



2022
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on Earth System
Governance

Governing accelerated transitions: justice
creativity & power in a transforming world

Book of Abstracts

(Preliminary Version)



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Governing accelerated transitions: justice, creativity, and power in a transforming world

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The 2022 Toronto Conference on Earth System Governance is a collaboration between **the University of Waterloo, the University of Toronto** and the **Earth System Governance Project**. The conference is organized around the five analytical lenses structuring the Earth System Governance research agenda, as captured in the [2018 Science and Implementation Plan](#); and a sixth stream focusing on specific issues and challenges that emerge as efforts are made to accelerate the social, political, and technological shift towards more fundamentally sustainable and inclusive social-ecological systems, societies and polities.

For authors of accepted abstracts, please note the following:

This is a preliminary document. The final allocation will occur in September, after which the final panel programme will be released.

In order to present your paper at the Conference, please ensure that you have registered by 1st September.

Presenting authors that have not registered by 1st September will have their paper removed from the Conference programme. If you wish for a co-author to present in your stead, please notify the Organizing Team ahead of this date.

The current allocation to on-site and virtual panels has been made based on the preference included during the abstract submission. Following 1st September, the allocation will be made based on the author's choice of registration ticket.

For any questions and updates please get in touch with us at tc2022@earthsystemgovernance.org

Stream 1

Architecture and Agency

Panel ID 100 | Onsite

Achieving Goals and Commitments in Climate Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Do Aspirational Goals in International Environmental Agreements Matter? Using History to Calibrate Reasonable Expectations for the Paris Agreement

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The inclusion of a 1.5°C limit on increase of global mean temperature in the 2015 Paris Agreement has been widely acclaimed as a key achievement. Many international treaties contain similar “aspirational goals”: explicit and ambitious targets with low legal obligation. Scholars have claimed that they impact policy, e.g. in regard to human rights norms. Yet no studies investigate the impact of aspirational goals contained in some of the nearly 300 international environmental agreements. This paper identifies five general causal mechanisms through which such goals

in an agreement might alter concrete policies. It then investigates their potential real-world impact using a nested case study design. Starting from an original historical dataset of all international historical environmental agreements, we find eight that contain truly aspirational goals. Significant policy change that may have been influenced by such a goal occurred in four cases, and detailed case studies of these reveal only two – those to mitigate acid rain in Europe and depletion of the ozone layer – where evidence suggests that aspirational goals catalyzed policy change. In those apparently exceptional cases, impact appears to have been contingent on the prior existence of a highly mobilized coalition. We conclude with tentative implications for the 1.5°C target in the context of the recent attention it has received, as well as for similar aspirational goals in other issue areas.

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Exploring emerging norms of climate neutrality: implications for international climate cooperation and finance

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We examine the role of international norm development on the basis of the increasing number of climate neutrality targets formulated by countries globally and ask, how such a norm could advance international climate cooperation. Furthermore, we assess implications for the design of international climate finance according to article 9 of the

Paris Agreement, and inversely, how climate finance can further advance such norms and policy formulation for climate and development.

Building on recent findings, we identify enablers for international climate cooperation to achieve the goals of the Paris Agreement like the acceptance of new norms of climate neutrality, related factors of trust, transparency and the provision of catalytic means such as international climate finance and support. We theorize that climate neutrality norms can guide domestic policy makers towards the establishment of forward looking climate policy frameworks during phases of norm internalization.

Our research includes global data sets on climate neutrality policies and targets, and the analysis of five country case studies: four emerging economies Brazil, India, Indonesia and South Africa and an industrialized country as contributor of climate finance, Germany. Through the case studies, we show how individual climate neutrality targets differ, and what differences exist in terms of developing national pathways for their achievements as an indicator for norm internalization.

First findings show a potential dual effect between an emerging norm of climate neutrality and the effectiveness of international climate finance. On the one hand, climate neutrality targets could foster national ownership and the elaboration of roadmaps for climate policy, which are important to attract ICF-related funding. On the other hand, ICF could provide the means of implementation to develop and implement policy frameworks towards climate neutrality. While the five countries have all established country-specific climate neutrality targets, there is a variety of timelines and sector-related actions, which confirms the necessity for ICF to be designed in a country-specific way. While global formulation of support needs by developing nations might need to stay on a general level because of the polycentric nature of the Paris agreement, associated needs for country-specific approaches are required.

