recent years, several European countries have passed legislation in order to reduce or phase out the use of peat in horticulture. In Switzerland, the use of peat in the private sector was reduced to <5% by 2020, and the professional sector will follow suit by 2030. In England, Ireland, Germany and Belgium, national reduction plans have been announced. In The Netherlands, a peat reduction plan was signed in November 2022, by the growing media industry and the NGO Stichting Turfvrij.

Producing non-fossil horticultural substrates on peatlands has become popular amongst farmers aiming for zero emission food production and soil management. Paludiculture is the use of wet and rewetted peatlands by growing and harvesting flood resistant crops and plants. Growing peat mosses, for example, combines sustainable biomass production, water storage and unique biodiversity. The mosses even consume methane from the soil and the atmosphere, thereby further improving the climate footprint of peatmoss paludiculture.

In this session, we will explore how science can aid the transition to peat free growing media. What knowledge is present already and what is missing for the industry to take the necessary steps? In addition, we aim to gather those involved with covenants / legislation within Europe, to share experiences and best practice.

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Overcoming the dichotomy of humans and nature in Earth System Governance research (II): Navigating frameworks to study governance challenges in complex social-ecological systems

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.116 / Zoom

Chair(s):

Romina Martin

Kirill Orach

Discussant(s):

Maja Schlüter

Session Overview: Overcoming the dichotomy of humans and nature in Earth System Governance research (II): Navigating frameworks to study governance challenges in complex social-ecological systems

This panel is the second part of the panel "Overcoming the dichotomy of humans and nature in Earth System Governance research ". There has been considerable effort invested in developing frameworks to study Earth System Governance, creating a landscape of frameworks that is not easy to navigate. It is not evident how this multiplicity has helped to advance the field as a whole or whether this hampers the progress and cumulation of knowledge. In this panel, we open a discussion about how to navigate this diversity in terms of what frameworks fit which application, and how we can put them in dialogue. We will start this panel with an evaluation of six leading frameworks aiming to enable a 'deep diagnosis' of social-ecological systems for understanding the phenomenon of interest. This is followed by a study using the Social-Ecological Action Situations (SE-AS) framework combined with a morphogenetic/morphostatic approach to explaining change and no-change in social-ecological transformations. The next presentation will show a modeling approach to understanding agricultural innovations as social-ecological phenomena. The panel will close with a presentation about a comparison of the SE-AS framework and the Network of Actions Situations (NAS) framework applied to a comparative case study about the governance of trade-off situations in US National Parks. The four presentations as well as the experiences of the panel participants will inspire a discussion on how to navigate the different frameworks and which framework could be useful for which kind of research questions. The panel will be complemented by an innovative session exploring the different uses of the SE-AS framework and providing room for more in-depth discussions on navigating frameworks in smaller groups.

Presentations (including names of presenting authors):

An evaluation of frameworks to study complex social-ecological systems: Which framework works best for which application?

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Elke Kellner

The complex and interdisciplinary nature of socio-ecological systems (SES) has led to numerous efforts to develop frameworks capturing the structural and processual elements of SES. The frameworks aim to enable a 'deep diagnosis' of SES for understanding the phenomenon of interest. We evaluate six leading frameworks, i.e., Institutional Analysis and Development framework (IAD), Polycentric Governance, Networks of Action Situations (NAS) approach, Ecology of Games (EG) framework, Coupled Infrastructure Systems (CIS) framework, and the nascent Social-Ecological Action Situations (SE-AS) framework. The goal of the evaluation is two-fold: 1) Outlining the main tenets, origins, and supporting literature with a specific focus on how the individual frameworks capture social-ecological dynamics and integrate contextual factors; and 2) Highlighting the strengths of each framework in studying complex SES. Our discussion provides first, some reflections on what the different frameworks could learn from each other, and second, suggestions on which framework could be useful for studying specific kinds of research questions of complex SES.

Explaining change and no-change in social-ecological transformations Learning from the morphogenetic/morphostatic approach

Rodrigo Martinez-Peña

Studies on social-ecological transformations have explained change and no-change at systemic level through notions such as tipping points, basins of attractions, and resilience. However, when it comes to analysing agency frameworks focus on key agents of change, such as institutional entrepreneurs. This approach overlooks the contribution of agents that keep the system from changing, which constitutes a critical analytical gap due to the limited success of societies at transforming social-ecological systems. We advance an analytical strategy that tackles this gap by explicitly accounting for vested interests attached to agents' positionality and their influence on their courses of action—which contribute to either change or no-change. We draw from social realism's morphogenetic approach to analytically distinguish between material and ideational interests, disentangle situations that bring them about, and account for their relations. We rely on the social-ecological action situations framework to track agents' interaction and outcomes. This combined approach renders explicit: a) the constitution of material interests by both ecosystemic processes and social structures; b) the relations of compatibility/incompatibility between groups' material interest; and c) the role of social-ecological interaction in shaping discursive relations of compatibility/incompatibility among actor groups.

We illustrate the usefulness of this approach by applying it to the well-documented case of governance transformation of Chilean small-scale fisheries. We revisited existing literature and conducted interviews with experts and key actors from fishermen's organisations, academia, government, and a private environmental consultancy. We used qualitative text analysis and mapping of social-ecological action situations to analyse the emergence of material and ideational interests of relevant actors, the relations of compatibility/incompatibility between them, and track interaction's outcomes. Our analysis focused on the following processes:

The analytical approach used in this study advances the explanatory capacity of the social-ecological transformation scholarship by explicitly accounting for material and ideational reasons

to act, which are necessary to explain both change and reproduction. It also helps formulating causal and constitutive explanations. The former accounts for social activity, and the latter for the emergent properties of social-ecological organization. Together they help disentangling co-evolution of social-ecological systems. We close the study by discussing implications for other social-ecological problems.

Modelling agricultural innovations as a social-ecological phenomenon using SE-AS as a diagnostic tool

Udita Sanga

Agricultural innovations are examples of dynamic, cross-scalar processes for agricultural development, improved productivity, and environmental sustainability. Such innovation systems can be seen as agents (individuals, organizations, institutions) operating within a changing ecological environment. However, most models of innovation focus on social aspects of innovation processes. Such models do not adequately incorporate interactions within social and ecological components (within and across scales) within which innovations often occur.

Our modelling approach focused on developing an empirically informed, stylized model of innovation, that builds on a contextual case study of agricultural innovation in Mali, West Africa. Our research questions were: i) How does inclusion of social-ecological interactions within innovation affect model outcomes of food security and income inequality? ii) How do two alternate mechanisms of innovation: foreign aid-driven exogenous mechanism and community-driven endogenous mechanism influence income inequality and food insecurity outcomes? In our model, innovation outcomes emerge from (inter-)actions of farmers in their social-ecological environments. To ensure adequate representation of both social and ecological dynamics within the model, we used the framework of social-ecological action situations (SE-AS) (Schlüter et al., 2019) as a diagnostic tool to identify the key social as well as ecological actors and their interactions. We identified three social-ecological and ecological-ecological interactions as critical dynamics that needed to be incorporated into the model including 1) the effect of external drivers (such as droughts, climate risks) on capital allocation by donors 2) the effect climate risk perception on producers for crop cultivation, innovation belief and desire formation 3) soil fertility regulation through ecological feedback.

Our results demonstrates that the model outcomes changes with the inclusion of social-ecological interactions such as climate risk perception, crop choice based on climate risk, formation of innovation beliefs and desires, and regulatory ecological feedback. The exogenous mechanism of social-ecological innovation can lead to higher levels of food security but no significant change in income inequality. Endogenous mechanism can lead to higher food security as well as higher income inequality. We highlight how Social-Ecological Action Situation (SE-AS) framework can be an effective diagnostic tool for the integration of social-ecological interactions for social-ecological system models and assist in modelling decisions such as establishing system boundaries, choice of key processes and actors, selection of theories, and use of empirical evidence. Further, the focus on actors, their interactions, and subsequent actions in the SE-AS framework fits well with agent-based model approach that focuses on agents, their actions, and interactions leading to emergent outcomes.

Comparing two action situation approaches to analyse the governance of trade-off situations between SDGs: A comparative case study of Grand Canyon and Chaco Culture National Park

Elke Kellner

'Action situations' have become central in various frameworks for studying social-ecological systems. This study compares two nascent action situation approaches - the Network of Action Situations (NAS) approach and the Social-Ecological Action Situations (SE-AS) framework – to analyse the governance of trade-off situations between Sustainable Development Goals (SDGs). The NAS approach conceptualizes a network of social action situations – events, venues, or physically interdependent instances of decision-making – to unpack conditioning factors and roles of multiple, interrelated decision-making situations and to understand how they collectively produce resource use or other policy outcomes of interest. The SE-AS framework integrates also social-ecological action situations and ecological action situations into the network to overcome the dichotomy between the social and the ecological, and thus to better account for the intertwined nature of social-ecological systems.

I use a comparative case study research design for two National Parks in the United States to compare the two action situation approaches. The first case is a trade-off situation about a uranium mine adjacent to the Grand Canyon National Park contaminating land and water. The second case is a proposed withdrawal of oil and gas development in a zone around Chaco Culture National Historical Park which would threaten the income of local (tribal) communities but protect the environment, landscape, and archaeological sites in this area. Data were collected through semi-structured interviews in 2022 and 2023 and document analysis. Data were analysed through qualitative content analysis.

The results show that the NAS approach allows for tackling governance challenges by analysing the role of institutions and of hierarchical, competitive, or cooperative connections between social action situations on the outcome of interest in detail. However, the SE-AS framework emphasizes the dynamics of social-ecological interactions and their emergent outcomes differently. This enables to adopt a coevolutionary perspective which allows a rethinking of how decision-making is conceptualised and practiced and could change the understanding of their coevolutionary dynamics and emergent outcomes in trade-off situations with strong implications for sustainable development.

Parallel Panel: Inequality and Injustice in Governance

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.120 / Zoom

Chair(s):

Katherine Browne

Presentations (including names of presenting authors):

Constructing a Climate-Inequality Nexus: Lessons from States' Submissions to the 2030 Agenda and the Paris Agreement

The emphasis on the indivisibility of different areas of sustainable development has reignited research interest in policy coherence and presented scholars with questions on how to identify, map, and address potential synergies and trade-offs between different SDGs. For instance, climate change policies (SDG13) have been argued to impact inequality aspects (SDG10), both in positive (i.e., reducing inequalities) and negative (i.e., increasing inequalities) ways. Achieving equitable climate action requires paying close attention to how climate change effects as well as climate action policy affects and may be affected by different sorts of inequality, including income inequalities and structural discrimination. At the same time, some scholars have warned against what they view as technocratic understandings of policy coherence that present coherency challenges as primarily administrative or technical conundrums. Pursuing policy coherence should, according to these scholars, instead be understood as a political endeavor whose goals, mechanisms, and implications warrant critical interrogation. From this perspective, achieving policy coherence is not necessarily desirable nor attainable. Rather, the quest for sustainable development may entail potentially irreconcilable ideas and interests that may not be transformed into 'win-win' synergies. This means that research on coherent implementation of climate action (SDG13) and reducing inequality (SDG10) should not stop at merely acknowledging the presence of interlinkages between the two areas; there is also a need to examine how states portray potential linkages and how they propose to address these.

Following this line of thought, this study explores how the parallel goals of acting on climate change and reducing inequalities are constructed in states' submissions to the 2030 Agenda (the Voluntary National Reviews, VNRs) and the Paris Agreement (the Nationally Determined Contributions, NDCs). It asks if and how states portray interactions between climate change and inequality, and which interventions they propose to address those interactions. In contrast to studies seeking to identify effects of climate policies on different measures of inequality, this study aims to make visible the ideas that underpin the construction of a climate-inequality nexus in states' communications to the sustainable development and climate agendas, and how those ideas shape suggestions of how coherent implementation of SDG10 and SDG13 can be achieved.

Leaving colonial, carbon-locked pathways in the rear-view mirror? (G)local patterns of injustice and Germany's hydrogen partnerships with Namibia and South Africa

Anne Kantel

Hydrogen energy, in particular green hydrogen, is increasingly regarded as an important energy carrier in Germany's transition strategy towards de-carbonizing high-energy-intensive industries. However, since in Germany the potential of renewable energy to produce green hydrogen is limited, policymakers are looking to establish international partnerships to produce green hydrogen outside of Germany and import it for national use - with a particular focus on countries in the Global South. Resource extraction from the Global South for use by populations and industries in the Global North is nothing new and in many cases deeply rooted in colonial hierarchies of power. Extracting and using energy from renewable resources to produce and subsequently export green hydrogen might differ from extracting natural gas or oil and offer an opportunity to leave behind carbon-locked pathways and unequal international relationships. However, nothing suggests that the current mode of partnership between the Global South and the Global North will change automatically when it comes to hydrogen production and export as the topic of energy justice in a (global) hydrogen economy remains analytically and empirically understudied. Based on a document analysis of available policies, reports and peer-reviewed articles as well as 12 expert interviews with stakeholders in the Global South, this paper explores two cases of potential hydrogen partnerships between Germany and Namibia and Germany and South Africa to illustrated narratives of perceived (local and global) benefits and risks in light of different hydrogen justice dimension, including distribution, procedural, recognition, intergenerational and epistemic justice. It concludes with lessons-learned for future research and policy on hydrogen justice in the context of a global energy transition system.

Transformative change for sustainable and just social-ecological systems

Rachel S Friedman

Our social and ecological systems face enduring and intersecting challenges such as climate change, land degradation, habitat and biodiversity loss, as well as structural and institutional discrimination and oppression. Dramatic shifts or transformations are needed to achieve sustainability in the face of such monumental challenges. There is growing recognition that social equity and justice must be considered within the discourses around such transformations, and that proposed changes to earth systems governance cannot be considered sustainable without these themes as core tenets. However, it remains unclear what a 'just transformation' looks like and how to achieve it.

In order to develop a baseline understanding of how social equity is integrated into sustainability transformations and guide this emerging field as it moves forward, we present the first systematic review of research that explicitly accounts for social equity and justice in sustainability transformations. Using keyword searches relating to justice, equity, sustainability, and transformations in academic databases, we reviewed literature across a range of social-ecological contexts including energy, food, and urban systems. We summarized how transformation and social equity were conceptualized in the 86 papers included in the final review, building theoretical

foundations from the sustainability transformations and social justice literature. We also documented lessons on the practicalities of how to integrate justice considerations into transformative processes and activities. As such, we tried to chronicle who was involved in defining what is just or equitable and where it came into transformation processes, the actions taken to incorporate equity and justice, and whether evidence of the impacts of these actions existed.

Preliminary results revealed considerable variation and ambiguity in how the concepts of transformation and equity were employed, with a skew toward renewable energy transitions. Social equity mostly pertained to distributive and procedural concerns, and participatory and community-oriented interventions were often recommended as best practice. To respond to and plan for dramatic environmental change, we will require transformations in the ways earth systems are governed. As such, this review lays an important foundation for future scholarship and action that takes the next step towards a vision of sustainability that is just and equitable.

The global poverty effect of climate mitigation and the role of redistribution

Daniele Malerba

The global policy debate on just transitions is concerned with how to achieve a socially just and acceptable transition toward a climate-neutral and climate-resilient global economy. At the core of this debate is the assumption that efforts to combat environmental threats will not succeed unless combined with measures to reduce poverty and inequality. Our research explores the potential of carbon fiscal reforms, combining a carbon tax of levels deemed appropriate to achieve climate targets and the transfer of the revenues raised to vulnerable households. Public acceptability of climate policies is key to their implementation, but it depends to a large extent on the perceived fairness of such policies. Recycling revenues from carbon taxes directly back to vulnerable households is likely to gain the approval of a large number of people, especially in low-income countries where the high proportion of the population involved in the informal economy means that lowering income tax does not benefit the poorest and most vulnerable sections of society. But the targeting of these direct transfers needs careful consideration. In addition, the issue of common but differentiated responsibility indicates the need to consider redistribution across and not just within countries.
Here, we compute the first global study estimating the poverty and inequality effects of a carbon tax and different revenue recycling mechanisms. We combine macro (Environmentally extended Input-Output data) and household survey data for 168 countries. We simulate different scenarios looking at tax levels and design, national redistribution options (we model different options for such redistribution, including a lump sum payment, the use of current social assistance programs, and an expansion of social assistance following COVID-19) and international transfers based on different justice principles. We find that a carbon tax of US$50/tCO2 without revenue redistribution could increase global extreme poverty, but the redistribution of revenue from such a carbon tax could substantially reduce poverty by more than 100 million people, and reduce inequality, depending on the scenario. This shows that the way in which revenue from a carbon tax is redistributed greatly affects its impact, underlining the importance of policy design and targeting mechanisms. We also show that international transfers and international justice may have an even greater effect than national redistribution.

Parallel Panel: A world on fire: practices for care in times of environmental crises

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.125 / Zoom

Chair(s): Yves Zinngrebe

Presentations (including names of presenting authors):

Climate change, wildfires, and governance: Leverage points for transformation

Sarah Clement

Fire-prone areas of the world are experiencing a significant increase in the frequency, intensity, and severity of wildfires. Climate change is a strong driver of worsening fire conditions, even in landscapes where wildfires were previously small or infrequent, and can make mitigation and suppression efforts more difficult. The ecological impacts and an expanding rural-urban interface add urgency to this challenge. Changes to wildfire governance and policy can help manage these risks, but this requires a comprehensive understanding of social, economic, and ecological drivers and the complex dynamics of these linked systems. This research synthesises global research on climate change, wildfire, and governance to identify leverage points for helping society adapt (or transform, where required) to these challenges. It does so through a mixed methods study combining bibliometric analysis of global literature and qualitative comparative analysis of Australian case studies. The bibliometric analysis sought to identify emerging themes in this interdisciplinary field and examined collaboration patterns across fields and geographic areas. This analysis finds that although all three topics receive much attention, particularly in North America and Australia, a relatively small body of literature tackles these interlinked challenges of climate change, wildfires, and governance. The analysis also finds clear emerging themes relating to knowledge, co-production, technology, and psycho-social dimensions of change. However, there are several gaps and areas of weak or nonexistent connections between different bodies of knowledge that limit our understanding of how to leverage change in governance or social systems. The findings from a qualitative comparative analysis of Australian case studies are then discussed to explore key leverage points in greater depth and identify potential pathways to transform governance. How these levers can be pressed, however, is considered within broader challenges for confronting the escalating risks of wildfires. This includes a discussion of how both tacit and explicit conflicts in values shape the politics of wildfire governance and power dynamics between actors, how debates around both causes and solutions shape understanding of wildifre as a policy problem, and shapes beliefs about what (and whose) knowledge is legitmate for informing fire management practices.

Environmental Security: Cultivating Care amid Crisis

Julianne Liebenguth

Environmental security is a deeply contested concept that has nonetheless become a popular frame of reference for understanding the urgency of contemporary ecological risks. Some scholars who remain skeptical of this trend suggest that environmental security as a political project legitimizes harmful structures of power by expanding the threat/enemy distinction into new realms—such as environmental thought—where instead, change and transformation require reinvigorating notions of collectivity rather than defense, combat, or division. Others, however, locate a sense of hope in environmental security as an emancipatory agenda that draws upon the momentum of crisis to communicate the pressing need for an alternative approach to human-nature relations. In this paper, I expand upon this debate by exploring the tension between security as an inevitably repressive ordering principle of state-centric violence and security as a necessary feature of subversive politics of care, particularly as it relates to both the bodily and abstract impacts of current and future ecological conditions. Specifically, I ask whether and how security as a political concept— if reimagined— can contribute to movements for a safer and more equitable planet. In doing so, I draw from theorists Ruth Wilson Gilmore, Judith Butler, and Sarah Ahmed, whose works consider the drivers and effects of global conditions of crisis, the fragility that persists in a society that depends upon a dramatically uneven distribution of risk, and the modes of relationality that are required to extend and safeguard livable life. I conclude by arguing that despite debates about its relevance or utility, security is inherently intertwined with the politics of planetary change and with visions for a more just ecological future.