For ICF to be designed to specifically support national climate neutrality targets, country-specific pathways, though not yet available, may be helpful as a guidance. Such pathways might serve as indicators for the success of international cooperation on multiple levels: to define ambition and to test the alignment of cooperation instruments with the objective of climate neutrality.

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Diving deep into the governance architecture of water and coastal management in north-western Germany by adopting a qualitative network perspective

Annalena Schoppe, Leena Karrasch

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Coastal regions face the challenge of dealing with impacts of climate change in terms of e.g. rising sea-level, extreme precipitation and creeping groundwater salinization. Since hundreds of years, humans adapt the coastal region of East Frisia (north-western Germany) in response to changing environmental impacts in order to protect themselves from sea and inland flooding. Latest research shows that current actions in water and coastal management fail to secure a low risk potential for the coastal region in the mid- and long-term. The ability of the social-ecological system to adapt is determined by preconditions, such as learning processes and stakeholder participation, that enable to conduct adaptation measures. In this respect, adjusted and innovative governance structures and processes are necessary to reduce risks of flooding and increase adaptive capacity of the coastal region. Reflecting the human-nature relations in the coastal region, the question arises if the given governance architecture is no longer fit for purpose for a climate change adapted management. To

examine this, the specific objective of this paper is to reveal and understand how actors' constellations and prevailing informal institutions influence processes of adaptation. Additionally, we reflect upon opportunities of institutionalized processes of integrated climate change adaptation in water and coastal management. We used a digital network and power mapping technique to conduct a qualitative egocentric network analysis. Based on video-mediated semi-structured interviews with regional actors in water and coastal management, data on the actor's networks were gathered on a digital whiteboard, including all relevant actors, their relations, and perceived influence. 22 egocentric social network maps were merged to one overall water and coastal management network. The existing governance architecture turned out to be shaped by informal institutions, which are strongly influenced by regional and traditional norms, such as independency and self-organization of local actors in coastal protection. These informal institutions contribute to close networking among actors, but inhibit thinking outside the box and, for example, questioning existing formats of exchange or responsibilities in regional climate change adaptation. Meanwhile integrated formats of informal collaboration are present, formal decision-making processes are usually separated, leading to difficulties in the practical coordination of adaptation measures. To address challenges posed by climate change adaptation, the focus on informal institutions considering their regional context, gives new insights into governing patterns in water and coastal management. Thus, potentials will be made applicable to increase adaptive capacity, advance transformation and build resilience in the coastal context.

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Facilitating capacity building through the UNFCCC as learning forum

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The policymaking context to address climate change is characterised by multilevel reinforcing governance dynamics between the local, national, regional (e.g., EU) and international level. While our understanding of the role, relevance and impact of learning has improved on the European and national level, we lack a clearer understanding of the central co-ordinating role of the international level of environmental governance through the United Nations Framework Convention on Climate Change (UNFCCC) negotiations. This contribution explores how the process of learning affects and is affected by the dynamic interactions with and within the policymaking context of the UNFCCC negotiations and the multilevel reinforcing dynamics with the sub-national, national and EU levels. As the formal negotiations on the Paris Agreement on climate change and its implementation are in the final concluding stages, the focus of the international community moves towards increasing countries' ambitions in addressing climate change through national-level policies. This requires not only monitoring, reporting and verification mechanisms, but transforms the role of the UNFCCC into a learning forum that facilitates the sharing of knowledge on policy design, experiences with implementation and has the potential to also change policymakers' beliefs on the co-benefits of ambitious climate action and economic development. Based on interviews and participant observation between 2015 and 2021, this paper process-traces how the UNFCCC is emerging as a learning forum and assuming a co-ordinating role on the international level while closely interacting with the local, national and regional levels of governance. The central hypothesis is that in

doing so, the UNFCCC disseminates and enhances learning in a way that results in more ambitious climate policies and an improved capacity for the effective implementation of these policies based on transnational and polycentric governance dynamics across multiple governance levels. For example, the diffusion of climate targets aiming for carbon neutrality between 2050 (EU, US, Japan), 2060 (China) and 2070 (India) can be traced back to the European Green Deal, national policy initiatives such as the UK's 2019 climate targets and sub-national action by the 'We Are Still In' coalition in the face of lacking national ambitions during the Trump government in the US. This paper dissects the central role of learning on the international level as driving factor for policy diffusion in multilevel governance beyond the EU.