Climate adaptation to changing fire regimes: evolving national and state policies in Australia

Kyle Nathan Townsend

Given the ongoing efforts to reduce carbon emissions and adapt to the impacts of climate change, the effects of climate change and purported solutions are often widely embedded in modern policy documents. Frequently these stipulations fail to address underlying challenges that threaten the sustainability and adaptability of systems, ignoring complex interactions that span multiple interacting scales and levels – jeopardising long term outcomes.

This presentation focuses on the intersection of climate change and fire and how it is discussed in policies informing fire management in Australia. Fire and climate change is a prime exemplar of this disconnect, demonstrating multiple complex interactions over multiple scales including temporal, spatial, and governance levels. Fires are broadly predicted to become more frequent, larger and of greater intensities globally – although effects and interactions are manifold, and often poorly understood. Climate change has already made its mark on many fire regimes globally, intensifying pressures on governance and management in fire and related fields, which is only expected to intensify in the future. Australia is a relevant case study: with high vulnerability to climate change on an already highly flammable continent resulting in significant threats to society and the environment, potentially providing useful insights for other regions globally. It is therefore

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Architecture and Agency
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Inter- and Transdisciplinarity for Sustainability Transformations

imperative to collate and explore the current understandings and knowledge employed by policymakers on the interactions of climate change with fire regimes to better inform future adaptation efforts.

This research investigates the policies that inform fire management practices in Australia at the state and national level and their discourses that construct them, with special reference to their prognostic (what we can do) and the diagnostic (what is the problem) frames. Through employing a novel form of content and framing analysis enriched with discourse analytic techniques we can understand how fire regimes are constructed, what effects on fire regimes are predicted from climate change, what adaptations are offered to manage these changes, and how changes to governance are (or are not) forwarded as potential adaptation solutions. By analysing documents from major bodies that have direct input into fire management practices and adaptations to fire at different levels of governance this research reveals what underlying ideologies and knowledges are engaged with, where transfers of these have occurred – and potentially why they have occurred. This understanding provides insights for assessing the current state of governance and how it might be reconfigured to improve environmental, social, and economic outcomes.

Notions of Climate Change and Security in Humanitarian International Non-Governmental Organizations

Rickard Söder

Previous research has not yet explored how humanitarian international non-governmental organizations conceive climate change and its relationship to security. This is remarkable given the significance of international non-governmental organizations in international politics, the fact that humanitarian international non-governmental organizations are critical in early responses to some of the most catastrophic effects of climate change, and that climate change has become one of the most prioritized issues in the humanitarian sector. Security constitutes a critical concept in the context due to its significance in both international discussions on climate change and in humanitarian aid. With regard to the latter, human security is a particularly important concept. The article addresses the outlined research gap, and seek to answer how (do) humanitarian international non-governmental organizations conceptualize climate security (?), through an interpretive content analysis of material produced by six humanitarian international non-governmental organizations—CARE International, the Danish Refugee Council, the International Federation of the Red Cross and Red Crescent Societies, the International Rescue Committee, Médecins Sans Frontières and the Mercy Corps. All of these organizations are influential in the humanitarian sector, but they differ in important aspects such as organizational structure, principal area of responsibility and their region(s) of operation. Data for the analysis consist of extensive first-hand material retrieved from the organizations' websites and information channels, including news, policies, reports, statements and strategies. The empirical analysis is based on a framework for climate security discourses. Even though all the six analyzed humanitarian non-governmental organizations describe climate change as one of the defining crises of our time, they

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Architecture and Agency
Democracy and Power
Inter- and Transdisciplinarity for Sustainability Transformations

approach the issue and related risks differently. While some see it more instrumentally, as something that increases humanitarian needs and creates challenges, others discuss it more conceptually as an issue that fundamentally changes our circumstances and, by extension, what security, crises and humanitarianism actually mean. This, in turn, has significant implications for humanitarian work as well as climate and security policy more generally.

Innovative Session: The opportunities and pitfalls of value-oriented transformative governance for biodiversity

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR 1.129

Chair(s): Jeanne Lindsay Nel

Presenter(s): Sylvia Karlsson-Vinkhuyzen, Rosalie van Dam, Francisco Alpizar, Kaisa Korhonen-Kurki

The opportunities and pitfalls of value-oriented transformative governance for biodiversity

Bending the curve of biodiversity loss requires transformative changes to societies and economies. Catalysing such transformative changes requires addressing the underlying drivers that cause biodiversity loss, including structural factors such as policies, institutions (i.e., social conventions, norms and rules), and strong vested interests. These structural factors reflect and legitimise certain values and knowledge systems, which maintain unsustainable practices and behaviours in society. What are the values that lock in unsustainable practices and behaviours? How can these values be shifted and governed towards more equitable and just transformative pathways to sustainability? And how to engage with potential ethical dilemmas raised by governance deliberately aiming to change values?

This innovative session explores transdisciplinary perspectives on how researchers can better engage with and understand processes of value-oriented governance. The session takes the form of a fishbowl dialogue, allowing exchange between listeners in an 'outer circle', and a smaller group of speakers in the 'inner circle'. Four speakers will provide five minute inspirations/provocations from their own disciplinary perspective. They are drawn from a set of 11 Horizon Europe projects, launched 2022-2023 to support research on 'enabling transformative change' in relation to biodiversity and climate change. The session ends with a de-briefing to synthesise commonalities and differences that will be discussed further in European Commission organized events that bring together the set of Horizon Europe projects.

Proposed format: 10 min opening; 60 min fishbowl (4 speaker inspirations interspersed among participant speakers), 20 min synthesis.

- Chair: Jeanne Nel
- Rosalie van Dam, Coordinator – Understanding power structures in value-oriented governance (BioTraCes)
- Sylvia Karlsson-Vinkhuyzen – Governing through and for relational values of nature (Transpath)
- Francisco Alpizar – Economic insights for value-oriented governance (Transpath)
- Kaisa Korhonen-Kurki– enabling learning across science, policy and society interfaces (BioAgora)

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: The South-South Initiative and science-society interactions. An open conversation (Part 2)

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR -1.070 / Zoom

Chair(s): Cristina Yumie Aoki Inoue

Presenter(s): Eduardo Viola, Chuks Okereke, Anissa Triyanti, Dhanasree Jayaram

The South-South Initiative and science-society interactions. An open conversation (Part 2)

The Earth System Governance project´s mission is to stimulate a vibrant, pluralistic and relevant research community. Recently, the South-South initiative was launched to increase and strengthen the ESG community in the so-called Global South. At the 2022 Toronto Conference, scholars held an Innovative Session to discuss several questions related to the ESG research framework, challenges and possibilities for research collaboration and for fostering new generations of scholars in Africa, Latin America and Asia. The discussion was inspiring and some new action fronts have emerged like workshops, webinars and possibilities of collaborative research and writing. Science-society interactions was one dimension which was not fully explored in Toronto and is very much in tune with the Radboud Conference theme. Bridging sciences and societies in Global South countries is an urgent matter if we are to cope with the climate crisis, accelerated biodiversity loss and massive deforestation.

Living in megadiverse countries, which are home to the remaining tropical forests and which have the dual duty to protect them at the same time to solve historical socio-economic inequalities, Earth System governance scholars are challenged to produce high quality research that at the same time delves into disciplinary depth and complexity but also are relevant and impactful for society. These scholars are called to collaborate in inter and transdisciplinary teams, to influence policy and to dialogue with society at large. This innovative session brings scholars who will share their experiences on science-society interactions, transdisciplinary and interdisciplinary collaboration and activism in Africa, Asia and Latin America. The aim is to reflect on science-society interactions and the role of ESG scholars in African, Asian and Latin American countries and, if possible, to open new avenues of collaboration. The panel will be facilitated by scholars and practioners who navigate diverse political-geographies and socio-environmental realities.

Innovative Session: Bridging Earth System Science and Earth System Governance

Date & Time (Amsterdam Time): October 26th 8:30:00 AM - 10:00:00 AM

Location: GR -1.075

Chair(s): Rakhyun E. Kim, Eric Galbraith

Presenter(s): Frank Biermann, Åsa Persson, Louis Kotzé, Timothy Lenton, Peter Verburg

Bridging Earth System Science and Earth System Governance

A healthy and constructive relationship between Earth System Science (ESS) and Earth System Governance (ESG) is crucial for building a sustainable society. However, the gap between the two communities has increasingly widened, and the time is ripe for a deeper dialogue.

ESS has developed many insights on the functioning of the non-human aspects of our planet, and has identified many looming dangers that threaten the continued wellbeing of humanity. Frequently, these insights have been translated - by scientists - into popular concepts intended to drive changes in human behavior, such as the notions of planetary boundaries and tipping points. However, these notions have often been formulated based largely on the understanding of the non-human system, without considering democratic principles, legitimacy, or political realities. As a result they have, arguably, contributed relatively little to actual governance at the global scale, where the needs are most acute.

ESG has engaged ESS in at least two ways: as a starting point to explore policy and governance implications and as an object of critique in terms of democratic legitimacy, representation, performativity, and consequences for global equality. However, there have been few efforts to reconcile these approaches together in a more constructive engagement with the ESS community. The ESG research community has the potential to improve the practice of ESS for improved legitimacy and effectiveness which could, in turn, further the growth of global democratic mechanisms.

This innovative session will aim to spark a deeper discussion between ESS and ESG scholars, to:

(1) share concerns and aspirations;

(2) identify under-researched topics;

(3) lower cultural barriers; and

(4) design constructive strategies.

The hope is that, by forming a stronger bridge of communication between these two communities, we can collaborate towards operationalizable, effective and scientifically-sound strategies to improve governance at the scale of the Earth system.

Parallel Panel: Decarbonisation of industry

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.170

Chair(s):

Klaus Eisenack

Presentations (including names of presenting authors):

The Role of (Multi)national Oil and Gas companies in Leaving Fossil Fuels Underground: A systematic literature review

Janina Herzog-Hawelka

(Multi)national oil and gas (O&G) companies need to drastically change their business activities to reduce their greenhouse gas (GHG) emissions in the context of the current climate crisis. However, despite their sustainability claims, in practice O&G majors maintain the status quo. The literature scarcely covers approaches to corporate transition strategies to phase out fossil fuel (FF). Hence, we address the question: What does the literature say about the transition strategies of (multi)national O&G companies in the context of the current climate crisis and the need to phase out fossil fuels? Based on a systematic review of 85 peer reviewed papers and selected relevant grey literature (22), we see the following trends. Multinational O&G companies are discussed as: (1) diversifying their business activities, (2) fostering a good reputation implementing Corporate Social Responsibility (CSR) frameworks and improving reporting strategies, and (3) lobbying. The scholarship presents exogenous and endogenous drivers and barriers influencing company decisions to act or resist change. Endogenous factors can be clustered under corporate governance and shareholders. Exogenous factors include (1) policy; (2) law; (3) competition; and (4) activism whereas policymaking and law are identified to be potentially most influential. The scholarship reveals that the barriers are more powerful than the drivers resulting in O&G companies not keeping up with their transition claims leading to greenwashing; weak climate policy and law unable to affect their strategies; and this may be because many governments and O&G companies are strongly interdependent.

Who is the fossil fuel industry and how should we engage them? Lessons from unhealthy commodity industries

Michael J Bloomfield

After years of fossil fuel industry interference aimed at diluting and deferring meaningful action on climate change, is it time to formally exclude them from climate policymaking processes? Years of research eventually led governments to formally exclude the tobacco industry from policymaking (i.e., WHO Framework Convention on Tobacco Control Article 5.3). Can this experience inform climate policy debates? By documenting and disseminating tobacco industry

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Conference Stream(s): *Architecture and Agency*

policy interference, researchers de-normalised the industry and achieved legislation at the international level that commits signatory nations to formally exclude the industry from health policy. Is this model transferrable to the fossil fuel industry?

Simply asking these high-level questions encourages us to grapple with at least two important sub-questions: 1) Who is the fossil fuel industry and in what ways is the industry similar and different from other industries? 2) Is this type of regulation appropriate for the fossil fuel industry based on its history of policy interference, the nature of the commodity and its markets, and its purported role in a low-carbon transition?

1) We know these are very different industries, with the 'big four' transnational tobacco companies being much easier to identify and tobacco products themselves being a much more discreet product category. Thus, I will begin by defining the parameters of the fossil fuel industry, and the implications for regulation.

(2) Though there will be important differences, one commonality between the two industries is policy interference. I will map and compare their approaches.

I use scoping reviews supplemented with elite interviews as a method to achieve these goals. First, I seek to understand the different ways the fossil fuel industry is currently defined in the literature, assessing the implications of various definitions for climate policy. Second, I build an inductive framework of fossil fuel industry policy interference, extracted from existing research papers and reputable groups working in this area. There is precedent for such an approach found in tobacco control research, which has since been adapted for the food and beverage, alcohol, gambling, and pharmaceuticals industries. This is the first adaptation and application of the model in the field of environmental policy.

Transformative Industrial Decarbonization Policy: A Comparative Multi-Criteria Analysis in Europe.

Moises Covarrubias

Climate change mitigation requires a far-reaching systemic transformation and radical innovation. The industry sector is increasingly gaining attention in the climate mitigation and systemic transformation debates. As advised by the Intergovernmental Panel on Climate Change (IPCC), falling under all 1.5C scenarios requires that the industry sector reduces CO_2 emissions by 58 to 93% by 2050. The industry sector becomes particularly relevant, as it carries a 'decarbonization burden' due to its observable polluting and high emissions nature. For instance, in Europe, the decarbonization burden of the steel and iron industry equals 5% of the total European CO_2 emissions.

It is widely recognized that having ambitious decarbonization targets accomplished requires placing transformative efforts from all the different industries, globally. Nevertheless, the steel and iron industries become critical sectors that can potentially bring about radical emission reductions.

Adopting a particular technological approach, for instance, carbon capture utilization and storage (CCUS) or Green Hydrogen, comes hand in hand with specific decarbonization challenges (e.g. Technological Readiness, business cases, or up-front investments). The availability of effective policy instruments helping to support its adoption is one of the key entry points. The limitations of policy supporting industrial decarbonization are widely discussed in the scientific literature. For instance, the high levels of energy consumption and GHG emissions are key major challenges to address by both industries and industrial policymaking.

The objective of this article is to identify and evaluate potential Policy Instruments supporting the adoption the industrial decarbonization. This raises questions on what and whether current policy instruments can provide enough incentives to support industrial decarbonization and to stimulate a net-zero emissions reduction target in the European Union (and the UK). To shed light on these interrogatives, this paper offers a Multi-Criteria Analysis to evaluate 5 different industrial decarbonization policy packages in The UK, The Netherlands, Belgium, Spain, and Sweden.

This article contributes with a set of policy recommendations and lessons to help fall under all 1.5C scenarios, from the perspective of policy and the industry. This article suggests further improving the environmental and economic effectiveness, distributional effects, side effects, institutional requirements, and transformative potential criterion of the 5 national policy packages analyzed.

 requires that the industry sector reduces CO2 emissions by 58 to 93% by 2050

Drivers for Policy Change: Decarbonising the Energy Intensive Industries

Ebba Matilda Minas

The energy-intensive industries (EIIs), which produce basic materials such as cement, steel, paper and pulp, fertilisers and plastics, account for approximately 20% of total global greenhouse gas emissions. As the sector is responsible for a significant share of global emissions, the decarbonisation of industry is a central requirement to achieve the objectives of the Paris Agreement. Despite this, there is considerable variation in how far states have progressed in decarbonising industry, as well as their level of ambition. There are, however, few large-scale country-comparisons focusing on policymaking to decarbonise the industrial sector. The aim of this first paper draft is therefore to examine the role of the state in decarbonising the industrial sector and explore why some states have higher ambition than others. To capture and analyse ambition, two factors will be considered: presence of policies (policy density) and type of policies (policy stringency). It will thereby contribute to the existing literature with both descriptive and explanatory analyses. By conducting a longitudinal cross-country comparison, it will map out the development of green industrial policies over time, and the steering mechanisms employed by states. This is a useful contribution as it will hopefully provide a clear overview of which countries are taking the lead in decarbonising their industries and in what way they are doing so. The paper will also examine explanatory factors, building on previous research, by analysing the impact of economic structure, industry structure, EU membership and government ideology on green industrial policymaking. These factors have been highlighted as important features for climate ambition and for playing a significant role in the policymaking process. By attempting to pinpoint

what drives green industrial policy change in the industrial sector and engaging in the discussion on why some states are more ambitious than others, the paper will aim to clarify what states are 'pace-setting', 'fence-sitting' or 'foot-dragging' in the decarbonisation of industry. Methodologically, longitudinal data will be collected from the International Energy Agency (IEA) Policies and Measures Database, London School of Economics Climate Change Laws database and the Climate Policy Database. A broad conceptualisation of policies will be used; in addition to regulatory policies, also frameworks, roadmaps and voluntary measures will be included. For the independent variables, data from the Comparative Politics Dataset, the World Bank and the Detlaf Jahn's PIP Time-Variant Corporatism Index will be used.

Are national policy frameworks for the decarbonisation of energy-intensive industries fit for purpose? Lessons from 13 countries

Simon Dominik Otto

<p align="left">Achieving the decarbonisation of energy-intensive industries (EIIs) by mid-century is technically possible and essential to achieve the aims of the Paris Agreement. However, decarbonising EIIs, such as steel, cement, chemicals and aluminium, faces significant economic, political and structural barriers across all levels of governance. To address these and accelerate industrial decarbonisation, far-reaching and comprehensive public policies and support are needed. Against this backdrop, this paper analyses the national policy frameworks of 13 major EII producers to assess whether they are fit for advancing the decarbonisation of EIIs by mid-century. First, we identify general sectoral mitigation barriers, challenges and opportunities to the decarbonisation of EIIs and analyse how these are manifested at national level, based on country case studies conducted or reviewed by national experts. Second, we determine if national policy frameworks are fit for purpose to decarbonise EIIs by mid-century. To do so, we assess to what extent existing policies address national mitigation barriers and compare them to best-practice industrial policies identified in the literature.

<p align="left">Our findings show that mitigation barriers differ significantly across countries, while economic (e.g. high investment costs, long investment cycles) and structural barriers (e.g. insufficient clean energy supply) are identified as the most crucial common challenges. At the same time, the analysis indicates that most major EII producers in principle have favourable framework conditions enabling a timely sectoral transformation, such as high potential for clean energy or carbon storage. To exploit this potential and accelerate the decarbonisation of EIIs comprehensive but context-specific sectoral policies are needed. However, national policy frameworks vary significantly, both in terms of existing policies and approaches to industrial decarbonisation. While most countries have some form of sector specific mitigation targets and economic support measures in place, strict regulations on EII emissions remain scarce and existing policies have so far failed to trigger sustained mitigation efforts. At the same time, we observe a strong dynamic towards proactive industrial policies in industrialised countries that could potentially drive the decarbonisation of EIIs globally. However, developing and emerging economies seem to be unable to provide the needed support measures due to a lack of financial means. This risks a strong divergence in industrial decarbonisation across regions and highlights

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the need for international cooperation. The article concludes by providing policy recommendations to advance national climate policy frameworks, as well as general lessons learned to advance the decarbonisation of EIIs.

Parallel Panel: Conservation and synergies between actions

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.125 / Zoom

Chair(s):

Benoit Schmaltz

Presentations (including names of presenting authors):

Understanding transformative change in the biodiversity nexus

Mara de Pater

The first IPBES assessment demonstrated the need to radically transform the way we interact with biodiversity and nature. To move beyond short term, incremental change and instead generate radical shifts in our mindsets, policies, and practices in relation to the natural world, we must consider transformative changes in the context of the biodiversity nexus. Uncovering and understanding the diverse, intertwined relations between people and nature through interlinkages and interdependencies between biodiversity, water, food, energy, health, climate, and transport, is crucial for the shaping of governance that is transformative.

[Name of the project removed for anonymous review process] project aims to contribute to transformative governance in the biodiversity nexus by exploring what triggers transformative change in the context of the biodiversity nexus. This paper presents the project's conceptual framework on transformative change in the biodiversity nexus and presents insights for transformative governance.

Building on our analysis of literature on transformative change, which spans the scope of the biodiversity nexus, we outline diverse portrayals of transformative change in relation to governance. We do so with the aim of contributing conceptual clarity to the broader debate on transformations to sustainability. Departing from a critical perspective to transformations, we demonstrate how the concepts 'transformative change' and 'transformation' are portrayed to have different meanings and calls for action across different scientific perceptions. Here, conceptual clarity is found in clustering these different portrayals of transformation, to outline different scientific perceptions of processes towards and means for transformation. Examples of these clusters are: 'Transformation through technological innovation' and 'transformation through contestation/politics', which differently understand how change unfolds and thus what transformative change is required. Using this lens on the biodiversity nexus, we sketch how these portrayals also lead to different biodiversity futures and 'solution spaces'.

The paper concludes with a discussion of how these portrayals of transformation in the literature form a spectrum of change, ranging from radical change to incremental change. Conceptual clarity with respect to this 'spectrum of change', by outlining and identifying these different portrayals of transformation, supports a better understanding of what pathways of change and solutions are

Conference Stream(s): Anticipation and Imagination
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

proposed across these diverse scientific fields and ultimately transformative governance when it comes to out use of and interaction with nature and biodiversity.

The importance of attitudes, values and beliefs for human-wildlife coexistence

Ine Dorresteijn

Many wildlife species, such as the wolf, lynx and wild boar, are making a comeback in Europe. This comeback is creating novel types of human-wildlife interactions and conflicts, especially in regions where wildlife has been absent for long periods of time. To navigate the European wildlife comeback and facilitate often-desired coexistence there is a need to better understand the social factors driving conflict. Most studies on human-wildlife interactions focus on damage control and technical aspects. People's attitudes towards and tolerance of wildlife, however, are complex, and human-wildlife conflicts can also be manifestations of underlying conflicts between stakeholder groups. To facilitate human-wildlife coexistence we therefore need to look beyond short-term technical fixes and better understand the different social dynamics underpinning human-wildlife interactions. In this study, we used an interdisciplinary case-study approach to examine how values, beliefs and attitudes affect tolerance of wildlife and stakeholder cooperation in wildlife management and conservation. The study was conducted in the Western Carpathians of the Czech Republic and Slovakia, a region of increasing human-wildlife conflicts due to human expansion, land development, and the comeback of large carnivores and wild boar.

We found that attitudes towards large carnivores have changed over the past decade in parallel to changes in social-ecological circumstances. Specifically, individual attitudes have become more positive since the return of large carnivores to the region. In contrast, residents perceived the general relationship between humans and carnivores in the region to have shifted slightly towards conflict rather than towards coexistence. We found that diverse opinions on the wildlife comeback persisted in the region, including differences between tolerant versus less tolerant farmers. Here, tolerant farmers regularly recognized relational values or beneficial regulating Nature's Contributions to People (NCPs), while less tolerant farmers often identified negative regulating NCPs such as wildlife-induced damage. Values also played a role in stakeholder cooperation. While different stakeholder groups clashed over wolf protection and the appropriate management of wild boar, cooperation between stakeholders was facilitated by similar policy-related core beliefs on problem framing and preferred solutions to human-wildlife conflicts. Our research demonstrates the relevance of investigating social factors underlying conservation conflicts and tolerance of wildlife to support a transformation towards low-conflict human-wildlife coexistence.

An epistemological turn toward laboratories: studying marine biodiversity monitoring as sites of imagination and anticipation

Krystel Wanneau

![2023 Radboud Conference on Earth System Governance — Bridging Sciences and Societies for Sustainability Transformations]

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Monitoring marine biodiversity is one of the most challenging scientific and technological endeavours in contemporary ocean science and governance. At the same time, monitoring practices may be recast as research objects for Earth System Governance scholarship.

This paper aims to innovate methodology by extending how ESG thinks about the politics of anticipation and imagination to govern future sustainability challenges to the sites where data is produced and monitoring is conducted. To this end, we conceptualise monitoring as a contentious, multifaceted set of practices performed at the interface between marine scientific research, policymaking, and industrial interests. We propose an epistemological turn toward laboratories, which allowed us to study monitoring practices as 'working archives' of knowledge.

We conducted laboratory ethnography to investigate the sites where marine biodiversity data are produced and how. We selected three cases: Sao Paulo (Brazil), Brest (France) and San Diego (US). We designed a fieldwork strategy to engage with four themes of laboratory ethnography: ethnography of the epistemic, the interaction order of scientific meetings, sensory ethnography and spaces, places and rhythms. During each ethnography, we produced digital diaries where we reported the observations of the day, reflected on the main takes of what we learned about the laboratory practices and life, and collected visual data to document each ethnography.

In this paper, we compare seven dimensions of these laboratory sites: (1) Epistemic routines and knowledge production processes; (2) Processes of sample collection and data negotiation (including management and conflict); (3) Social interactions, processes and dynamics; (4) Physicality of the laboratory life (including space and communication); (5) Technology, gear, infrastructure interactions, dependence; (6) Potential power (a)symmetries including intersectionality and (colonial trajectories) of knowledge production; and (7) the ethnographer own positionality (in-group and out-group thinking).

Our results show that marine biodiversity monitoring research infrastructure is 'working archives' of science and identify the practices of making these archives. We consider laboratories as important sites currently overlooked in IR and we conclude by emphasizing the need to study their practices underpinning the materiality of knowledge. By feeding scientific working archives, the work of laboratories constitutes a site to observe how marine biodiversity monitoring policies anticipate and imagine future oceans.

A transformative shift for reef conservation? Perspectives on interventions to protect the Great Barrier Reef from climate change impact

Lucy Rosamund Holmes McHugh

There is increasing convergence amongst policymakers and stakeholders that climate change is the biggest threat facing the Great Barrier Reef (GBR). While the "super wicked" problem dimensions of climate change have been well-articulated, a more nuanced view of the solutions is lacking - the interventions needed to secure a sustainable future for the GBR.

Understanding social imaginaries around solutions is important for a number of reasons. It can aid in the design, implementation and prioritisation of actions in the context of complex systems

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Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations*

change and multiple threats. This is particularly useful when related to policy tools and anticipatory governance arrangements that require legitimacy and buy-in from a wide range of stakeholders. Social imaginaries also may be indicative of acceptance or contestation of particular pathways – a co-determinant of policy performance.

We use the "problem-solution space" framework that has emerged from innovation studies to better characterise the framing and discourse around reef conservation from relevant actors after mass coral bleaching. We believed that identifying the problem-solution space could assist policy makers strategise to improve problem-solution convergence, which can help achievement of societal goals, such as reef conservation and tackling climate change.

To get a better understanding of soical imaginaries around solutions, we focused on actor perspectives, undertaking a series of interviews from 2021 – 2022 from a cross-sectoral sample of actors (civil society, government, industry, science) from local to international scales. Using Q-method, a mixed method qualitative and quantitative approach, participants were asked to rank 31 statements of interventions and discuss the reasons for their preferences.

Our analysis finds that there were six perspectives represented. Three of the viewpoints prioritised climate transitions with some variation about which policies would best tackle the issue and extent of desired transformation. However, the other viewpoints each prioritised proximate action, such as coral reef management and restoration, water quality, and landscape drivers. Interestingly, there was more convergence over the least desired interventions, which will be discussed. We also identify that within the "problem-solution space", levels of uncertainty, contestation and complexity amongst solutions suggest the need for more reflexive governance approaches and linkages between climate transitions and reef governance which at this time are lacking.

The ocean as a natural laboratory: singularities, comparative advantages, and the potential for transdisciplinary science and technology

Marcelo Olivares-Arenas

Global environmental challenges require ocean observation, monitoring, and the innovative implementation of solutions at the local and regional levels. Natural biogeographical or geophysical characteristics of a territory may provide comparative advantages for scientific advancement and international collaboration with well-known examples such as the Galapagos Islands, the Amazon, Antarctica or Hawaii and other insular systems.

In this context, unique sites and their attributes have been proposed as policy instruments for public scientific development under the concept of natural laboratories, a framework that systematically considers features as assets, creating opportunities to attract investments and talent, as well as to direct and harness knowledge creation for local sustainable development.

However, a general lack of effective communication between scientists and local communities may cause scientific production at the territorial level to be fragmented or uncoupled from local needs, limiting use, spillovers, funding efficiency and missing opportunities from scientific knowledge generation by groups with access to networks and resources. Moreover, thinking about

Conference Stream(s): Anticipation and Imagination
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

sustainability and transformation in the face of local and global challenges requires not only a strategy for strengthening science and technology based on natural attributes, but also a critical discussion about visions and targets.

Using the concept of natural laboratories, our objective was to identify places in the ocean that fulfil this concept in relation to biological, oceanographic and socioecological characteristics, analysing the overlap of attributes, research outputs and local stakeholders visions from a participatory perspective at the regional level, with a focus on the singularities of the central-north coast of Chile in the southeast Pacific (25°45'S to 33°10'S); specifically in the Humboldt Archipelago and Systems of Upwelling and Bays. We conducted an exploratory transdisciplinary approach with the participation of researchers as well as representatives from public agencies, local governments and coastal communities in online and field workshops and interviews. We identified gaps in research and its territorial application to inform policy and benefit from inter and transdisciplinary collaborations, and outlined a road map for capacity and impact building for scientific and technological development.

We recognize as key elements to implement a natural laboratory policy the promotion of interactions and networks between actors, linking global and local challenges, making knowledge accessible, identifying problems and needs in the territory, and establishing mechanisms to locally influence targets and resource allocation. Moreover, we discuss challenges and opportunities at the interface of ocean science, policy and local development to strengthen nature-based science and technology in the ocean.

Conference Stream(s): Anticipation and Imagination
Adaptiveness and Reflexivity
Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: Scholar Activism within ESG: Exchanging lessons from three initiatives

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR -1.070

Chair(s): Aarti Gupta, Kyla Tienhaara

Presenter(s): Harro van Asselt, Peter Newell, Frank Biermann, Jennie Stephens, Kyla Tienhaara

Scholar Activism within ESG: Exchanging lessons from three initiatives

This innovative session will present and discuss three 'scholar-activist' initiatives that academics within the ESG community have been engaged with recently: the initiative against the Energy Charter; and the initiatives promoting a Fossil Fuel Non-Proliferation Treaty; and an International Non-Use Agreement on Solar Geoengineering.

Audience present will be invited to share additional experiences and instances of activism.

The aim is (a) to share experiences, lessons learned, challenges encountered and diverse ways through which to take a more activist stance in our areas of research; and (b) to have a broader discussion about the role of the scientist in ever intensifying planetary crises.

To achieve these aims, the session will be designed as follows:

(a) Introduction to the issue from ESG SSC perspective: Aarti Gupta (5 minutes)

(b) A round table discussion to exchange experiences on the three initiatives (50 minutes)

Moderator: Aarti Gupta

Speakers:

- Opposing the Energy Charter: Kyla Tienhaara
- Fossil Fuel Non-Proliferation Treaty: Harro van Asselt or Peter Newell
- International Non-Use Agreement on Solar Geoengineering: Frank Biermann

(c) Audience segment: Sharing of own experiences and areas of activism (30 minutes)

Moderator: Jennie C. Stephens

(d) Conclusions and ways forward and role that ESG can play: Kyla Tienhaara (5 minutes)

Note: All named panel participants are TBC. The program will be as described; but the named panel participants may change, depending upon who is present at Radboud.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Just and green transitions: focus on Europe

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.109 / Zoom

Chair(s):

Maria-Therese Gustafsson

Presentations (including names of presenting authors):

The Green Transition and the rural perspectives of justice in Finnish natural resource governance

Johanna Maria Leino

The EU's Green Transition means major changes in choices, emphases, and practices regarding the use of natural resources. In Finland, the Green Transition has meant a rapid reduction in the use of energy peat and the need to increase the production of battery metals and the utilization of renewable energy, such as wind and solar power. Pressure is placed especially on the rural areas which hold most of the natural resources in question. At the same time, conflicts over the governance of natural resources linked to the Green Transition have been increasing in Finland, demonstrating the tensions between sustainability and justice goals.

In recent years, increasing attention has been paid to the spatial dimension of just transitions. However, research on environmental justice and just transition from the perspective of rural areas is still scarce. By combining the rural perspective to the research on environmental justice and natural resource conflicts, this paper looks more in detail to the rural areas under pressure. We ask what does environmental justice mean in rural and for rural areas in relation to the use of natural resources? What type of tensions in relation to the transition can be analyzed? In addition, we explore what type of governance solutions are needed to take the diversity of rural areas into account and to respond to the justice issues related to the Green Transition.

The paper presents the preliminary results of a comparative case study that is based on data collected in seven municipalities representing different types of rural areas in different parts of Finland. The municipalities have current conflicts of different intensities related to the use of natural resources and the Green Transition. Interviews (n=20) and a survey (n=612) were conducted in the municipalities in the winter 2023. The survey was used to map the local views on the use of natural resources, (spatial) justice, and the implications of the Green Transition in rural areas. Workshops for the locals will be held in the municipalities during the spring 2023 to further the knowledge on and look for solutions to the issues arisen from the survey.

The influence of national sustainability institutions on policy-making in Germany

Okka Lou Mathis

In this paper, I explore the role of national sustainability institutions in decision-making with a focus on Germany as a country case study. By sustainability institutions, I understand the manifold formal political bodies installed specifically with the purpose to promoting sustainability in politics. They may comprise councils, committees, commissions or ombudspersons for sustainability, for sustainable development, for the future or for future generations. Governments around the world have installed such specialised political bodies, often in response to the Rio Earth Summit in 1992 or the Agenda 2030 for Sustainable Development.

In Germany, I zoom in on at least four such bodies at the national political level: the Parliamentary Advisory Council for Sustainable Development in the German Bundestag, the State Secretary Committee for Sustainable Development, the German Council for Sustainable Development and the German Advisory Council on Global Change. My research question reads: Do sustainability institutions influence political decision-making, and if so, how? Against this background, I am particularly interested in the different explicit or implicit logics of intervention that underpin these institutions conceptually. I take Boston's list of intervention logics of governance mechanisms for the future as point of departure, which includes, first, the constraint of decision-makers, second, the enhancement of long-term analysis, third, advocacy on behalf of future interests, and fourth, enhancement of the government's capacity to exercise stewardship (Boston 2017, 175). By examining their mandates and functions, I attribute these different intervention logics to the different sustainability institutions in my country case. Methodologically, the case study rests on a combination of document analysis as well as on semi-structured interviews mainly with members and former members of national sustainability institutions as well as experts in the field of sustainability governance in Germany. I apply and adapt an analytical framework developed in previous conceptual work.

With this case study of national sustainability institutions in Germany, I shed light on the design and impact of such specialized political bodies on decision-making as well as on the complementarity and interplay between them. Such analysis helps in estimating and managing expectations towards these institutions' roles in the transformation to sustainability.

A Democratic Decarbonization? Transdisciplinary Insights into German Brown Coal Regions

Jan-Hendrik Kamlage

According to government officials, the German coal phase out represents one of the most large-scale attempts at politically steering and democratically organizing a consequential decarbonization process.We critically scrutinize this claim based on our experience as engaged transformation researchers, summarizing 5 years of research in the West and East German lignite districts. We thus give grounded empirical and reflexive insights into the limitations of participatory governance and transdisciplinary research.

Both our research groups [institutes removed] have been involved as transdisciplinary collaborators for policy makers, economic planners and civil society in the Rhineland and Lusatia. We were given a mandate from both "Länder" governments to accompagny local participation and

cross-sector collaboration processes (regarding future workshops in Lusatia and the bioeconomy in Rhineland). In this talk we try to give a big picture of both regions and their contrasting governance setups. We look back on several endeavors of qualitative research and transdisciplinary workshops in a comparative way.

Four questions guide our comparison: 1) Which concepts of just transition underpin the federal and regional policies with regard to regional transitions? 2) Which processes of public participation did the governments and civil society launch and in how far did they impact the (il-)legitimacy of the phase out decision? 3) Which innovation policies were launched to bolster the anticipated impact of the coal-phase out on regional economy and technological development? 4) And by which means and with which lessons have we locally integrated in these processes as transdisciplinary scholars?

In all four aspects we claim that the political cultures of both regions vary drastically. Given the past legacies of Rhenish and Lusatian industry as well as differently situated power constellations between industry, trade unions, environmentalist and party politics, we argue that the regional phase outs were not only challenges of spatial justice, but also of temporal justice: Amidst a protracted structural change process, the main opportunities for transformation were condensed in just a few years since the federal governments "coal commission" in 2018/19. Under considerable pressure, short-term projects were launched and long-term questions about democracy and sustainability were largely treated as unpragmatic or too time-consuming. We describe how civil society in both regions responded to the perceived attempts of external control and problematic participation, showing how, nonetheless, the phase out process unintendedly revived local democracy. Altogether the story of German coal regions is an ongoing litmus test for democratic decarbonization.

Legislating for a just transition: A comparative case study of just transition conceptualisations in Scotland, Ireland and Spain

Vilja Johansson

Justice is increasingly recognised as a key part in the governance of global environmental change, not least in relation to low-carbon transitions. In addition to the unequal effects of climate change itself, also the actions responding to it, risk having unequal implications for different regions and social groups, potentially exacerbating existing inequalities or creating new ones. As a response to these challenges the concept of a just transition has gained traction. In line with increased advocacy of the term in policy debates, there is a recent trend of including a reference to just transition in legislation governing low-carbon transitions. In contrast to the growing literature on just transition policies, research on the different legislative approaches for guaranteeing just climate action remains absent.

The philosophical and policy literature on just transition illustrates the complex moral and political questions that need to be addressed when the justness of transition policies is to be determined. Questions arise as to what type of justice the actions aim to achieve, for whom the transition

should be just and against what the justness of specific actions should be evaluated. With a view to these conceptual challenges, combined with the influential role legislation plays within low-carbon transition governance, it appears increasingly relevant to scrutinize how just climate action is conceptualised and operationalised through climate legislation.

Answering to this research need, this paper undertakes a comparative case study of the legal conceptualisation of a just transition in three framework laws on climate change: The Scottish Climate Change Act (2019), the Irish Climate Action and Low Carbon Development Act (2021) and the Spanish Act on Climate Change and Energy Transition (2021). The cases have been selected through a comprehensive review of framework laws on climate change, with the aim of including diverse legislative approaches in both the conceptualisation and the operationalisation of just transition. The case studies are based on a legal analysis of the selected laws, their preparatory documents and related enforcement policies, complemented by semi-structured expert interviews with relevant public officials to strengthen the primary analysis. The comparative exercise will moreover assess the theoretically relevant conceptual and institutional similarities and differences in the legislative approaches. The paper arguably contributes with significant new knowledge on the legislative practices within just transition governance. Through the comparison, it further draws conclusions relating to the strengths and weaknesses of different legislative approaches and points to the critical questions going forward.

Unpacking Just Transition Narratives in European Coal Regions

Lukas Hermwille

In recent years, the public discourse on the phase-out of carbon-intensive technologies and practices has come to a near consensus that a "just transition" is required. Yet, this term seems to have as many meanings as there are stakeholders using it. While enabling a constructive discourse, the variety of meanings underneath the surface of the just transition paradigm may also conceal conflict. While some actors employ versions of the just transition narrative to accelerate a transformation away from fossil fuels, others might employ seemingly similar narratives to delay the transformation by stipulating that only a slow transition can be just.

To shed light on the varieties of "just transition" and its strategic employment we employ a policy narrative analysis to study and compare the political discourse in four European coal+ regions: Ida-Virumaa (Estonia, oil shale), the Rhenish mining region (Germany, lignite), Silesia (Poland, hard coal) and Western Macedonia (Greece, lignite). Specifically, we will be addressing the following research questions: Which narratives are characterising the political discourse around just transition? Which (in)justices are being invoked? Which patterns, similarities or differences are recognizable between regions?

We found that hopeful narratives describing structural change as an opportunity to reinvent the region are prevalent in all regions. Strong narratives of resistance only prevail in Silesia and Ida Virumaa where a phase-out decision has not yet been adopted. In terms of injustices, we find surprisingly little evidence that injustices related to the immediate effects of the transformation

(e.g. lay-offs and compensation for workers and companies) play an important role. Instead, the aspects related to the historical injustices produced by the legacy industrial system prevail. And perhaps most importantly, questions about access and allocation of the opportunities of the imminent transition are key and should be addressed more explicitly.