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*Transformative institutions?
Findings from a case study on the
impact of national sustainability
institutions in Germany*

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Beginning with the UN Rio process on sustainable development and reinforced by the adoption of the Agenda 2030 and the Paris Climate Agreement, national governments around the world have established specialized political bodies for sustainability as part of their polities. These bodies range from governmental commissions, advisory councils, ombudspersons to parliamentary committees. They share, in substantial terms, an orientation towards sustainability, which I understand as socio-ecological well-being with a global and future-sensitive perspective. In structural terms, these bodies have in common a public mandate, a trans-departmental set-up, and a permanent place

in the national polity. This is why I call such specialized political bodies sustainability institutions. And, although we know that they exist in the majority of countries in the world (as the author has shown elsewhere, under review), there is surprisingly little academic knowledge about whether and how they actually have an impact on promoting sustainability in policy-making.

In the proposed paper, I will shed light on how sustainability institutions in practice influence political decision-making (or not), drawing on findings from a case study on Germany. I selected Germany as a case because it has several sustainability institutions that exist alongside and possibly complement each other: the Council for Sustainable Development, the Parliamentary Advisory Council for Sustainable Development, and the State Secretary Committee for Sustainable Development.

The case study rests on a qualitative data analysis based on interviews with office-holders in sustainability institutions, government officials, parliamentarians, experts, civil society as well as business actors. The research design follows a deductive approach: I draw upon a previously created multi-dimensional analytical framework on sustainability institutions and conducive conditions as well as possible pathways to influence the stages in the policy cycle, developed based on existing literature in the field (article under review). The analytical framework facilitates the comprehensive assessment of sustainability institutions and thus informs the coding scheme for the qualitative data analysis.

With the case study, I contribute to a better understanding of the phenomenon of sustainability institutions and their impact in practice. At the same time, the case study serves as a reality check for many of the assumptions underlying the conceptual framework, improving the framework for further empirical studies on sustainability institutions and their impact. Finally, the case study may also be useful as a basis for reforms of the institutional design of individual

sustainability institutions in order to make these bodies more meaningful.

Panel ID 101 | Onsite

Governing Climate Adaptation and Impacts at Multiple Levels

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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A framework for assessing lock-in dynamics in climate change adaptation

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In order to accelerate transformative change and propel adaptation action, it is vital that we understand the counteracting forces that continue to decelerate and hinder these efforts. For this, we must look to the political, institutional, behavioural and infrastructural forces that drive and maintain dynamics that ‘lock-in’ current practices, policies and wider governance systems. These often-hidden lock-in dynamics are characterised by the presence of self-reinforcing mechanisms and feedbacks that, whether intentionally and actively, or unintentionally and passively, create high resistance to change and help maintain the status quo. However, absent from the literature is a holistic, systematic framework for identifying and characterising where lock-in dynamics exist and qualifying their intensity and influence.

Responding to this gap, this paper presents such an analytical framework, grounded in the literature and refined through empirical research conducted within the Adapt Lock-in project into the lock-in dynamics restricting climate change adaptation in the Netherlands, UK and Germany. The framework provides a step-based approach to guide inductive inquiry, based on *contextualisation*, *identification*, *characterisation* and *determination*. Herein, *Characterisation* is based on core dimensions of *complexity*, *positionality*, and *relationality* to determine how and why lock-in dynamics operate within policy (sub)systems. Drawing from the empirical data, we formulate a typology of different types of lock-in dynamics to explain how mechanisms function in self and/or mutually reinforcing ways and demonstrate these effects through several empirical examples. The final step of the framework (*‘Determination’*) proposes benchmarks for assessing the *resistance* (i.e. the degree to which the lock-in dynamic is able to withstand system change), and *relevance* (in terms of its influence on the system under study). This final step holds important implications for prioritising and tailoring interventions and strategies to ‘unlock’ undesirable lock-in dynamics and leverage transformative change for the future.

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Governing through Reputation

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Firms are often not forced through regulation to become environmentally friendly, but may find it a requirement to maintain or obtain a good reputation. This *governance through reputation* is a free market form of governance that works via consumer concerns. This might work better for some sectors than for others, dependent on how much sales or use of platforms rely on reputation; the *reputation elasticity of demand*.