Parallel Panel: Climate Finance

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.112

Chair(s):

Jakob Skovgaard

Presentations (including names of presenting authors):

The Wall Street Consensus and The Green Climate Fund

Johan Arango-Quiroga

Recent developments in the scholarship of global finance have called attention to the emergence of the Wall Street Consensus (WSC), a concept that captures the attempt to restructure development interventions around partnerships with global finance. The WSC can also be understood as "development as derisking," a new paradigm where investments are assessed by how bankable they are or whether people are willing to pay for the goods or services a project delivers. The WSC has reframed the Washington Consensus in the language of sustainable development goals and has been identified in climate negotiations such as COP26 and COP27. The Green Climate Fund (GCF), one of the largest sources of multilateral climate finance, represents an important site where the WSC plays out. This study seeks to understand the extent to which the politics and funding ideologies of the GCF reflect the WSC. We also aim to examine how the WSC and the derisking narratives associated with it, shape the types of projects that are supported or excluded by international climate finance. We conducted a virtual ethnography of GCF board meetings to analyze the deliberations on funding proposals. At each meeting, the board spends several hours discussing submitted proposals. Our sample included deliberations on 205 projects, and over 42 hours of board meeting deliberations. Discussions were thematically coded to reveal concerns raised by both board members and observers and a structured content analysis connected these concerns to the concepts that frame the WSC narratives. Our findings suggest that board members engage with the WSC and the de-risking agenda that promotes and reinforces new bankable projects that attract capital flows as a priority. Our findings also indicate a connection between the prioritization of public-private partnerships and fund of funds arrangements with the values of the WSC. We argue that the concerns raised for projects that targeted individuals, communities, or vulnerabilities emerged in large part because the logic of these projects diverged from the WSC. These findings have significance for the types of projects that receive funding, i.e., those deemed bankable, which emphasizes how the power of global finance limits the inclusive reach of the solutions proposed by project proponents. These results also illustrate how climate finance governance serves as a gateway for further financialization of recipient countries, raising concerns about the potential of such institutions to promote climate justice. Through the WSC, developing countries are further subordinated to global financial capital.

Conference Stream(s): Architecture and Agency
Inter- and Transdisciplinarity for Sustainability Transformations

Beyond divest vs. engage: a review of the role of institutional investors in an inclusive fossil fuel phaseout

Clara McDonnell

Institutional investors, who control as much as $154 trillion globally, are positioned to play a major role in shaping the global response to the climate crisis and the energy transition, both as a potential source of capital for green projects and as major stakeholders in the companies producing, distributing, and consuming fossil fuels. Research on investors and the fossil fuel industry focuses predominantly on the fossil fuel divestment movement or on shareholder engagement as a means of influencing firms. This review widens the scope of attention to investors, asking: what avenues for influencing the fossil fuel industry are available to institutional investors and what are the implications of these for achieving an inclusive fossil fuel phase out? Systematic and scoping search methods are used to identify 137 relevant papers, through which seven strategies for influencing the fossil fuel phaseout are identified: divestment, engagement on climate issues, investor hiring practices, engaging with investments in the financial sector, engagement with indirect financial actors, litigation, and green investment. While these strategies enable investor action (and suggest focus areas for activists and policy makers), their potential for accelerating a fossil fuel phaseout is generally limited by investor mandates to pursue financial returns above other concerns. We also identify a trend of consolidation of decision-making power in a small number of for-profit actors, which limits investor capacity and illustrates the undemocratic allocation of, and control over, finance. Despite the multidimensional, global effects of climate change (and finance's involvement), much research in this area remains focused on actors in the Global North and the financial implications of their strategies. We argue that future research should prioritise: (a) the social, equity, and development-related implications of investor strategies, (b) the Global North-Global South dynamics associated with financial decision making in the Global North, and (c) policy solutions capable of overcoming investors' short-term profit motives to instead incentivise long-term investor engagement with climate issues.

How state development financing institutions can encourage low-carbon transition and innovative solutions for global climate governance: the analysis of state development banks in Brazil

Thais Ribeiro

The Anthropocene has become a contextual condition for International Relations research and emphasizes climate change as a civilizational driver. Global climate governance has undergone relevant changes since the 1990s toward more decentralization, diverse elements, and the engagement of multiple actors at different levels, with solid research from an institutionalist perspective. However, the mobilization of resources to implement climate action has been insufficient, therefore reinforcing the alerts of the Anthropocene as a paradigm.

International political economy as an analytical lens offers an alternative reading on how to encourage a transition to a low-carbon economy. Innovative solutions may stem from but not remain limited to financial processes and instruments. For that, the assessment of power and

particular interests, policy and governance interventions, and financial institutions dynamics become relevant variables for analysis. In the context of the growing participation of state-led investment banks in climate finance, these institutions can play a role in the long term, enabling actions that go beyond a market-failure perspective.

Therefore, this paper aims to analyze how public finance through three national development banks in Brazil encourages a low-carbon transition and whether they present innovative solutions. The analysis is based on a content analysis of reports, statements, policy briefs, and other relevant public documents from the Bank of Brazil (BB), the Brazilian Development Bank (BNDES), and Caixa Economica Federal (CEF).

This proposal is a pertinent assessment considering Brazil's characterization as a climate power and a relevant economic actor in the international system. For instance, the Brazilian National Development Bank (BNDES) claimed that it raised US$ 500 million in 2021 with the New Development Bank for climate-related projects. The Bank of Brazil (BB) is one of the country's largest rural credit operators, while agribusiness is closely related to the country's GHG emissions profile. Also, Caixa Economica Federal (CEF) has a Social and Environmental Fund (FSA) and a Forests Program with the objective of recovering and protecting forests and conservation units in all Brazilian biomes through financing and actions.

Through a landscape of public finance for climate change from the major state development banks in the country, we explore how financial processes and instruments from the development banks are operating to mobilize resources for climate action and a long-term low-carbon transition. Also, it searches for innovations and novel solutions in play.

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Populism, backlash and environmental politics

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Joost de Moor

Presentations (including names of presenting authors):

"Pushing the cattle through": invisibility and securitization in Bolsonaro's climate rhetoric

Rodrigo Führ

This paper unpacks former Brazilian president Jair Bolsonaro's (2018-2022) climate rhetoric by critically analyzing his discourses as part of an international and societal trend of right-wing populist policymakers' narratives on climate denial and securitization. Bolsonaro's rhetoric has been controversial since before he even took office. Since his early days as a congressman, Bolsonaro's discourses became headlines for mobilizing public hatred as he often garnished attention for being politically incorrect. While Bolsonaro's convoluted agenda touched upon many subjects, perhaps one of the fields where his discourses found a significant reverberation, not unlike other right-wing populist politicians, concerns climate change and the environment. Whereas at international conferences the Bolsonaro administration sought to present a conciliatory tone to lessen international backlash from activists and leaders petitioning to reach carbon neutrality and reduce Amazon deforestation, domestically Brazil's former president maintained that environmental protection impedes economic development and recurringly attacked environmental defenders. Such incongruities illustrate how Bolsonaro-era environmental matters where talked about and managed through a multiple, and often contradictory, means. By way of Critical Discourse Analysis, we present how Bolsonaro and his administration instrumentalized the environment and climate change in complex and, to some extent, novel manners typical of populist elected officials. We argue that unveiling Bolsonaro's climate rhetoric highlights how he has concurrently denied and invisibilized environmental concerns during his administration, while conveniently also positioning environmental matters at the highest level of policymaking via securitizing the Amazon Rainforest and linking environmental concerns with a narrative enmeshed with Brazil's national sovereignty concerns. The paper offers three unique but interrelated contributions: (i) it provides a first overview of Bolsonaro's climate narrative during his presidency, intricating domestic and international discourses as part of a common rhetoric; (ii) it complicates common-held perceptions around populist discourse on climate change, meaningfully exploring the entangled contradictions in Bolsonaro's usage of the climate and the earth system in his speeches; and (iii) it conceptually explores our findings within the field of research on far-right environmentalism and authoritarian populism discourses, linking it with the Earth System Governance network's research findings on democracy and power. We find out that these rhetorical contradictions could be explained by how, at a societal level, Bolsonaro's use of different language and framings to talk about the environment both

domestically and internationally serves the purpose of inflaming his nationalist, militarized, religious, and conservative supporters, thus shifting his discourse schemata to fit his populist purposes.

A double backlash? The effect of right-wing populist and green parties on climate policy production in Europe

Kai Schulze

There is increasing support for populist parties around the globe and increasing evidence that this may fuel backlash to climate policy. Research suggests that populist attitudes are deemed key for explaining climate change skepticism while right-wing populist parties have detrimental effects on greenhouse gas emissions and climate policy production. At the same time, however, there is also increasing support for green parties, the arguably strongest advocates of ambitious climate policy while empirical research remains divided about positive green party effects on climate policy. This bipolar setting begs the question whether and how the two party families, and competition between them, affect climate policy production. The present paper addresses this question. Building on a comprehensive cross-national dataset, it studies the impact of populist and green parties inside and outside of government on climate policy production in 22 European democracies between 1990 and 2016. The results suggest that increased electoral competition from right-wing populist parties can drive additional climate policy efforts of green parties. These results have important implications for our understanding of partisan competition and effects in climate policy-making.

Mapping the Environmental Impacts of the New Pink Tide in Latin America

Eduardo Viola

Since the end of 2021, left-wing presidents have been elected in three major Latin American economies: Gabriel Boric in Chile, Gustavo Petro in Colombia and Lula Da Silva in Brazil. All three victories have occurred by narrow margins and in the context of fractured and polarized societies, especially in Brazil. The challenges to democratic governance are mostly new, unprecedented since the first pink tide of the 2010s.

One of the characteristics of this new left -distinct from those that already governed the other major economies of Argentina and Mexico and from those that proliferated in the first decade of the 2000s- is the central relevance given to climate and environmental issues both in the campaign and in the initial months of their mandates.

In this paper, we set out to identify the impacts of these three administrations -also called the new pink tide- on environmental governance at the national level: Are these Presidents consistently changing the way the environment is governed? Which areas have been privileged?

To achieve our objective, we analyzed policies, policy proposals and, presidential speeches in four main areas: energy (including both the place of fossil fuels and renewables in the future of countries' development); forest management (including deforestation control policies, extremely

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

relevant in the cases of Brazil and Colombia and Chile as a success story as it has a negative balance of emissions in the forestry sector); agriculture (particularly in Brazil where emissions from the sector amount to 27% of the total and an agribusiness and family farming sector has emerged that is internalizing decarbonization) and manufacturing (particularly the prospects for green reindustrialization). In analyzing these sectors, we will also assess the role of the international community: Do these presidents actively participate in international environmental governance, and do they emphasize the importance of international actors in achieving their goals?

Our results will help to identify not only areas of divergence and convergence, but also to understand potential areas of cooperation between these countries and, potentially, at the Latin American level. Our contribution to the lens of architecture and agency will be the study of a new phenomenon in Latin America that tends to converge with similar processes that have occurred in the European Union in the last decade.

Ideational Politics of Domestic Climate Policy: Delegitimation and its Consequences

James Patterson

Understanding how to make climate policy stick has become a key focus among scholars working on decarbonization and policy feedback in recent years. This requires that climate policies are not only adopted but also remain durable in the face of often-fractious post-adoption politics, and ideally also enable policy stringency to be ramped up over time. However, while much attention has been given to interest-based competition (e.g. costs and benefits) and cognition (e.g. beliefs, values, learning), deeper struggles over the socio-political construction of legitimacy in domestic climate policy action remain largely overlooked. Durability of climate policy will crucially depend on competing processes of legitimation and delegitimation. Delegitimation is a threat to climate policy action by undermining its justificatory and authoritative basis, potentially leading to policy removal and undermining the wider policy agenda.

This paper examines mechanisms of delegitimation in domestic climate policy action and the consequences for ongoing climate policymaking. It comparatively analyses cases of abrupt delegitimation within backlash to hard/coercive climate policy (e.g., regulation, taxes/pricing, phase-outs) in several countries (i.e., Australia, Canada, France). Such backlash, where delegitimation plays a central role, becomes an important concern within fractious and polarised contemporary political contexts. Potential mechanisms of delegitimation include argumentative (e.g., rhetoric, campaigns), structural (e.g., legal challenges), or behavioural (e.g., voting, protest, noncompliance) forms. Potential consequences of delegitimation include policy repeal or weakening, destabilisation of broader policy agendas, weakened authority of policy proponents, and entrenched political divides. The cases empirically unravel mechanisms operating under various conditions, and the ways in which they lead to particular consequences. This helps to understand how processes of abrupt delegitimation operate within the broader ideational politics of domestic climate policy action.

Overall, the paper contributes to understanding interactions between authority and resistance in collective problem solving, which is crucial to advancing durable transformations in governance

and society. As such, it is located at the interface of 'Architecture and Agency' and 'Democracy and Power' research lenses, and the 'Transformations' contextual condition.

Parallel Panel: Realizing transdisciplinarity in earth system governance research and education

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.120 /

Chair(s):

Anne Kantel

Presentations (including names of presenting authors):

Dismantling the Tower of Babel: recognizing and addressing mutual incomprehensibility in transdisciplinary sustainability research

Jonas House

In an age of 'permacrisis' we are faced with a range of vastly complex problems, such as how to provide energy, transport and food in a socially just fashion without compromising planetary or public health. Correspondingly, it is now commonplace for research projects – shaped by the funding landscape in which they are situated – to require inter- or transdisciplinary collaboration, in an attempt to reflect the complexity of the issues they are designed to address.

Transdisciplinarity can be clearly beneficial for such research on the 'grand challenges' of the Anthropocene. Our argument in this paper, however, is that transdisciplinary research does not automatically yield more insightful and applicable results than disciplinary approaches. Transdisciplinarity cannot simply be deployed to answer complex, multifaceted research problems. Instead, it requires clear, project-specific implementation: a process that raises a number of ontological, epistemological and methodological challenges.

The empirical core of our paper is a set of vignettes from a transdisciplinary research project on transitions to a sustainable Dutch food system. We focus in particular on two key aspects of this work. First, the interaction between food system modelling and qualitative sociological research, which - despite a comparable theoretical emphasis on emergence and complexity - used a range of divergent epistemologies, datasets, and timelines in order to answer shared research questions. Second, the ways in which these different approaches sought to understand possible futures of the Dutch food system, based on particular methodologies of anticipation.

We then reflect on the implications of these findings for transdisciplinary work on sustainability transformations. We outline how different disciplinary approaches can (1) inform one another, such as through integrating data or theories from one approach into another; (2) be used in parallel, where inferences can be made across insights from each discipline without combining approaches during the main research phases; and (3) where fundamental differences in assumptions and approaches entail that careful consideration must be undertaken to determine whether integration or joint use is truly the most effective approach. We argue that there is no 'one size fits all' approach to combining disciplines in a given project, especially when the work

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goes beyond interdisciplinary to include societal partners in transdisciplinary efforts. Accordingly, we discuss strategies for research practitioners seeking to create an ecosystem of approaches, in order to best utilize them both separately and jointly in addressing grand challenges.

Operationalizing ambiguity in transdisciplinary sustainability research: Addressing the elephant in the room

Anita Marie Lazurko

Ambiguity, or the existence of multiple valid interpretations, is widely recognized as an intrinsic aspect of addressing complex sustainability challenges, and is particularly relevant for the plural and systemic nature of sustainability transformations. Nevertheless, in the practice of transdisciplinary sustainability research, ambiguity is often an 'elephant in the room' to be either ignored or reduced rather than explicitly mobilized. These responses to ambiguity pose risks to the salience and legitimacy of the research outcomes by masking the pluralism of real-world sustainability challenges and the ways in which research renders certain frames visible or invisible. Critical systems thinking (CST) grew out of the efforts of operational researchers to develop appreciation of both theoretical and practical aspects of ambiguity. By adapting from key concepts, frameworks, and lessons from CST literature and case study reflections, this perspective paper aims to 1) establish a holistic and operational conceptualization of ambiguity and 2) provide recommendations for how sustainability scientists can operationalize ambiguity as a valuable means of addressing sustainability challenges. We conceptualize ambiguity as an emergent feature of the simultaneous and interacting boundary processes associated with being, knowing, and intervening in complex systems. This characterization acknowledges the boundary of a researcher's subjective orientation and its influence on how ambiguity is exposed and mediated (being), characterizes knowledge as produced through the process of making boundary judgments, generating a partial, contextual, and provisional frame (knowing), and situates a researcher as part of the complexity they seek to interpret, rendering any boundary process as a form of intervention that reinforces or marginalizes certain frames (intervening). We provide two overarching recommendations for sustainability science to operationalize ambiguity. First, rather than attempting to resolve ambiguity through integration under any single meta-theory, sustainability researchers should focus attention on the potential for and consequences of theoretical incommensurability and discordant pluralism. Second, we suggest the need to nurture the reflexive capacities of transdisciplinary researchers to navigate persistent ambiguity. We offer the novel framework of 'reflexive boundary critique' to help do so, which guides critical reflection on all three boundary processes associated with ambiguity (i.e., being, knowing, intervening), thereby embedding reflexivity into all stages of the research process. In sum, our findings can help sustainability researchers give shape to and embrace ambiguity as a fundamental part of rigorous transdisciplinary research, in particular that which aims to contribute to sustainability transformation.

Transdisciplinary and hopeful higher education amidst a planetary crisis: an account of the first two experiments of the Academy of Hope

Kelly Diana Streekstra

The planetary crisis poses a fundamental question for universities, in which the relationship between academia and society should be reconsidered. A key dimension to solving this puzzle lies in reinventing our educational practices. Current educational formats are often still targeted at learning about change and not about actively positioning in societal change. This tendency is reinforced by 'siloed' organization of education into individual courses, and by focusing on just one group of learners: students in their initial education. With the interdisciplinary action research project [citation removed to annonymize abstract], we aim to take up this challenge. Informed by insights from pedagogy, futuring and transdisciplinarity we crafted two experiments in which Master students engaged with societal changemaking in an immersive way.

In [citation removed to annonymize abstract], 16 masters' students and 22 societal practitioners engaged for 2,5 months with a societal issue: the political deadlocks in the rural Netherlands. They engaged with utopia as method to imagine societal change, and with the support of theatre makers they created an immersive event for 100 visitors. In the other experiment, [citation removed to annonymize abstract], 6 master's students and 4 societal practitioners reflected on their personal and emotional experiences when aiming for change. Through an emergent futuring process, they collaboratively defined the group's creative potential. Furthermore, the students are writing their master's theses in related topics, by establishing reciprocal relationships with society.

The following preliminary insights emerged from our experiments. A striking difference was found in the energy in the classrooms, varying between a high paced and workload, and a rehearsal of showing care and slowing down. Additionally, the courses departed from different problem statements: either personal struggles or externally defined societal issues. Furthermore, different sources of meaning-making, from expert knowledge to the experiential (emotional and embodied), were given prevalence. Thereby, the courses differed in the way they suggested that students can make a change in society. Correspondingly, the students' reported learning outcomes varied, for instance in their sense of agency and the types of changemaking they valued. Therefore, our research raises awareness of a bandwidth for possible pedagogical designs within the search for transdisciplinary and hopeful education amidst a planetary crisis. Whilst inviting further research, we don't aim for a silver bullet: we instead argue such bandwidths of pedagogies are to be considered carefully when designing context specific pedagogies for sustainable societal change.

Creating favorable conditions for inter- and transdisciplinary integration – an analytical framework and empirical insights

Lisa Deutsch

Complex phenomena of our time such as climate change or more recently, the Covid-19 pandemic can neither be comprehensively understood nor properly addressed by employing a single disciplinary or sectoral perspective. For this reason, more and more inter- and transdisciplinary (ITD) initiatives are on the rise, intending to open up the silo-like production and organization of knowledge, and to advance the integration of different fields of expertise within academia but also across science, policy and practice. While the need for ITD endeavors also has increasingly been

acknowledged by research institutions, funding organizations and public authorities, also reflected in an increase of funding opportunities, the question remains to what extent these conditions suffice for making ITD integration really happen in practice. This paper embraces a holistic view on ITD integration by presenting both an analytical framework and empirical insights derived through interviews, participant observation and workshops with both leaders and members of three ITD initiatives in Switzerland. The framework is based in critical realist reasoning and empirics, and distinguishes contextual conditions of integration at different structural levels, while also acknowledging the power of actors to shape integration. The paper thereby intends to help diagnosing where different fields of tension come from, and how they are interrelated and impact ITD integration. We conclude by discussing entry points for action for several actors interested in making sure that ITD initiatives can unfold their full integration potential in practice.