In this paper, I will assess the factors that determine a firm's sensitivity to reputation. The hypothesis is that products that are substitutable are much more dependent on reputation for their sales than products that are not substitutable. As a result, sectors making substitutable products are much more likely to be kept in check by consumers' values than other sectors. How substitutable a product is might change over time and place. In addition, the extent to which a product is sold to end consumers is seen as a necessity and the extent to which its value depends on intangibles like brand image likely also influence the sensitivity of the sales to reputation.

In this research I link this *reputation elasticity of demand* to how the sector gets governed through different forms of private and public regulation.

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Regional preparedness networks in preparing for and responding to storm-related disruptions

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The Nordic approach to security and preparedness emphasises decentralization and cross-sectoral cooperation. In Finland, the approach is called *comprehensive security*. Briefly, society's vital functions are secured through collaboration between the authorities, organizations, and citizens. The approach aims to transcend administrative and geographical boundaries but can also be seen as a fragmented system leading to unclear division of responsibilities and power.

Comprehensive security has been operationalized e.g., through regional preparedness and security networks that bring together rescue services, municipal

authorities, social and health services, NGOs, and companies. The network itself has no leading partner nor formal decision-making power. Its operation is based on mutual agreement and the responsibilities of each participant organisation. On the one hand, the regional preparedness networks can be considered a tangible method to implement adaptive governance, that bases on mutual learning, collaboration, multi-actor networks, and multilevel and multiscale governance. On the other hand, there is a risk for scale mismatches between, for example, regional networks, municipal responsibilities, national-level policies, and local hazard impacts.

We examine how these polycentric networks operate in practice and ask how and if cross-sectoral regional cooperation has altered regional preparedness for and responses to storm-related disruptions. We further focus on how the attributes of adaptive governance are visible in preparedness networks and whether scale mismatches hinder their functioning.

The study is based on a qualitative interview study, where we interview network members from three different preparedness networks: two smaller regional forums (South Karelia and Kainuu) and one higher-level regional network (Western Finland), and focus on storm-related long power outages, which are a relevant hazard scenario in all regions of the country. We are currently conducting the interviews. We discuss how regional networks implement adaptive and reflexive governance, and whether such networks could have potential to govern sustainable transformations.

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The impact of sectoral approaches to climate change

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Concerned with the slow pace at which the conference of the parties to the United Nations Framework Convention on Climate Change (UNFCCC) is making progress, there has been increasing discussion about a “sectoral approach” in tackling climate change. A sectoral approach refers to a bottom-up approach for climate mitigation that is driven by various sectors, where industry and associations play bigger roles and possibly facilitate issue-specific inter-state negotiations. The recent global pledge on methane is a case in point. The question is whether such a sectoral approach helps, and if so which institutions. In this paper, we study several non-climate international regimes that have engaged with the aim to reduce carbon emissions in their respective sectors. It builds on the studies on strategic issue linkage and the recently revived interest in empirical-driven climate policies in international regimes outside the UNFCCC. Instead of evaluating the sufficiency of sectoral climate policies, this paper evaluates the venue-shift of certain climate issues from the UNFCCC to non-climate institutions, with the goal to understand the impact of this venue-shift on the UNFCCC and the overall effectiveness of the regimes involved. It analyzes the actors and processes of climate-related agreement making, as well as the inter-regime dynamics with the UNFCCC. We chose four regimes from two sectors: The Montreal Protocol, the Minamata Convention on Mercury, the International Civil Aviation Organization, and International Maritime Organization. The case studies will be based on interviews and process tracing in each regime, and findings of these case studies have implications regarding the relationships between the UNFCCC and non-climate regimes in tackling climate change.

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*De-Politicizing the Anthropocene:
Landscape-Scale Collaboratives as
Models for Anthropocene
Governance*