Parallel Panel: Governing the acceleration of the transition towards animal-free innovation

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR -1.075 / Zoom

Chair(s):

Ingrid Visseren-Hamakers

Merel Ritskes-Hoitinga

Session Overview: Governing the acceleration of the transition towards animal-free innovation

This panel brings together transdisciplinary contributions from natural and social scientific scholars and practitioners contributing to accelerating the transition towards animal-free innovation. Attention for non-humans is increasing in sustainability debates, including through discussions on rights of nature. There is, however, less attention for animal interests (animal health, welfare and rights), in other words, seeing animals as individuals instead of representatives of species. Especially the issue of animal testing is largely absent from scholarly and practitioner debates on sustainable development: developments in the transition to animal-free innovation and other sustainability transitions and transformations are largely disconnected. This panel zooms in on this issue of animal-free innovation, which is highly relevant to many sustainability debates, since animal testing is done for, among others, food and agriculture, health, and (environmental) safety. With this, it represents an integral part of environmental justice debates.

Animal testing continues despite political and societal support for alternatives. Animal testing is not only problematic from an ethical perspective, but also from a scientific point of view. There is increasing evidence for the variability in animal data and the poor predictability of animal studies for humans. Yet, almost 200 million animals are estimated to be used annually in research around the world. In 2018, in the EU alone, almost 10.6 million animals were used for research and testing, the majority being mice. Most animals were used for basic research (46%), a further 28% for translational and applied research, and 23% were registered to satisfy legislative requirements, followed by 5% routine production. The development of animal-free New Approach Methods (NAMs) is widespread and encompasses e.g. in vitro, ex vivo, in chemico and/or in silico alternatives. The panel discusses key issues for replacing animal testing by NAMs, including the use of artificial intelligence, communication, and transformative governance.

Presentations (including names of presenting authors):

Analyzing and accelerating the system transformation towards safety testing of chemical substances through new approach methodologies

M.J. Hoogstraaten

Safety assessment of chemicals and pharmaceuticals is traditionally performed using animal studies which is considered to be 'the gold standard' by both industry and regulators. In the last decades a 3R mission has been formulated aimed at replacing, reducing and refining animal studies. Concerns around animal welfare and the ambition to strive for increased relevance of test results for health and sustainability has been recognized as a powerful motor to realize this mission. However, while the call to adopt 3R principles is growing and innovations in new approach methodologies (NAMs) increasingly allow for animal-free prediction of toxicity, this has not yet materialized in a sustained reduction of animal studies used for toxicity assessments.

It has been argued that to implement NAMs, changing the safety assessment system through multi-actor collaborations is needed. Facilitating systemic change also requires a thorough understanding of all relevant system elements at play. Previous studies in the sustainability transitions field provide a systemic framework that not only focusses on technological fixes, but also takes into account socio-institutional aspects that need to be changed and fulfilled in order for a systemic change to occur. The mission-oriented innovation system (MIS) framework in particular discusses systemic change necessary to achieve a specific mission when coordination between different actors with an important role for state-led actors is required, as is the case for the 3R mission. To what extent this framework can be used and applied to the 3R mission is however yet unknown. We thus research the following question in this paper:

How can we apply insights from the mission-oriented innovation systems literature to better understand the process of developing and implementing new approach methodologies and their contribution to the transition towards animal-free safety assessment?

To develop a systemic framework, we have combined an existing linear implementation framework specifically for NAMs and developed by the Dutch National Institute for Public Health and the Environment (RIVM), with the MIS framework that adds a focus on socio-institutional aspects and system dynamics. We are currently validating the integrated framework's applicability in various domains (e.g., pharmaceuticals, pesticides) through interviews and workshop sessions with professionals in a research consortium that focuses on the development of NAMs.

Towards more sustainable science by using artificial intelligence to find and evaluate non-animal experimental models

Wynand Alkema

Finding existing alternatives for animal experiments is currently challenging because of the lack of comprehensive structured databases and the lack of balanced keyword-based search strategies to mine unstructured textual databases. In this paper we describe 3Ranker which is a fast, keyword-independent, and unbiased algorithm for finding alternative methods to animal experiments in biomedical research. The 3Ranker algorithm was created using a machine learning approach, by a combination of initial building of a RandomForest model on a data set of 35 million abstracts constructed with weak supervision, followed by iterative model improvement with expert curated data. We found a satisfactory trade-off between sensitivity and specificity (Area Under the Curve (AUC) values ranging from 0.85-0.95). In a practical application of these models, these were able to specifically identify articles that describe potential alternatives for animal studies from thousands of articles returned by generic PubMed queries on dermatitis and

Parkinson's disease. Application of the model on time series data show the early use and acceptance of these models in the area of cosmetics and skin research. The 3Ranker algorithm is freely available at www.open3r.org, a web based application in which PubMed query results are filtered for papers that describe alternatives to animal experiments. It is the aim to develop this further for other fields besides cosmetics and skin research, and to implement the broad use by researchers, policy makers, funders and ethical review boards, in order to avoid animal studies in research to the maximum extent.

Implementation - the art of the possible

Thomas Hartung

New approaches avoiding and minimizing animal testing have to be developed and implemented in the triangle between science, politics, and the public. The technological advances of recent years are in principle disrupting technologies. The pace of their development, e.g., bioengineered microphysiological systems or artificial intelligence (AI), is overwhelming for many and present a challenge for timely implementation especially in the safety sciences, which are particularly conservative. The dissemination of knowledge to all stakeholder groups is therefore critical. Scientists are usually good at teaching, sometimes even to lay audiences. It more often gets difficult when the audience is journalists, activists, or policy-makers – hesitancy to make mistakes as well as the desire to disproportionally promote their case comes into play. At the same time, the means of communication have diversified and accelerated especially with the multitude of social media channels and web-based outlets. Real-time reactions, sharing of data, tools and results, increasing invitation for personal opinion, demand for transparency, political correctness but also increasingly tribal communication (https://paulsutton.co/2010/03/05/the-tribal-characteristics-of-social-networks/), and loss of trust in experts are challenges to researchers in general. The field of alternatives to animal testing is from the start more political and important to lay audiences and cannot avoid these trends. They offer the opportunity to form community and create support for research and its implementation. Especially for academics, this requires moving out of the ivory tower of education and entering the engagement of stakeholders, such as community outreach, citizen scientists, and other forms of engagement.

Accelerating the transition to animal-free safety assessment: A transformative governance approach

Kristie O'Neill

This paper represents the first output of the (Research project name removed to annonymise review process) consortium. The paper presents a state-of-the-art of the science and policy practice relevant for the transition to animal-free safety assessment, as a foundation for the (Research project name removed to annonymise review process).

The aim of the research project is to contribute to the acceleration of the transition to animal-free safety assessment for chemicals and pharmaceuticals in the EU, including the Netherlands, and the USA. To achieve this aim, it applies a transformative governance approach. Transformative governance is focused on the underlying causes of societal problems, and incorporates three levels of transitions. The project operationalizes these niche, regime and landscape levels as

follows. At the niche level, it develops the transdisciplinary knowledge needed to demonstrate the usability and applicability of Next Generation Risk Assessment (NGRA) for chemicals and pharmaceuticals. At the regime level, it facilitates the (regulatory) acceptance of NGRA for chemicals and pharmaceuticals, and draws broader lessons for the transition to animal-free safety assessment. The project will develop an enhanced understanding of how to govern the acceleration of this transition by experimenting with transformative governance as a consortium. At the landscape level, the project analyzes the societal underlying causes of the lack of progress, with a focus on the values, convictions and interests of different societal groups and the political economies of pharmaceuticals, chemicals, and animal testing. The project will build experience with governing the acceleration of transitions, which is relevant for animal-free safety assessment and other sustainability transitions.

Innovative Session: Building collective capability for sustainable transformative change – Roundtable on practical experiences with a transdisciplinary learning approach to sustainability transitions in neighborhoods and communities

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.129

Chair(s):

Erik Jansen

Presenter(s): Karin Van Landsbergen, Gideon Visser, Koen Dortmans, Maurice Coen, Patrick Hoogenbosch, Wendy Kemper

Building collective capability for sustainable transformative change – Roundtable on practical experiences with a transdisciplinary learning approach to sustainability transitions in neighborhoods and communities

Sustainability transformations require citizen participation for at least three reasons. First, it leads to more involvement of the general public with sustainability issues and transitions and thereby enhances effectiveness of the interventions applied. Second, it taps into the collective creative potential in determining interventions and strategies. Third, there is growing insight that it is morally right to include people in matters of their concern, and an inclusive approach enhances recognition and procedural justice.

In The Netherlands there is growing involvement of citizen initiatives on sustainability issues in neighborhood and smaller communities. Although policy makers and civil servants generally embrace such initiatives in theory, in practice these are met with less enthusiasm and sometimes even reluctance, as the innovative nature of citizen initiatives often also challenges existing power structures, norms and routines. As a result, relational tensions, role confusions and governance issues arise that can severely hamper progress in local sustainability transitions. A potential strategy to move these processes forward is to adopt a collaborative approach, in which local stakeholders gradually enhance their collective capability for sustainable change in a joint learning process.

At HAN University of Applied Sciences in Nijmegen (NL) we are working with learning approaches in transdisciplinary collaborative projects focusing on sustainability transitions in neighborhoods and smaller communities. In this roundtable we will gather participants from several such projects in the Nijmegen-Arnhem region to share their experiences. To practice what we preach, the roundtable takes the form of an interactive learning session in which participants and session attendees will jointly reflect on and deliberate the opportunities and problems in building local transformative change towards more sustainable neighborhoods and communities.

Innovative Session: Knowledge Brokering for Impact in Marine Governance

Date & Time (Amsterdam Time): October 26th 10:30:00 AM - 12:00:00 PM

Location: GR 1.133 / Zoom

Chair(s):

Ellycia Harrould-Kolieb

Presenter(s): Aline Jaeckel, Erik van Doorn, Matt Frost, Cymie Payne, Jen Martin

Knowledge Brokering for Impact in Marine Governance

Ensuring the effective interpretation, translation and communication of research is critical for achieving impact. Knowledge brokering can be thought of as closing the gap between research and practice and is critical to solving real world problems. So, how does one become a knowledge broker? and what skills are needed to do so?

This innovative session will explore the what, why, and how of knowledge brokering focussing on examples from the marine environment. The session will begin with an initial lightening round of presentations and provocations of knowledge brokering in practice. This will be followed by a series of break-out discussions that will provide participants with the opportunity to explore the themes brought up in the provocations at the start of the session.

Questions that will be covered include the mechanics of knowledge brokering, such as: What is it? Why is it important? How is it done? and What skills, capacities and/or resources does one need to engage in knowledge brokering? Other themes to be covered will include: What role does knowledge brokering play in creating research? and Do researchers have a responsibility to engage with knowledge brokering?

An outcome of this session will be to establish a knowledge brokering mentorship program, where researchers new to knowledge brokering will be paired with experienced knowledge brokers who will provide guidance over the 12 months following the conference.

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BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Reimagining nature and ecological futures

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.112 / Zoom

Chair(s):

Sujatha Raman

Presentations (including names of presenting authors):

Our Pluriversal Futures: Anticipation and Imagination in the Amazon

Fronika de Wit

The field of futures studies increasingly uses its tools and techniques as an opportunity to push for sustainability transformations. Futures Thinking scholars take an active position towards the various futures that can be, by systematically assessing the probable, the possible and the preferable. The field uses participatory methodologies, in the form of Futures Workshops, that bring people together to reflect on and gain agency over their futures and find common ground.

This search for common ground already dates back to the 1987 United Nations report Our Common Future, which presents ideas for sustainable development by anticipating solutions for "common" concerns of a threatened future. By doing so, however, it presents the idea of sustainable development as the only possible pathway for a sustainable future, cancelling possibilities and imaginaries for what lies beyond its limits.

An emerging stream of literature, however, points to a world of many worlds: the Pluriverse. Contradicting the current hegemonic perspective of sustainable development, it offers a platform for anti-systemic alternatives and different worldviews and practices that are aiming for a socially just world. Scholars of the Pluriverse urge for autonomous design for sustainability and for enabling thought and practice beyond the epistemic limits of modernity.

This paper combines the field of futures studies with the Pluriverse and studies how to improve the anticipation and imagination of Pluriversal Futures. First, it reviews the literature on participatory futures studies and the extent to which it takes multiple worldviews into consideration. Second, it uses two culturally diverse Amazon regions as its case studies: the State of Acre in Brazil and the department of Ucayali in Peru. Based on a qualitative content analysis of semi-structured interviews it depicts five dissimilar and sometimes conflictual vision-narratives of a safe and just Amazon in 2050.

In its discussion, this study highlights three critical factors for Pluriversal Futures Thinking: 1. Critical reflection on epistemological and ontological differences in Futures Thinking; 2. Supporting the articulation of perspectives of excluded groups and removing barriers to indigenous self-determination; and 3. Working with skilled intercultural facilitators. In conclusion, it argues that

Conference Stream(s): *Justice and Allocation*
Anticipation and Imagination
Democracy and Power

consensus and common ground are not an endpoint or necessarily desirable; we need knowledge from struggles between multiple worldviews for thinking about sustainability transformations.

Problematising Anthropogenesis: Interrogating the Relationship of Law and Power in the History of Ecological Exploitation

Lachlan Hoy

Earth System Governance (ESG) scholars are unanimous in their condemnation of the law's treatment of non-human nature and their recognition that neglecting the flourishing of planetary ecology as legitimate legal end has brought humanity to the brink of extinction. Debate continues, however, on how to think this relationship, split between those who see ecological crisis as a sign that the law must allow the human subject more complete control over their natural object, and those who suggest that the proliferation of human affect through the Earth system has awakened an active natural subjectivity whose rights must be acknowledged under a new natural contract. In this paper, we argue that these perspectives misunderstand the nature of the law, which does not directly create the subject but rather regulates the entire field of anthropogenesis and thus deeply informs the possible futures of a world infused with human labour. By adopting a dialectical approach, we demonstrate that this tension between the natural and human subject can be resolved by understanding the law as operating in both a material and transcendental manner – that is, through physical human acts and on individual human minds. Focusing in particular on the tension between regimes of private property and extraction, on the one hand, as well as land conservation and emissions caps, on the other, we demonstrate that a more fruitful path forward for ESG lies not in resolving, but truly examining, these contradictions within the law so we can rethink not just policy but the very ontological futures that the law enables and incentivises. This paper encourages a move away from coercion, prescription, and judgment, ideas central to traditional jurisprudence, to understanding and a recognition of the constitutive role that law plays in creating the contradictions that in turn shape the way we engage with the world and Earth Systems.

A Right to Night? International Dark Sky certification and the subnational contestation and codification of Earth systems protections

J. Michael Angstadt

Scholarly interest in the rights of nature, animal rights, and the constitutionalization of environmental protections is proliferating within the Earth system governance community. Simultaneously, attention to planetary boundaries and Earth system processes presents fascinating questions regarding their justice implications-and how interpretations of justice can be framed in human, non-human, and interlinked fashion. Likewise, researchers and practitioners seek to understand how protections of planetary and systemic functions can be effectively operationalized and implemented within existing governance frameworks. While a vibrant and expanding ESG literature documents rights of nature provisions, this project explores a

Conference Stream(s): Justice and Allocation
Anticipation and Imagination
Democracy and Power

complementary effort to promote nighttime darkness and preserve dark places, given the acknowledged harms from light pollution to ecology (including animals' migratory patterns and circadian rhythms), economy (including stargazing), and culture. In particular, we evaluate International Dark-Sky certification, a nongovernmental regulatory scheme, and its integration and formal codification in United States jurisdictions. Our preliminary analysis uses qualitative case study, document analysis, and interviews to evaluate: (1) how nonstate dark sky protections have been integrated into formal regulatory provisions in subnational settings, (2) whether the intended benefits of such initiatives are framed in anthropocentric, ecocentric, or interlinked terms, (3) how interpretations of the right to darkness differ by jurisdictional context, and (4) whether evidence exists of exchange among jurisdictions that have adopted dark sky protections and ordinances. The resulting insights support efforts in Earth system governance to examine how environmental norms are interpreted and contested in domestic contexts, how legal provisions and instruments can meaningfully codify protections for Earth system processes, and how jurisdictions can reconcile "rights for nature" and "rights to nature" tensions.

Relational approach to the Rights of Nature

Iris Pitkänen

Awarding legal personhood and rights to natural entities, such as certain ecosystems, or the nature as a whole, has been proposed as an answer to the environmental crisis. Making the natural entities "visible in law" as subjects, instead of objects and mere property, might be the path the Western legal systems need to take to transform the exploitative relationship humans have with nonhuman entities to a one fostering harmonious co-existence.

However, the rights of nature ("RoN") have not always been such a straightforward and easy answer to these problems. Even in countries where RoN have been adopted on a constitutional level, these rights have not always brought only favourable implications to the natural entities. I argue that this is to a large degree due to the underpinnings the concept of rights still has in voluntaristic and liberalistic philosophy.

Liberalistic ideas of the subject of rights as an isolated, self-interested individual that in the "state of nature" has a perfect autonomy and freedom as to their actions and the disposition of their possessions, limited only by the similar rights-based claims of other atomistic individuals, are in stark contrast with the prevailing understandings in ecology, feminist theory, as well as many, if not all, Indigenous and other non-Western worldviews. What these views have in common is the emphasis on relationality. In ecology this means the interconnectedness of all beings in an ecosystem and in the whole Earth System, in feminist theories the idea of autonomy as an inherently relational concept, and in many non-Western and Indigenous worldviews the relational ontologies, in which e.g. reciprocity and situated knowledge are embraced.

Institutionalizing RoN as abstract claim-rights might end up reflecting the anthropocentric interests to conserve "the Nature" or parts of it, for e.g., "ecosystem services" or "recreational areas", doing little to challenge the exploitative logic of domination underlying the relationship of

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*Conference Stream(s): Justice and Allocation
Anticipation and Imagination
Democracy and Power*

humans with nonhuman entities. Instead, a relational approach has the potential to release the concept of rights from its (neo)liberalistic burdens and allow RoN to contribute to radical, systemic change. In this paper I will explore different ways the relational approach could reconstruct RoN: recognising the subject of rights as part of interconnected relations, emphasizing the function of rights to protect these relations, and advocating for the need of intimate relationship between the natural entity as a right-holder and its representative, in order to enforce a truly ecocentric right.

Whose voice is heard? Ethics for safeguarding just and sustainable Arctic marine social-ecological futures

Krisztina Jónás

As IPCC reports have shown, our business-as-usual future is not acceptable. Arctic marine social-ecological systems are already experiencing increasing irreversible losses at a higher speed than in other parts of the world. Beyond ecological threats, rapid technological development in fishing technologies also poses challenges, for instance on fisheries in the Arctic. Thus, radical transformation is needed to shape our common future, as it has also been recognized by the UN Decade on Ocean Science. However, there is an inherent ethical implication of how, by who, for whom, and with what assumptions are possible futures shaped, as a broad inclusion of stakeholders has been shown to be essential to ensure just futures. This study thus unpacks the ethical implications of whose voice is heard when shaping the future of the Arctic, with a focus on an aspect that will heavily impact the years to come: emerging and disruptive digital technologies used for natural resource extraction (e.g. Artificial Intelligence, autonomous technologies). To place the ethical question of stakeholder inclusion into perspective, this study uses a multi-lens theoretical framework that is guided by: definition(s) of stakeholders, theories of intersectionality, ethics (e.g. virtue, consequential, care, deontological), justice (e.g. social, global, intergenerational, environmental, climate); social-ecological transformation theory, and theory of extractivism. The methodological approach uses this multi-lens theoretical framework for reflexive thematic analysis of relevant scientific, peer-reviewed works about the ethics of natural resource extraction and of existing ethical guidelines for emerging and disruptive digital technologies. Ethical implications are revealed of who should be heard and how, with suggesting a redefinition of stakeholders. This study evaluates whether already existing ethical guidelines for digital technologies account for the rights of all relevant stakeholders and if these are sufficient to safeguard marine social-ecological systems in the Arctic now and in the future, whereas it proposes novel guidelines where this is found necessary. This is of crucial importance as such guidelines can both enable or hinder sustainable transformations at the intersection between natural resource extraction and the application of emerging and disruptive digital technologies.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Supply-side policies and global cooperation

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.139

Chair(s):

Carel Dieperink

Presentations (including names of presenting authors):

Talking the Talk or Walking the Walk? A Typology of Oil and Gas Firms' Roles in Climate and Environmental Justice

Chen Zhong

The emerging consensus on the causal effects of global warming has particularly challenged the business-as-usual practices of oil and gas firms. Existing political economy literature tends to overlook oil and gas companies' social and political behaviors, assuming they are 'rational' and 'profit-maximizing.' However, our preliminary dictionary-based text analysis shows notable variations among mega oil companies' focus on climate and environmental justice. Firms such as BP and Equinor have increasingly referred to justice issues related to climate change, sustainability, and energy transition since Covid19 broke out. Such a trend is absent among companies such as Petrobras and Valero. Moreover, China National Petroleum Corporation, Phillips 66, and Sinopec only have a scant focus on these aspects.

Hence, this research answers two questions. First, to what extent do oil and gas firms' public-facing narratives on climate and environmental justice and their business behaviors differ? Second, why is there discursive and behavioral variation across these firms regarding climate and environmental justice? We use environmental governance and political economy literature to generate key independent variables. They include firms' revenue size, geographic location, memberships in transnational networks, and host and home countries' environmental regulatory standards.

Our findings will contribute to the theoretical understanding of firms' discursive practices and political behaviors. One key contribution is the development of a 4-quadrant matrix that locates each oil and gas firm onto a spectrum of loud-silent 'talkers' and fast-slow 'walkers'. The derived four ideal types are applicable to firms in other fossil fuels-intensive sectors, such as the plastics or cement industries. The ideal types can also be used to study variations of firms' discursive practices and behaviors in other issue areas, such as labor standards. In addition, the empirical contribution of this study is a database that gathers major oil firms' conceptualizations of climate and environmental justice across geographical space, including Europe, North America, and Asia-Pacific regions.

This project uses a comparative research design. We conduct qualitative and quantitative analysis using computer-assisted and manual text analysis techniques. Our study systematically examines

disparities in corporations' discourses and behaviors regarding climate and environmental justice across the years. For the pilot study, we collect firm-level data from the ten largest oil and gas companies in accordance with the firms' gross revenue in 2022. Based on firms' annual and sustainability reports between 2015 to 2022, we investigate their understanding of these issues and their day-to-day business as implemented through projects.

Accounting for supply-side climate policies

Peter Newell

To achieve the goals of the Paris agreement on climate change, the traditional approach of regulating end-use emissions is no longer enough, since a large proportion of remaining fossil fuels need to remain in the ground through supply-side policies.

This paper seeks to develop an interdisciplinary global political economy account of the origins and potential future development of supply-side policies. Drawing on a database of policies adopted to date by type and region, initial mapping work and exploratory interviews, the paper seeks to make theoretical sense of the diverse contexts and conditions in which policies have been adopted to date by 'first mover' countries to limit the supply of fossil fuels with a view to considering what pathways and mechanisms might support their wider adoption. Such an account helps to understand which policies are being adopted and where, as well as to understand how and why they are emerging. The approach fuses insights from diverse theoretical traditions to capture the interaction of political, economic and socio-cultural drivers in national and international settings.

It is argued that a comparative global political economy approach will provide this understanding by accounting for (i) the nature of the political economy and different scope for autonomous action on energy policy that states have, drawing on literatures on policy autonomy and varieties of capitalism from political economy to understand the significance of different state-market configurations upon energy policy (ii) the power of incumbent actors to resist supply-side policies in different governance systems, drawing on scholarship from sociotechnical transitions on regime resistance and business lobbying, covering both private actors and state-owned enterprises (iii) the influence of civil society organisations in creating enabling conditions for supply side policy adoption, drawing on work on social movements and non-state actors (iv) the economic and political acceptability and affordability of non-fossil fuel energy pathways, drawing on research on the political economies of transition that highlights the role of key resource and infrastructural constraints and access to capital as determinants of energy pathways (v) different social and cultural relationships to dominant energy regimes constituted through practices and values, making use of scholarship on energy cultures and practice theory.

The paper explores these dimensions with reference to empirical examples from first mover countries on supply-side policies (such as Costa Rica, Denmark, New Zealand, France and Ireland), but also with reference to emergent second-mover countries such as Portugal, Chile and Spain.

Shifting geographies of decarbonization: Gas for me but not for thee?

![2023 Radboud Conference on Earth System Governance — Bridging Sciences and Societies for Sustainability Transformations]

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Sreeja Jaiswal

At the United Nations Climate Change Conference (COP26) at Glasgow in 2021, 34 countries, including the UK, USA, Germany, and China, committed to aligning their international public support towards a clean energy transition and out of the unabated fossil fuel energy sector by the end of 2022. Earlier, the United States Department of Treasury had issued a fossil fuel energy guidance for multilateral development banks (MDBs) directing them to oppose oil and coal projects and to support natural gas investments only if certain strict criteria were met. The International Monetary Fund (IMF), under pressure from rich donor governments, is also moving towards mainstreaming climate change mitigation and attaching green conditionalities to its loans. While resource-poor low and middle-income countries are being pushed to "leapfrog" to renewables by withdrawing international financial support, high-income countries such as the UK, USA, and Germany are ramping up their use of natural gas as a bridge fuel in their decarbonization effort. Further, Russia's war on Ukraine has seen Germany and Italy, among others, sign agreements for gas supplies from Africa, the very geography they had previously worked to block such investments. In this paper we explore these contradictory developments in the global decarbonization process in which the use of fossil fuel for energy security for wealthier nations is prioritized over its use in overcoming energy poverty and developing productive capabilities in low-income energy-poor nations. It is also debatable the impact this will have, if at all, in reducing overall emissions as the developed countries continue to rely upon fossil fuels well up to the middle of the century. We draw upon policy documents, statements, reports, and data on current and planned domestic and international fossil fuel and green energy financial support to examine these contradictory developments. Having appropriated more than their fair share of the global carbon budget, the rich industrialized counties are pushing decarbonization on the Global South by effectively "kicking away the ladder" through which they achieved energy security, industrial development, and high levels of agricultural productivity and in which they continue to invest. We argue that there are multiple transition pathways possible for decarbonization that recognize the varying economic differences between countries. An energy transition must be just in nature and should not compromise access to affordable and reliable energy for industry and people in low and middle-income energy-poor countries.

Engaging key actors to protect vanilla-dependent livelihoods and prevent deforestation: a long-term perspective

Onintsoa Ravaka Andriamihaja

The downward trajectory in the price of vanilla since early 2020, coupled with the economic fallout from the COVID-19 pandemic, have plunged north-eastern Madagascar into an environmental and economic crisis. In order to mitigate the crisis, we need to set the ground for long-term collaboration between key actors involved in land governance in north-eastern Madagascar, namely the state, private sector, and NGOs. Therefore, we brought together key actors in transformative spaces. Transformative spaces are collaborative environments where various actors can interact to reframe issues in ways that allow novel solutions to be co-created and co-realised. Our method aimed to stimulate (1) knowledge, (2) creation of solutions and (3)

collaboration. These spaces were shaped by a series of workshops at the village and national levels focusing on vanilla crop cultivation and trade, and protected areas. Through fostering dialogue among different actors, the actors influenced and empowered each other through joint learning, transfer of resources, and social network building. In the transformative spaces, actors could consider the perspectives of other actors with distinct and often competing claims on the land. Further, together in the workshop at national level, key actors worked towards a joint theory of change towards avoiding vanilla-related agricultural expansion into forests. During the co-realization session, groups of actors per level identified the activities, outputs, and outcomes they would be in charge of from the theory of change. The transformative spaces could support different actors with distinct claims on land to align their visions and aims regarding land use and land governance.

Cooperation Under Uncertainty: The Behavioral Roots of Global Environmental Cooperation

Colin Kuehl

The significant challenges of achieving international cooperation can be exacerbated by the high degree of scientific uncertainty that underly global environmental problems. In many cases, states are asked to make environmental commitments without a full understanding of the long-term costs or benefits of their decisions. While issues of uncertainty and risk are fundamental to environmental decision-making at all scales, these problems become particularly acute given the magnitude of global ecological problems and coordination problems at the international level. Without a clear understanding of both the potential harm caused by the environmental problem nor the costs and benefits of the proposed fix, what do decision-makers rely on when deciding to cooperate?

While rational choice models often assume state actors possess perfect information, the reality is, states rarely have the rigorous scientific understanding of the consequences of agreements they may hope for. However, the behavior of peers is observable and may guide perceptions of the appropriate behavior for decision-makers. This paper tests the proposition that as scientific uncertainty increases, decision-makers are more likely to follow norms when determining their preferences toward global environmental cooperation. While broad debates between logics of state behavior undergird much theorizing in global politics, this paper shifts to when states are more likely to behave in ways consistent with a rational choice understanding and when social models have more explanatory power.

Integrating the substantial work on the individual psychology of pro-environmental behavior and the growing use of experimental analysis across international relations this hypothesis is tested using survey experiments. Specifically, treatments were designed to vary the framing of scientific uncertainty and global norms toward a global plastics treaty. This structure was then replicated using convenience samples from the United States, India, and South Africa. The results improve our theoretical understanding of how uncertainty and norms shape global environmental cooperation. More broadly, the study contributes to fundamental questions of how uncertainty impacts our collective response to environmental challenges and how individual decision-making shapes global cooperation.

Conference Stream(s): Justice and Allocation
Inter- and Transdisciplinarity for Sustainability Transformations

Parallel Panel: Trust and Hidden Agendas, and how we talk about climate

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.170 / Zoom

Chair(s):

Verina Ingram

Presentations (including names of presenting authors):

Talking Transformation? How International Organisations Speak about Sustainability

Matthias Kranke

International organisations (IOs) play an important, albeit still widely underappreciated, role in enabling or deflecting sustainability transformations in global and national governance. Although many scholars would agree that IOs are highly influential in setting parameters for processes of change, IOs' discourses on institutional and societal changes towards sustainability have received surprisingly scant attention in existing scholarship. As a result, we lack comparative longitudinal knowledge about what causes of unsustainability different IOs have identified and what pathways of change they have sketched in response. This paper addresses this problematic oversight by contributing comparative knowledge about the sustainability discourses of leading contemporary IOs to current debates about the challenges of global sustainability governance. In order to achieve both breadth and depth in scrutinising a large sample of relevant IO documents, we combine quantitative methods of text and discourse analysis with qualitative methods. Specifically, we examine the discourses of IOs working in the fields of economy and development (IMF, OECD, UNDP and World Bank), energy (IEA and IRENA), and food and agriculture (FAO). For each IO, we collect a sample of regular reports published over the last 10 years (2002–22). We use these materials to reveal how the IOs conceptualise and talk about sustainability, how their views of sustainability have changed over time, and how conceptions of sustainability and required social changes potentially converge or diverge between them. In our analysis, we pay particular attention to type, depth and pace of the changes envisaged in these reports. Based on our empirical findings, we discuss similarities and differences in IOs' framings of sustainability, thereby generating much-needed comparative quantitative and qualitative insights into how contemporary IOs speak about this cross-cutting and most urgent transnational issue.

Global norms in corporate disclosures: Multinational firms' discourse on climate change

Chris Höhne

Conference Stream(s): *Architecture and Agency*
Inter- and Transdisciplinarity for Sustainability Transformations

Corporate actors play a crucial role in efforts to mitigate climate change. A plethora of research has already scrutinized different private-sector initiatives. Yet, we still know very little about the normative priorities of private actors, especially the particularly important multinational companies. We thus ask: How do corporate actors engage with international norms regarding climate change and what kind of normative priorities do they follow? Supply chains, production processes, logistics and packaging, and the broader corporate strategy can all have massive effects on emissions. In this paper, we examine annual disclosure reports submitted to the Carbon Disclosure Project since 2010 using quantitative text analysis. Multinational firms use these reports to tell investors and customers about their understanding of climate change and their agenda for action. The documents thus enable us to track how discourse on climate change and the associated normative priorities have evolved over time and between different types of firms. Relating these findings to the broader discourse, we scrutinize the prevalence of green growth and low carbon technology narratives among multinational firms. This provides important implications for climate governance and international political economy scholarship on private actors in the fight against climate change. This research, therefore, contributes to the conference theme of architecture and agency by "address[ing] institutional frameworks and actors implicated in earth system governance and how they resist or respond to change and evolve over time."

Global norms in corporate disclosures:

Multinational firms' discourse on climate change

Private Auditors and the Verification of Private Sustainability Standards

Stefan Renckens

Private auditors often perform verification functions for private sustainability standards schemes. The standards setters engage private auditors for different reasons. They can be a means to meet expectations that the standard setter is arm's length to the process of verifying compliance against its rules. They can be engaged because they bring expertise to the verification process. And they can be, when operating in a market for audit services, a mechanism to provide choice to potential regulatory targets that want to comply with the standard setter's rules. Despite these understood roles private auditors play, there is a striking absence of empirical documenting and comparing the way this verification function is carried out across private sustainability standards schemes. We seek to fill this gap with a never-before developed dataset of all auditors accredited to work for 76 private schemes. This data permits a careful examination of differences across schemes and an identification of the power and prominence of certain private auditors. We complement this data with an analysis of five case study schemes that work on the voluntary verification and validation of greenhouse gas offsets. We reflect on implications for private sustainability governance with respect to how audit markets do or do not perform as expected, and what governance interventions might be needed to remedy these shortcomings.

Climate Migration as Earth Systems Migration: Global Relocation(s) in the Anthropocene

Andrea C. Simonelli

The global shift needed to adapt to climate change will come in many forms. Long established food production systems are set to struggle while coastal cities face inundation by the sea. Other areas will be impacted by heatwaves beyond current local tolerance. There is a general acknowledgement that millions of people will eventually need to relocate due to the deterioration of the conditions which support life and livelihoods. Migration and displacement are becoming more prevalent in national and international dialogues about climate change; however, human displacement will not occur in isolation.

Climate migration, broadly conceived, is a migration of earth's systems- both human and ecological. This paper reevaluates traditional anthropocentric climate migration and displacement through the Earth System Governance (ESG) research lens. Flora and fauna similarly depend on a relative stasis in their habitable zones and without such, will also migrate. Political borders and current governance structures pose a challenge to the migration, dislocation, displacement, and eventual relocation of people, animals, societies, and ecosystems alike. This paper will examine climate migration through the five analytical problems of ESG's research framework and their crosscutting themes. Using ESG frameworks to reassess climate migration through varied scales, systems, and subjects demonstrates the full breadth of global relocation(s) necessary to adapt to the complexities of the Anthropocene.

Parallel Panel: Cooperation and just transition in the Global South

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.109 / Zoom

Chair(s):

Cintya Berenice Molina Rodríguez

Presentations (including names of presenting authors):

Narratives in South Africa's just transition process

Almut Mohr

South Africa is the most coal-reliant G20 country. Coal is the main source of electricity and, as an export product, it plays an important role for the country's economy. A low-carbon transition thus has major impacts on the country. Nevertheless, South Africa was one of the earliest countries to include the term just transition in its climate targets.

The low-carbon transition in South Africa is not only a shift in the electricity system, but also a shift that has large-scale impacts on workers, their families, their communities and civil society at large. As one of the most unequal countries in the world and simultaneously also facing the challenges of poverty and unemployment, these aspects play a major role in South Africa's just transition process and the debates around it.

By focusing on the debates on the just transition process by various stakeholders, including workers, trade unions, energy companies, environmental organizations and local governments, the paper aims to show the different narratives on just transition. The different stakeholders follow different narratives on who is bearing the costs and benefits of the transition processes, how participatory and inclusive the process should be and how workers' rights can be protected.

The paper is embedded in transition literature, specifically in just transition literature, and uses narrative analysis to focus on the different dimensions of just transition – procedural justice, recognitional justice, and procedural justice – and how these dimensions are understood and differently prioritized by local stakeholders.

The paper draws on qualitative research conducted across South Africa with various stakeholders of the just transition, such the labor movement, trade unions, energy companies, environmental organizations, and local government representatives. Additionally, official policy documents are analyzed. Based on this body of data, the paper analyses the narratives on just transition by these different groups of stakeholders. Thereby, it contributes to the timely debate on just transitions and enriches the debate with insights from the Global South.

The results from the South African case are highly relevant for other countries around the globe, especially Global South countries, which face similar challenges of phasing-out fossil fuels and aiming for a just transition.

Navigating trade-offs and synergies between just and low-carbon transitions: the JETP in South Africa

Eszter Szedlacsek

The phasing out of coal and energy transitions are inextricably linked to socio-political circumstances deeply embedded into institutional and policy design. However, techno-managerial approaches aimed at designing policies to jointly achieve social and environmental sustainability often disregard that transition processes produce winners and losers, and rarely consider trade-offs besides potential synergies.

South Africa, often positioned as the 'climate champion of the global South' is a crucial case in navigating tensions between just and low-carbon transitions as the country is affected by deep inequalities and is currently heavily reliant on coal. The paper explores trade-offs and potential synergies in South Africa's just energy transition to assess the current state of awareness on climate-poverty interactions and mechanisms that support or hinder harvesting potential synergies.

For this purpose, the paper analyses the ambitious Just Energy Transition Partnership (JETP), launched by the EU, France, Germany, the UK and the US, a program aimed to advance the decarbonization of the South African economy through policy mechanisms focusing on the energy system. The partnership is particularly suitable to explore the potential of decarbonization efforts combined with a focus on social justice in addressing the interconnected and multi-faceted issues of climate change and social policy through energy transitions. Just and low-carbon governance trade-offs or synergies in the South African policy environment and the JETP will be analysed in the theoretical context of green growth, inclusive growth and inclusive (transformative) development.

The paper explores trade-offs and synergies in the South African energy transition using qualitative methods: namely through document analysis of secondary data and primary data collection of interviews during a two-month field trip in South Africa. The analysis is embedded into a critical political economy approach on navigating trade-offs and synergies in deeply politicized historical-political domestic settings, across international, transnational and local actors. This paper argues that win-win solutions for people and the planet cannot be achieved solely by effective design, and embracing a specific social and environmental justice perspective is necessary to jointly govern interconnected policy areas.

No More Coal Abroad! Unpacking the Drivers of China's Green Shift in Overseas Energy Finance

Ying Wang

Conference Stream(s): Justice and Allocation
Architecture and Agency

Over the past fifteen years, China has quickly surpassed other countries as the leading financier in the global energy sector. However, as most of these Chinese investments were in fossil fuels, especially coal, China has been seen as a major barrier to clean energy transition in the Global South for a long time. In September 2021, Chinese President Xi Jinping announced that China would stop supporting new coal-fired projects abroad. This pledge was made beyond the expectations of many observers of China's overseas engagement as it deviates from China's long-term approach of non-interference when providing development finance. What can explain this dramatic policy shift? Drawing on the literature on multi-level governance and Chinese politics, we argue that in the context of rising geopolitical tensions between China and the West, the Chinese government has become more receptive to the proposals of greening China's overseas economic engagement. More specifically, the 'no coal abroad' policy was driven by factors through three channels: the pressure of Western governments, advocacy of transnational environmental organizations, and initiatives of domestic policy entrepreneurs. To substantiate our argument, we use government documents and elite interviews to show how these forces interact with each other to lead Beijing to make the decision. By unpacking the complex policy-making processes of China's overseas energy finance, the paper contributes to the burgeoning literature on China's global environment engagement, the politics of sustainability transformation, and the evolution of global governance structure.