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For decades, national and global institutions failed to adequately and efficiently respond to global environmental change projections, though these actors are often the focus for academic studies. However, these political spaces are highly bureaucratic, hierarchical, exclusive, and displaced from the experience of change on the ground. In this paper, I argue that landscape-scale collaborative governance structures produce more efficient responses to environmental change compared to formal political spaces. This argument is illuminated in a comparative case study of the Rocky Mountain Biosphere Reserve (RMBR) and the Mount Arrowsmith Biosphere Region (MABR). The RMBR is hosted by Rocky Mountain National Park through the U.S. government’s National Park System and constrained by how it can formalize partnerships and engage at the landscape-scale level. Whereas, the MABR is organized by the Vancouver Island University and a Roundtable consisting of municipalities, private industry, Indigenous community leaders, community members, and researchers. The MABR Roundtable does not have governing authority, but its inclusive forum and programs have broad and intergenerational influence in the region, from private to public spheres, to current and future political actors. Compared to RMBR, the MABR Roundtable gathers around a common principle integral to Anthropocene governance – interconnectedness to spatial and temporal space. Interconnectedness, as an ontology, exposes the fragility of humans and the spatial and temporal contexts of human life. Institutionalizing this ontology in landscape-

scale collaborations removes politicization and expedites the implementation of policies, programs, and practices that address environmental change. MABR identified interconnectedness as a common thread in the region and center the value in its approaches to community, responding to regional issues and needs, and forming a space for participation. The “vibrant public space” for more inclusive politics described by Lövbrand et al. (2015) may exist, but perhaps it is necessary to ‘de-politicize’ the space to distill common values between actors and skirt traditional politicking. The MABR Roundtable exemplifies a potential avenue for Anthropocene governance, and its soft governance, which may initially appear to be without teeth, may be its strength. Without authority, there is no dominant narrative or process to governance. Instead, priorities shift in response to environmental change, and programs derive from a fusion for knowledge systems. When compared to MABR, the RMBR stagnated by federal agendas and funding, formal partnerships, and its authority. Presenting this comparison, I conclude that landscape-scale collaborations should be further analyzed as mechanisms of transitional governance necessary in the Anthropocene.

Panel ID 102 | Onsite

Climate Change Governance: Regional Perspectives

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The Role of the Gulf of Maine Council in Strengthening Regional Climate Resilience

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My research project investigates binational climate action in border waters of Canada and the United States. My first publication on this subject, a 2020 article in *Climatic Change*, examines the impact of climate change on binational governance of the Great Lakes. This paper will focus on Canada-U.S. climate action in the Gulf of Maine, one of the world’s fastest-warming bodies of water. The effects of climate change—including ocean acidification—are already having a measurable impact on the region’s marine biodiversity and fisheries.

I will evaluate the binational ocean stewardship of the Gulf of Maine Council (GOMC), particularly its Climate Network, a diverse binational network of stakeholders from Environment and Climate Change Canada, the U.S. National Oceanic and Atmospheric Agency, and governmental and non-governmental actors in New Brunswick, Nova Scotia, Maine, Massachusetts, and New Hampshire. The Gulf of Maine’s climate-action goals aim to strengthen climate resilience in the region, and their climate solutions and stakeholder engagement methods may serve as models for other border-water areas.

To what extent, then, has the Gulf of Maine Council been meeting these goals, and what are their main obstacles to success? In answering this question, I adopt as an analytical framework the attributes of transboundary governance capacity outlined in a special 2016 issue of *International Journal of Water Governance*. My primary source base includes documents on the GOMC's activities and products, such as meeting reports, binational symposiums, and *Gulf of Maine Region Quarterly Climate Impacts and Outlook reports*.

Thus far, I have found that GOMC participants have made significant progress towards achieving many of their modest climate-related goals. These include information-sharing, network-building, and expanding public outreach programs. However, the Climate Network and the GOMC as a whole have been under-resourced. Similar to binational action in the Great Lakes region, the GOMC's work is not impervious to regime change and its participants—as dedicated as they are to providing coastal managers with the tools they need to mitigate and adapt to climate change—cannot fully compensate for periods of weak federal leadership and inadequate human and financial resources. More federal and subnational resources are required to strengthen water infrastructure for climate resilience in municipalities and to restore coastal wetlands for climate change mitigation in the Gulf of Maine watershed.

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The functions of the Science–Policy interfaces in the process of scientific knowledge institutionalisation

Chen-Guang Lee

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Knowledge is formed as parts of social institutions in different ways, and over time, it

drives social changes. In decades of modernisation, scientific knowledge serves the needs of politics and markets, steers the re-allocation of resources and power, and accelerates changes in social structures. Currently, we are facing various environmental problems which have accumulated since the Industrial Revolution. The complex causalities of the problems transcend the scope which the public and policymakers could experience and understand. How could scientific knowledge for sustainable development effectively take over and constantly drive human society towards a sustainable future? One of the keys is the Science–Policy Interface (SPI).