Orientalist discourses in the ILO's Green Projects for India and South Africa and national responses

Sharmini Nair

The lack of study of the colonialist nature of environmental policies by international organizations is problematic. Yet, colonization has impacted and continues to impact the environment in previously colonized spaces in profound ways. This continual battering of the environment via colonial aggravations seem to persist in international environmental policies such as the ones produced by the International Labor Organization (ILO). The study of the ILO is particularly important as it merges the interest of labor and the environment and yet it remains under studied. This research fills this gap by studying the colonialist policies of the ILO by utilizing Edward Said's Orientalism (1978) and Homi Bhabha's mimicry (1994) as its theoretical anchor. Further, the research examined the distinctive nature of the responses by India and South Africa. To achieve these outcomes, the study utilized discourse analysis to read green projects policy documents and digital observation as well as process tracing to examine the progression of the development and adoption of the ILO's green policies in India and South Africa. Based on the findings, there is evidence that Orientalist discourses have been used as justifications for the implementation of green projects. Further, there are differences in the Indian and South African responses to the ILO with the latter engaging in mimicry of green policies while questioning Western enlightenment logic.

Transboundary River Basin Governance in Hindu Kush Himalaya: An Institutional Architecture for Water, Food and Energy Sustainability in South Asia under Climate Change

Prakash C. Tiwari

Himalaya constitutes headwater of some of the largest transboundary basins of the planet that sustain one-fourth global population dependent primarily on subsistence farming in South Asia. Climate change has stressed hydrological regimes of Himalayan headwaters and increased frequency of floods and drought in South Asia. This is causing a substantial decrease in water availability; an increase in the proportion of water, food, and energy insecure population both up-streams and down-streams; and posing a severe threat to peace and security in South Asia. An institutional cooperation architecture is therefore highly imperative not only for improving the adaptive and coping capacity of riparian countries to long-term impacts of climate change and weather extremes; but also for attaining water, food, and energy sustainability in the region which is inhabited by some of the poorest, undernourished and water-stressed people of the world. The study aims at evolving an institutional architecture to initiate hydro-diplomacy among riparian countries for transboundary river basin governance. The methodology included: [i] comprehensive consultation of relevant literature, including reports in print and electronic media; and [ii] interviews, meetings, and discussion with a range of international, regional, and local institutions, political leadership, government officials of riparian countries, academia, research and development institutes, and non-governmental and civil society organizations.

Study revealed despite geographical and cultural contiguity South Asia is one of the most geo-politically disintegrated regions. Growing power-disparities, economic imbalances, internal-external security threats, political distrust and long-standing conflictual inter-state dynamics have frozen hydro-diplomacy in the region. However, common environmental and economic benefits of transboundary river basin management that include [i] integrated flood forecasting and early warning system, [ii] storing water in upstream river-basins for flood moderation and increasing flow in dry seasons, [iii] harnessing water resources to generate hydroelectricity, and [iv] managing watersheds for increasing availability and access to water would stimulate the riparian countries to develop a geo-political architecture for transboundary river-basin cooperation. A dialogue forum consisting of International Centre for Integrated Mountain Development [ICIMOD], South Asian Association for Regional Cooperation [SAARC], Asian Development Bank [ADB], Asia Pacific Network for Global Change Research [APN], Sustainable Development Policy Institute [SDPI], Pakistan and G.B. National Institute of Himalayan Environment and Sustainable Development [GBPNIHESD], India has been proposed. The forum would interpret up-stream and down-stream interlinkages involved in food, water, and energy sustainability and present common environmental and economic benefits sharing mechanisms of integrated river basin governance to riparian countries.

Innovative Session: Engaging with ESG publications: Research dissemination and community building

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR -1.070 / Zoom

Chair(s): Aarti Gupta

Presenter(s): Michael Mason, Frank Biermann, Rakhyun Kim, Fariborz Zelli, Dhanasree Jayaram, Stacy VanDeveer, Prakash Kashwan, Matthew Hoffmann, Steven Bernstein, Carole-Anne Senit, Joyeeta Gupta, Aarti Gupta

Engaging with ESG publications: Research dissemination and community building

This innovative session has three aims:

First, an interactive exchange of information between the ESG community and editors of four flagship ESG publication outlets:

- The Earth System Governance Book Series, MIT Press
- The ESG Harvesting Series, Cambridge University Press
- Cambridge Elements in Earth System Governance, Cambridge University Press
- The Earth System Governance Journal

Second, a collective brainstorming with the ESG community about how ESG publication outlets can provide a platform for community building and novel collaborations, and be leveraged to further promote interdisciplinary and transdisciplinary research.

Third, a dialogue with journal editors to discuss challenges, experiences and best practices relating to publishing research, particularly targeting early career researchers

To achieve these three aims, the session is designed as follows:

(a)   A panel with editors and associate editors of ESG flagship publications to provide updated information about nature and diversity of these outlets, with audience Q&A (30 minutes).

Moderator: Michael Mason

Panel participants:

- Frank Biermann (MIT ESG Series)
- Rakhyun Kim (Cambridge University ESG Harvesting Series)
- Aarti Gupta (Cambridge Elements in Earth System Governance)
- Fariborz Zelli (ESG Journal)

(b)   An audience generated bottom-up brainstorming and gathering of ideas on how to leverage these ESG publication outlets to further strengthen our community and provide a platform for interdisciplinary and transdisciplinary research (20 minutes)

Moderators: Frank Biermann and Dhanasree Jayaram

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

(c)   A panel with journal editors to discuss challenges encountered in publishing (choice of outlets, dissemination, publication practices and cultures, other issues) (40 minutes)

Moderator: Stacy VanDeveer

Panel participants:

- Environmental Politics, Prakash Kashwan
- Global Environmental Politics, Steven Bernstein / Matthew Hoffmann
- Earth System Governance, Carole-Anne Sénit
- International Environmental Agreements, Joyeeta Gupta

Note: All named panel participants are TBC. The program will be as described; but the named panel participants may change, depending upon who is present at Radboud

Parallel Panel: Transdisciplinarity and interdisciplinarity in earth system governance research

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.116 / Zoom

Chair(s):

Franziska Ehnert

Presentations (including names of presenting authors):

How can we build bridges between disciplines trough the methodology of network analysis?

Alexandre Désaubry

Although interdisciplinarity is acknowledged as one of the best perspectives to reshape our society in a more sustainable design, traps and drawbacks are multiple. When put into practice, interdisciplinarity encounters several difficulties such as close-minded mentalities, rigid disciplines and institutional structures, communication issues. However, studies based on empirical data have shown that the connections between people, their affinities, and willingness to work together help overcome most of these challenges.

Most researchers are aware of the necessity to connect with each other and to propose interdisciplinary research projects to contribute to the change our societies need. But to put interdisciplinarity into practice, finding the right match between disciplines and researchers, which is crucial to overcoming difficulties, is still a challenge. How can researchers quickly and efficiently find the right people to connect with and conduct interdisciplinary research?

The study - which is still ongoing - is based on a case study of 26 professors from 14 different disciplines who have joined a newly formed (in 2021) Institute called the [institute name removed to annonymize].

From this specific case, we wanted to achieve two objectives in understanding practical interdisciplinary science. First, to conceive a visual map of the [institute name removed] that allows researchers to quickly and easily identify their research affinities with each other. Second, from the results of this network analysis, we want to explore the underlying connections that could exist between disciplines.

The data were collected through an online survey and semi-directive interviews with all members. We identified various attributes and interaction lies between the researchers, including their previous publications or their interests and desires about the research in socio-ecological transformations.

Interpretable spatial data for inclusive landscape decision-making

Fritz Kleinschroth

Conference Stream(s): Inter- and Transdisciplinarity for Sustainability Transformations

Earth system governance often involves the use of maps, aerial imagery, and spatial models as a base for decision-making and communication across actors. At the landscape scale, compromise solutions between infrastructure development and biodiversity conservation require cooperation between people with strongly diverging viewpoints and backgrounds, and spatial data often serves as a base for negotiations. Yet not everyone involved in transdisciplinary and participatory processes is able to produce and interpret spatial information in the same way, which hinders equity. It is therefore surprising that accessibility and interpretability of spatial data are rarely questioned and analyzed in the context of earth system governance.

In projects on transport and energy infrastructure development in Zambia and Laos we collected drone imagery and videos from different angles, showing agricultural areas, forests and wetlands that are affected by urbanization and built infrastructures. We then used printed copies of the images to probe the perceptions of multiple stakeholders, including staff from both governmental and non-governmental organizations, hydropower operators, small- and large-scale farmers. In focus group discussions, we assessed the interpretability of oblique images, taken at an angle by a video drone, compared to nadir (vertical) imagery from Google Earth and from a high-end mapping drone. We asked what people see in the depicted landscapes and what they envisage for their future.

We show that oblique images produced better identification results across all groups of stakeholders, but especially from small-scale farmers, suggesting this type of imagery is helpful to empower people who lack previous experience in interpreting nadir images. Across all groups, we found that people preferred and were able to identify more landscape elements on oblique drone images compared to more commonly used nadir images. People were able to contextualize themselves in the wider landscape and identify where differing interests conflict and align. We therefore suggest aerial imagery and videos, captured by drones, to be "boundary objects", easily interpretable landscape representations that might create a common understanding across stakeholders through their universal interpretability.

Overall, the appreciation of the aesthetic value and the perceived professional benefits of drone imagery are high, but technical, legal and ethical concerns remain. Therefore, we suggest a critical, bottom-up use of affordable video drones to produce intuitive landscape representations for more inclusive multi-stakeholder collaborations to complement other spatial tools.

Who presents what at Earth System Governance conferences, and does it get published? A systematic mapping of ESG literature

Jens Newig

What constitutes and characterizes the scientific output of the Earth System Governance (ESG) community? Establishing an answer to this question is far from trivial. Methodologically, we developed an innovative approach that has, to our knowledge, not yet been applied previously: We identify and analyze publications listed on Scopus that emerged from ESG conference presentations in a period of one year before to five years after the respective conference, covering nine ESG conferences in total – from Amsterdam (2007) to Nairobi (2016). To match conference presentations with Scopus listed journal articles based on the published abstracts, we developed

a set of rules to quantify the degree of similarity regarding authors, title, research question, empirical basis and conceptual basis. For each conference abstract, at least two coders searched for suitable publications and coded the degree of similarity independently. We calibrated our minimum degree of similarity that qualifies a paper as a match by contacting the authors of 100 conference presentations.

We present findings (1) on the differences between conference presentations and related publications, and (2) on general characteristics and bibliometric networks of the identified publications. Across the nine ESG conferences, a total of 1,510 presentations were delivered. Out of these, we were able to match 471 presentations (31%) to Scopus-listed publications. The rate of published papers varied significantly across the conferences, ranging from 20% to 40%. Male presenters delivered 55% of the presentations, while female presenters delivered 44%. However, the publication rate of presentations given by male presenters was only 29%, compared to 34% for presentations given by female presenters. We also find notable differences in publication rate across countries and regions (according to the affiliation of the first author), ranging from 11% to 36%. Finally, we present results on the topics researched, the journals the papers were published in, co-authorship networks and citations among the published record.

We conclude with a discussion on the coherence and fragmentation of the ESG community (as represented through the published papers we identified), and the identified trends of research topics, also in the light of the Harvesting Initiative within the ESG community.

Social Metabolism as an interdisciplinary framework for Earth System Law & Governance

Benoit Schmaltz

Earth System Sciences allow to think the Anthropocene in a comprehensive way. The Earth System Governance project, with its taskforce on Earth System Law, is an academic endeavour to bridge the knowledge of what is happening with the knowledge of what might have to be done to deal with the most dramatic challenge ever posed to mankind.

The point of departure of our paper is that one might consider that earth system science is still more a dashboard with red lights flashing than a blueprint of the engine we must modify so the lights turn off. If we are to consider the root causes of the symptoms encapsulated in the word Anthropocene, we must deepen our understanding of the system which outputs are presented in the "Great Acceleration" or "Planetary Boundaries".

Social Metabolism, we argue, is a suitable concept for designing the blueprint of the Anthropocene's matrix. This concept describes human societies from the underlying physical processes by which information (practices, institutions, rules) organises the transformation of matter using energy. This approach thus informs us about the material and ecological matrix of a society, both in terms of the foundations that support it and the impacts it causes.

Our central hypothesis is that the legal formalisation of social metabolism would yield legal and institutional developments and innovations, the coherence of which would be guaranteed by a comprehensive and systemic vision.

These innovations would concern, on the one hand, the governance of the sociometabolic transition, particularly in relation to economic policy instruments, and, on the other hand, the regulation of particular dimensions of social metabolism (e. g., the nitrogen cycle).

The paper will focus on the interdisciplinary requirements of such a contribution to the Earth System Governance Project and its legal taskforce:

- a legal dimension, both national and international, both in public and private law, in order to deal with the multiscale approach implied by Earth System Law and Governance

- a social ecology dimension based on the concept of social metabolism, and the understanding of the "ecological transition" as its deep and profound transformation, designed with a systematic view of the physical processes and social structures and interactions

- an ecological and biophysical economics dimension, necessary to bridge law and governance to political economy, understanding the economy as a biophysical process, where energy is particularly playing an overarching role

Strengthening the international architecture for the earth system: Exploring design principles and functions

Sylvia Karlsson-Vinkhuyzen

Fifty-one years ago, at the first comprehensive effort of the United Nations to address environmental issues in Stockholm, member states decided to set up the United Nations Environment Program (UNEP). Clearly, the institutional architecture adopted then, and in the decades since, has not been sufficiently effective to reverse the serious degradation of key functions of the earth system. Many proposals have been put on the table by scholars and practitioners for strengthening the UN based architecture for the environment. The half century point of accumulated ideas next to ever more urgent signals of accelerating degradation of the planet prompted us to review and re-think the key elements of such architecture. Drawing on earlier reform proposals and a comprehensive review of two sets of literature — the literature that identifies the rationales and principles for allocating governance to specific levels and the literature that analyses the functions of governance and particularly of complex issues — we identify core principles for effective and legitimate allocation to the global level and five central functions for a strengthened international architecture. The five central functions which are required in the international part of this architecture are: 1) the knowledge provision function; 2) the deliberative and legislative function; 3) the enabling and implementing function; 4) the trust and justice building function; and 5) the learning and reflexivity function. These functions could be fulfilled by consolidating a core institution, such as a Global Environment Agency, or be dispersed across existing institutions. While the proposals that we provide based on this review have little political traction yet, nonetheless, it is scholars' role to provide evidence-based arguments for the debate on global environmental governance.

The paper proceeds as follows. First, we identify the most helpful (effective and legitimate) principles for rationalising the allocation of governance between levels. We then proceed to identify the functions that need to be incorporated into the international architecture for the

environment. When identifying these ideal principles and functions, we also provide a brief analysis of the current status of their provision. In the final discussion and conclusion section we briefly discuss how these identified principles and functions can provide input for more specific design principles of a strengthened international architecture for earth system governance.

BOOK OF ABSTRACTS & INNOVATIVE SESSIONS

Parallel Panel: Europe as an actor in climate and sustainability governance

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.160

Chair(s):

Katarzyna Negacz

Presentations (including names of presenting authors):

Assessing the Democratic Legitimacy of EU Climate Policy Making

Simon Dominik Otto

Achieving the European Union's (EU) aim to reach climate neutrality by 2050 requires fundamental economic, political and societal transformations, with potentially profound distributional effects. EU-level policy making will play an important role in this process but has been widely criticised for its lack of democratic legitimacy or its 'democratic deficit'. This raises the question if EU climate policy making has the necessary democratic legitimacy to drive Europe's transition, particularly when taking into account the transboundary and transgenerational challenges climate change poses to democracy.

Against this background, this paper assesses the democratic legitimacy of EU climate policy making. To do so, the paper first develops and operationalises ideal-type criteria for democratically legitimate EU climate policy making. The ideal-type criteria are derived from the model of representative democracy and comprise the equal consideration of interests, majority voting, transparency of decision-making, the accountability of decision-makers, and the quality of policy outcomes. Additionally, the ideal-type criteria consider the transboundary and transgenerational challenges climate change poses to democratic governance.

Second, these ideal-type criteria are empirically tested on an illustrative case study of EU climate policy making, namely the 2018 revision of the EU Emissions Trading System. Drawing on process tracing, policy documents and expert interviews, the case study explores to what extent the ideal-type criteria are reflected in the policy making process. The findings indicate that all ideal-type criteria are fulfilled in principle, but significant differences exist. Challenges arise regarding the accountability of decision-makers vis-à-vis the European electorate and the reflection of the democracy-climate nexus. These findings highlight the need for further societal and scholarly discussion on the democratic legitimacy of EU climate policy making.

A review and critical analysis of proposals to monitor the European "just transition"

Christine Milchram

Conference Stream(s): Justice and Allocation
Architecture and Agency
Democracy and Power

Becoming climate neutral and tackling the adverse impacts of climate change requires profound societal transformations. In recent years, there has been growing recognition in research and policy that a so-called 'just transition' – striving for an equitable distribution of costs and benefits and ensuring that vulnerable groups do not face additional burdens – is needed to make this transformation a success. The concept has thus become part of international agreements and policy frameworks such as the Sustainable Development Goals, the Paris Agreement, and the "Solidarity and Just Transitions Silesia Declaration" of the COP24 meeting in 2018. The European Commission has declared the motto "to leave no one behind" central to the European Green Deal, and devised the Just Transition Mechanism to provide financial support to particularly vulnerable European regions.

Despite the political commitment, achieving a 'just transition' in the European Union will be complex and many questions remain. The concept is still unfamiliar to many, especially since existing decarbonization efforts have focused on implementing 'clean and efficient' technologies, and less on the more complex distributional and social aspects of sustainability transformations. Conceptions of what a 'just transition' entails also vary. Historically, the concept has evolved in a narrow sense as protecting and compensating workers in regions highly dependent on fossil fuel extraction. Aspects of fairness in future renewable energy systems, or sectors beyond the energy systems have not been considered. This narrow framing has been implemented in the European Just Transition Mechanism, but does not align well with the European Green Deal's overarching goal of "leaving no one behind" and the broader ambition to shape a transformation to climate neutrality that is socially just.

From the perspective of policy-makers, there is a particular need for assessment frameworks to evaluate aspects of justice as part of the transformation to climate neutrality, and monitor them over time. This paper presents a critical review of existing proposals to assess and monitor the European 'just transition', considering proposals brought forth by the EU institutions and third sector organizations. It is part of a larger project to develop an assessment framework for the European 'just transition'. The framework will integrate existing academic work in environmental, climate, energy, and transport justice and align with existing EU indicators systems.

International regulation and the standardization of green finance processes: The case of the EU taxonomy in global perspective

Carsten Elsner

With the rapidly developing challenge of climate change the call for a greener economy becomes omnipresent. The finance realm plays a key role in this economic transformation and numerous attempts appeared on the global stage calling for a mobilization of financial resources for green activities. Thus, definitions and standards for green finance play a vital role in determining the sustainability of economic activities. However, voluntary commitments such as the ESG (Environmental, Social, Governance) indicators did not result in a major push in investments towards green activities. Hence, governmental entities in various countries started to develop binding standards for green economic activities, known as taxonomies. In this regard, this paper

will examine those processes ensuing from a European perspective. Hence, it asks how the EU taxonomy is situated within global standardization efforts, how it influences them and vice versa. Hereby, the EU taxonomy is understood as a tool in terms of global climate governance in the financial realm. Although focusing on defining sustainability in economic activities, the interdependencies of the EU taxonomy are situated also within a wider environment of regulatory approaches and policies, such as the Carbon Border Adjustment Mechanism or the Inflation Reduction Act.

Thus, this paper will first reflect on the sustainable finance literature regarding standardization and introduce the narrative discourse approach. This will be followed by an overview of current global efforts in terms of sustainable finance standards drawing on the Green Finance Measures Database. The paper will then continue with an analysis of relevant documents employing a narrative discourse analysis in order to identify the storylines which appear in the discourse around the global effects and relations of the EU taxonomy. To this end this paper will finally discuss the position of the EU taxonomy in relation to other approaches in the realm of sustainable finance standardization.

Punctuated equilibria at the science and policy interface? Four cases of implementation of the European Water Framework Directive

Nina Zoé Valin

Policy systems are often managed by actors constellations that thrive with the status quo, and project a positive image of the way they are managing a certain issue. Changes to practices and routines that develop in such systems are hard to contest, although the Punctuated Equilibrium Framework (PEF) can reveal dynamics in different venues of the policy field. It is relatively unclear how experts are implied in the PEF, and this paper seeks to shed more light on their agency in policy change To this end we examine the case of the Water Framework Directive (WFD), where several experts took their ideas on better ways of managing water to Brussels, and managed to influence EU law [citation removed to annonymize abstract]. But adoption of the WFD – with its unique approach towards implementation (leaving much discretion to members states) was only the start of a policy change trajectory. In this paper we examine how experts were subsequently also implied in implementation of the WFD, and used this critical juncture to steer the trajectory of national regimes in new directions. Our central research question is therefore how the architecture of science-policy networks at the national level has influenced the choices of institutional design, and how such networks have continued to affect the trajectory of national water regimes over time?

We answer this question by performing a cross-case comparison, involving in-depth studies of four EU member states (France, the Netherlands, Sweden and Greece), countries chosen for their diverging contexts. We rely on the PEF to study shifts in national water policy and path dependencies. First, how does the science-policy interface influence the directions for interpreting and implementing the WFD? Reciprocally, how has the adoption of the WFD transformed the science-policy interface around water policy in each country? This has for instance been the case

in Greece, where the WFD has enabled ecological expertise to be elevated over chemical expertise. In each country, through interviews with experts and policymakers from the civil society, national expert institutions and government, we identify the types of science-policy interactions (e.g. centralized/decentralized) that are associated with certain evolutions of the WFD principles through time, and in particular those that enable the principles to persist and enhance water protection. This allows us to reveal what science-policy setups have been most effective in improving water quality, and which potential changes might still be needed to overcome remaining domestic implementation challenges.

Parallel Panel: The Underrepresented: inclusivity and intersectionality in earth system governance

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.125 / Zoom

Chair(s):

Simone Haarbosch

Presentations (including names of presenting authors):

Intersectionality in Arctic climate change: a transdisciplinary insight into systems of power and just transition

Anna Soer

The 2008 vice-presidential debate slogan of former Alaska Governor Sarah Palin "Drill, baby, drill" exemplifies how institutional power is intersectionally intertwined: The environmental impacts of oil drillings on Indigenous lands are not only disproportionally affecting social classes with less structural resilience, but Indigenous voices and interests also do not hold an equal seat at the decision-making table. "Drill, baby, drill" is a testament of extractivism where unimpeded access to land - and Indigenous bodies - and its epistemological framing as a resource to be exploited has shaped public legislation and policies – in legacy of the Manifest Destiny. A product of oil production, plastics and plastic pollution have a disproportional health impact on Inuit women – micro- and nano- plastics being found in the blood, placenta, and being linked to several cancers. On the side of sustainable development and renewable energy, the 2016 Arctic oil production moratorium imposed by the U.S. and Canadian governments has been received by local elected officials and communities as a continuation of paternalistic colonial power due to the absence of local consultation and prior informed consent. As such, from oil production to sustainable development, core elements of a just transition appear to be missing: from agency and democratic participation to fulfil self-determination, to justice and equity in resource distribution and power.

Within colonialism in the North American Arctic, the rule-making systems informing (in-formal) norms, legislations, and policies, as well as the actor-networks involved in climate change mitigation and adaptation, clash when it comes to the realization of a just transition: In this paper, I explore whose interests are central to just transition, how these interests determine political agendas, and how these interests enable or disable the turn away from fossil fuels. Beyond securitization discourses, these intersectional effects of power detail how the public sector, the private sector, and civil society are co-constituted within colonial dynamics. Grounded in human geography, political science, and feminist decolonial theory, I question the implementation of just transition within a North American Arctic Arctic context particularly emphasizing the changing nature of Indigenous and state governance structures through law and history.

People with Disabilities in the Transition to Decarbonization: A Case Study of the Intersections of Sustainability and Accessibility in Montreal

Sébastien Jodoin

Cities around the world are at the forefront of a major economic, technological, social, and political transition to decarbonization. This ambitious agenda of urban transformation has significant implications for social justice. It will shape the ability of different segments of the population to access employment, housing, transportation and mediating their exposure to environmental goods and burdens. Beyond the general recognition that addressing climate change has the potential to dismantle or reinforce social inequalities for people with disabilities, little is known about the concrete implications of decarbonization for the lives and well-being of people with disabilities living in cities. Our paper brings together the literatures on spatial justice, disability inclusion, and climate justice to examine the intersections, tensions, and synergies between urban transitions to sustainability and accessibility. We argue that disability inclusion is a neglected dimension in environmental efforts to transform enduring social, economic, institutional, and technological structures and path-dependencies across multiple sectors and levels of governance. Our project is grounded in a disability rights research paradigm that emphasizes that: knowledge should be co-generated by and with a diversity of voices from the disability community; aligned with their priorities; focused on rectifying current, historical or potential violations of their rights; and addressed to them in accessible formats Drawing on semi-structured interviews with people with disabilities, focus groups with disability and climate policy-makers and activists, and analysis of policy documents and media coverage, we provide an in-depth qualitative case study of whether and how climate initiatives have engaged and affected different people with disabilities in Montreal. We will focus on the development and impacts of initiatives aimed at: (1) transforming transportation (through the promotion of car-sharing, electrification, mass transit, and active transportation) and increasing green spaces; (2) decarbonizing the built environment through energy efficiency, retrofitting, and renewable energy measures targeting homes and buildings; (3) reducing waste and phasing-out single-use plastic products; and (4) fostering the development of clean technology sectors and green jobs. Our findings will highlight challenges and opportunities for ensuring that climate policies and initiatives enhance, rather than undermine, efforts to make societies more inclusive of people with disabilities. We will also reflect on the important contributions that the agency and knowledge of people with disabilities can make in the transition to decarbonization in cities.

How are philanthropic foundations shaping diversity in a low-carbon energy transition?

Christina Hoicka

Energy transitions are not necessarily just, and diversity in leadership and participation are important in a low-carbon energy transition. As inequities and disparities among those impacted by environmental degradation is growing, environmental philanthropy is also expanding. How philanthropic foundations distribute funds is important to understand. Who is receiving and benefitting from environmental philanthropy and who is excluded? Focusing on Canada, this study

analyzes how environmental philanthropy is being distributed among non-profit organizations working on low-carbon energy transition.

Using a systematic scan to identify a baseline of organizations, combined with qualitative workshops with civil society stakeholders, this study identified 467 predominantly foundation-funded organizations. Analysis of organization websites to understand their engagement in advancing equity, diversity, and inclusion found that the vast majority do not appear to be led by equity deserving groups (e.g., youth, Indigenous Peoples, racialized, immigrant, low-income, disability, seniors, and Northern and coastal communities), while approximately half are addressing equity deserving groups. Workshop feedback from stakeholders indicated how foundations have produced these outcomes, and how they could expand the scope of sectors and organization types funded, as well as to alter the landscape of participation to those who are currently marginalised or excluded from the transition, or vulnerable to the impacts of climate change, by providing funding for transformational and decolonizing practices to support a just low-carbon transition.

Parallel Panel: Envisioning optimistic ecological futures

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.129

Chair(s):

Manjana Milkoreit

Presentations (including names of presenting authors):

Envisioning net zero futures: Why ecopolitical imaginaries matter for climate governance

Sophia Hatzisavvidou

Far from being simply the natural temporal extension of the present, the future is a horizon of action that can profoundly shape the present and how political actors respond to ongoing and emerging challenges. The year 2050 is now a key date for climate action and governance, as it is the year that humanity is expected to have achieved net zero carbon emissions before catastrophic climatic events start to profoundly alter life on Earth. If the idea that 'we are already living in the ruins' is credible, then imagining the possible futures that can be crafted for living together—as opposed to merely surviving—on this planet is an essentially political task.

This paper takes on the idea that imaginaries—broadly, common visions of the future—play an important role shaping global environmental politics. It argues that abstractly postulating a future with more trees, industrial-size solar farms and carbon capture and storage installations and with less oil and gas pipelines and eventually less carbon and methane emissions, is inadequate to capture the possibilities for political organisation that the appeal to a net zero future offers. Therefore, foresight techniques can illuminate specific collective visions, how they agents advance them, and how the compete for public acceptance. But as [citation removed to annonymize abstract] note, foresight processes are inherently political and impact on how the future is conceptualised, how diverse imagined futures are, and what is their impact on present-day policy choices. It matters not only what futures we imagine, but also how we imagine them.

The paper makes the case for the role that political theory as a visioning technique plays. To achieve this overarching goal, the paper makes two interrelated contributions. First, it theorises the concept of ecopolitical imaginary, aiming to add clarity and specificity to our understanding of a much-used term in academic discourse on climate politics. Second, the paper sketches three ecopolitical imaginaries currently emerging in international politics and public policy with regard to net zero, each driven by a distinct principle: economic growth, well-being, and justice. Finally, the paper reflects critically on the compatibility of these three ecopolitical imaginaries. The paper, thus, makes both conceptual and empirical contributions to scholarship on imaginaries of net zero futures.

A brief history of a subversive future: a just transition counter-narrative about a city that inverts power through participatory governance

Luke Li Stange

"As the last day of 2059, today marks the 10th anniversary of global carbon neutrality. So it is a good day for us to reflect on just how much this cooperative cities movement has accomplished. Cities were once anthropocentrism writ large. Then, city-making was dominated by oligopolies run largely by privileged men under a mechanistic paradigm that was profit-driven, exploitative and destructive. Through a 'matrix of domination', hegemonic normative power was wielded through institutions and discourse to oppress ecological beings the world over.

"This is the story of how an extraordinary cascade of tipping points that averted an ecological collapse. It is the story of democracy reborn. This transformation was big, bold, ballistic. It was precipitated through a coalescing of communities and ideas that culminated in the mass proliferation of cooperatives and participatory governance. This resulted in power in the city being profoundly inverted."

Above is an excerpt from a counter-narrative I intend to present that upends city-making powers from the most privileged to the least. Any kind of truly inclusive city-making has been rare because it is immensely challenging. Few who struggle to put food on the table for their children are likely to invest their time and energy into cumbersome and laborious participatory processes that are ultimately of little consequence. Whilst it is essential that digital tools allow participatory governance to be woven seamlessly into our everyday lives, such technology must be coupled with an ecopedagogical approach. This is one that not only provides the explosive critical eco-literacy needed, but also motivates and empowers. Only then might a cohesive movement be galvanised with the capacity to usurp hegemonic elites and overcome ecological injustice.

To grapple with this entanglement of wicked problems of overwhelming proportions, this counter-narrative is written in the form of a fictionalised auto-ethnography using a backcasting approach. As a counter-narrative, it aims to provide a just transition scenario that foregrounds the needs and interests of marginalised people. To accurately predict the future, forecasting methods assume hegemonic structures of the past persist; backcasting methods, however, do not. Through this reverse-engineering method, the necessary prerequisites and intermediary milestones along the journey can be identified. This counter-narrative is grounded in examples from history that subvert power and advance ecological justice. Together with new ideas and technologies, these will demonstrate how participatory governance could be used in a transition to an ecologically just city of the future.

Understanding the potential of climate games through the lens of social action theories

carien moossdorff

Different presents and futures of climate change are too large or difficult to fully grasp. Games are a potential help with this: They can contribute to futuring capacities, including systems knowledge, throughout the population, and disseminate experiential knowledge of realities related to Climate Change. They can grant it a place in public arenas as well as in discourse at large. It seems, then,

that we should welcome the recent rise in Climate Games. However, many climate games follow a rather narrow range of goals and assumptions about change that may significantly limit their potential for societal impact.

In this article, we set out to first map a range of digital games across the spectrum of 'serious' to more purely 'entertainment/commercial' that relate to Climate Change.

We present a typology that covers the existing Climate Games, based on the location of climate in the game, and on the main goal with climate change for the audience. We find six types of Climate Change applications in games: Casual, Systems Management, Knowledge, Experience, Subversive, and 'Backdrop'. These types seem to want to do good by influencing mechanisms that guide social action. But they appeal to this based on implicit premises. We link each type to at least one of these different theories of social action in sociology: Weberian rational action; ideology, and experience. Through this, we provide a framework to assess goals in Climate Games that can help overcome the 'awareness problem' and allow game designers and -funders to make an informed choice on the validity of the mechanisms they wish to tap into.

Beyond Dystopias: towards urban future imaginaries

Mitchell Pavao-Zuckerman

Cities lie at the nexus of sustainability and resilience challenges. Urbanization is a driver of the economic and land use transformations that underpin biodiversity and climate change, and sites of strong socio-economic gradients that underpin environmental inequities. At the same time, cities are places where social, political, and technological innovations emerge to respond to these challenges. Positive transformations are required to put cities along pathways toward sustainability and to support resilience to the effects of climate change. Imagination is a key part of visioning and scenario development to move towards these desired pathways. Science and speculative fiction offer multiple views on potential futures – a way to view the future that the 'Hyperobject' that is climate change brings to a creative space to envision new technologies, governances, and economies to mitigate and adapt to climate change. Science fiction thus offers interdisciplinary imaginaries for urban transitions. The available literature reflects this disciplinary breadth, with writings in the humanities, geography, planning, futures, design, and technology studies. This paper presents the results of a literature review of articles focused on science fiction, climate, and the built environment intended to integrate across these disciplines. I ask how science and speculative fiction is used and discussed across these fields with the goal of informing the use of imaginaries to envision sustainable and resilient urban futures. Exploring speculative fiction as a source of imagination spans the contextual conditions of the ESG framework, allowing authors to explore diversity, inequalities, transformations, and the Anthropocene setting. I discuss how science fiction imaginaries can be used to frame and improve scenario approaches and thought experimentation, and also the role they play in design and planning pedagogies.

Moving Past the "Commons": Reconceptualizing the Global Governance of Areas Beyond National Jurisdiction

Philippe Evoy

The dominant way of apprehending areas beyond national jurisdiction (ABNJs) in global governance scholarship has been to conceive them as "global commons", that is as resource domains to which several utility-maximizing actors have unrestricted access. This paper argues that this conception is not value-free and is only one of several possible normative frames to think about ABNJs, as much on the part of scholars as on the part of actors. Bringing International Relations social constructivist scholarship into the discussion, it identifies two central questions surrounding the governance of ABNJs, namely those of legitimate authority and justice. From these notions, the paper derives a typology of normative frames for ABNJ governance, which provides a clearer understanding of historical and potential frames and corresponding governance architectures. The usefulness of the typology is illustrated by showing how it allows to characterize more accurately the governance of Antarctica, outer space and international seabed mining. While actors have tended to promote "maximalist" forms of governance rooted in either a traditional "commons" perspective or a "common heritage of humankind" conception, real-world regimes and practices have tended to land closer to compromises between these two normative frames, namely forms of "liberal institutionalism" or "stewardship". Beyond a better understanding of dynamics at play in ABNJ governance, the proposed typology also has the added benefit of favoring the imagination of new forms of governance for ABNJs, considering the dismal track record of solutions rooted in a "commons" perspective for environmental sustainability.

Innovative Session: Pathway Mural: Designing sustainability experiments

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR 1.133

Presenter(s): Jose DiBella, Sarah Burch

Pathway Mural: Designing sustainability experiments

This session will engage participants in a deeply interactive capacity-building methodology to co-produce sustainability and disaster risk reduction experiments. The foundation of the method draws on empirical resarch - over 30 case studies and 100 sustainability practices in 6 countries - that mapped the unique and emergent unfolding of successful sustainability practices in organizations. This approach has been used to both better understand the trajectory an organization has followed as well to craft a forward-looking implementation strategy for the future.

https://transformcities.ca/case_study/

The mural approach enables participants to:

- identify and visualize specifc sustainability-oriented actions (both social and technical);
- co-create the sequence of actions that lead to effective implementation;
- reveal opportunities for potential amplification of the impact of the experiment;
- map the ecosystem of actors within which the experiment is nested; and
- develop collective strategies to better govern multi-actor sustainability transformations.

In this session we will present the transdisciplinary methodology, illustrate how it is being used by teams currently implementing experiments (particularly in Latin America and Canada) and work with session participants' ideas to generate unique murals. Ultimately, we seek to reflect on the mural and enrich its design through a multidisciplinary collaboration.

Conference Stream(s): Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: Deep Time Walk: From Theia to the Anthropocene

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 5:00:00 PM

Location: GR 1.136

Chair(s): Maria Elisabeth Karssenberg

Presenter(s): Emma Hissink Muller, Dennis Hamer, Boris van Meurs, Maria Elisabeth Karssenberg

Deep Time Walk: From Theia to the Anthropocene

We present our interactive walk through 4.6 billion years of Earth history: a journey from Earth's wild beginnings to the Anthropocene, originally developed by ecologist Stephan Harding and playwright Peter Oswald. Each meter represents one million years, and by the time you reach the present your perception of Earth's history and humanity's place in it will have changed forever.

The aims of this innovative session are to imagine the vastness of deep time and to encounter the planet as more than a mere stage upon which humans perform their play. We contribute to these aims by having an interdisciplinary dialogue with the participants whilst (literally) walking through the key moments of Earth's history. In order to deal with present-day challenges of sustainable transformations, one has to transgress disciplinary and imaginative boundaries. One way of finding new paths forward is to retell our story not starting with ourselves, but with the Earth.

We propose four parallel walks, each guided by an ARCHAIC (Anthropocene Research Collective for Human-Animal and Interspecies Collaborations) member. The walks are divided into three 'chapters': (1) Oxygen, (2) Organisms, and (3) The Recognisable World. Each 'chapter' consists of a narrative based on key moments in Earth history, and we will open up the session for questions like: what is the relevance of Earth history and Deep Time for your own field of research? Do you think the perspective of the Earth naturalizes social or cultural studies or that current understandings of the Earth need a social perspective?

What role do humans play within this awfully complex Earth System? Should we understand humans as organisms or political or technological beings, which frames do you find important, what are its pros and cons?

And, perhaps the most important question, what will happen during our next step into the future?

Conference Stream(s): Anticipation and Imagination
Inter- and Transdisciplinarity for Sustainability Transformations

Innovative Session: Innovative partnership approaches in international climate cooperation: building bridges between global imperatives and national needs?

Date & Time (Amsterdam Time): October 26th 3:00:00 PM - 4:30:00 PM

Location: GR -1.075

Chair(s):

Steffen Bauer

Marian Feist

Presenter(s): Kennedy Liti Mbeva, Daniele Malerba, Romy Chevallier

Presentations (including names of presenting authors):

Innovative partnership approaches in international climate cooperation: building bridges between global imperatives and national needs?

Multilateral climate governance is clearly not on track to avoid dangerous climate change. Hopes of revitalised climate action in the wake of the Glasgow Climate Pact adopted at UNFCCC's COP26 in 2021 have since been undercut by the stagnation reflected in the outcomes of COP27 in Sharm El-Sheikh in 2022 and amidst geopolitical turbulences and multiple crises. Against this backdrop, a turn towards distinct partnership approaches seeks to build new momentum in international climate cooperation and to advance just transition pathways in a host of developing countries. Indeed, bi- and plurilateral partnerships are mushrooming as seemingly promising complements to get things moving. Still, realising the potential of such partnerships is obviously challenging. Failing to deliver risks exacerbating the lack of trust in international cooperation and undermining ownership. Instead, partnerships need to demonstrate that they can be instrumental in mobilising commensurate political, financial, and technical resources that will be expedient to building bridges between global imperatives and national and societal needs. Zooming in on distinct country cases, the session will follow an interactive roundtable format to scrutinize the promise of various climate cooperation partnerships and their potential to yield substantive results on the ground. The discussion will thus confront the global imperatives of climate cooperation with a reality check informed by national perspectives and expertise. It will be structured by core questions addressing inter alia: Which norms and rationales underpin the various partnership approaches? How may they actually contribute to governing transformative change at country level? What are the implications of the current geopolitical context for the implementation of established and prospective climate cooperation partnerships? Presented partnership and country cases will include bilateral climate and development partnerships between Germany and Kenya and Germany and Pakistan respectively as well as plurilateral Just Energy Transitions Partnerships with South Africa and Indonesia.

Conference Stream(s):