The Science–Policy Interface (SPI) is a means of promoting the institutionalisation of scientific knowledge and accelerating policy or social transition by solving two major problems in sustainable development—boundary work and uncertainty. The SPI is also one component of governance that changes the structure of governance. Before knowing how to facilitate the transition towards sustainable development through the SPIs in governance structures, it is crucial to understand the nature and functions of SPIs.

SPIs are diverse. Generally, they are perceived as types of organisations, such as the IPCC or IPBES. In the concept of boundary objects, SPIs could be specific standards in institutions. In the theories of policy, an SPI may be a policy entrepreneur. Van den Hove (2007) conceptualises SPIs as social processes between science and policy domains. Some even assert that SPIs have no fixed form.

Based on an extensive literature review, this article uses the principle of 'perceptibility' to dichotomously categorise SPIs into process-type and object-type as the two ends of a spectrum of institutionalisation. This spectrum, which is the process of institutionalisation, comprises 15 functions of SPIs that can be arranged from weak to strong: information disclosure, translation, quotation, transformation, clarification, simplification, question definition and construction, sifting of available knowledge, solution suggestion, negotiation, creation, integration, certification, and institution or rule

construction. These functions determine the different roles of SPIs and move policy arrangement by degrees.

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Climate Migration and Urban Environments: A Typology of Impacts

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In less than 30 years, the world's urban population is expected to more than double in size such that about 7 in 10 people will live in a city (World Bank 2020). Already, many cities struggle to provide basic services to their current populations; they frequently fail to absorb growing populations, leading to the rapid growth of peri-urban areas and slums. While recent scholarship has examined the major interacting drivers of migration that include failed governance, economic collapse and opportunity, conflict, and climate change, this paper turns to the impacts of migration on the urban environment to examine more broadly issues pertaining to urban sustainability, livelihoods, justice, and the protection of migrants.

In order for urban policymakers to prepare for the inevitable growth that their cities will continue to experience and mitigate the growing levels of inequality within them, it is not only critical to understand the drivers of migration, but also the impacts that migration has on urban environments and the migrants themselves. To aid in this effort, we explore three case studies via literature reviews, expert interviews, and fieldwork in Honduras, Jordan, and Pakistan which capture different patterns of migration and their impacts on urban environments while paying attention to climate drivers and adaptive capacities. In Honduras, ongoing droughts and severe

natural disasters are increasingly driving migrants to cities, but chronic gang violence and little support from governments push them to seek refuge across international borders. While Pakistan has been home to large numbers of refugees from Afghanistan dating back to the Soviet-Afghan war, it is also the country with the third-highest number of internally displaced people due to natural disasters (IDMC 2021). When people are forced to move to cities, they often confront exorbitant housing prices, which may lead to the rapid expansion of peri-urban areas and slums that frequently lack social services. In Jordan, increasing water stress has led to urban migration, compounding the pressures that conflict-driven regional migration places on urban infrastructure. Based on the findings from the case studies and the broader literature, we propose a typology of impacts of urban migration on urban environments and migrants. We close with a discussion of the governance, justice, and sustainability challenges for cities posed by the increasing number of urban migrants driven by climate, socio-economic, and political factors.

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From mitigation to a just survival: climate urban governance in Latin America

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Latin America is the most urban region in the world and this urban landscape is also a reflection of its most pressing challenges: economic, social, and gender inequality, lack of planning, corruption, and weak rule of law. In this context, after more than a decade of its first urban climate policies proposals, centered on mitigation actions, we ask how the region is preparing for the climatic extreme events that it is already undergoing and that is going to intensify in the following years. How the climate policies proposed back in the 2000s were able to prepare the cities for a climate

crisis? How the focus in mitigation, fostered by transnational municipal networks (TMNs) to be aligned with the global climate governance - based in the COPs dynamics - made the local urban climate policies disconnected to their realities and reproduced solutions that were far from their habitants' realities and did not address claims for environmental justice? Responding to these questions is key to trying to understand the consequences of the interplay between global and local governance for Latin America. In addition, this inquiry could help us understand how the decision-making process that combines global logic and dynamics with local realities could be shifted to better design solutions for a diversity of contexts. To address these questions, the paper draws from the experience of five major Latin American cities: São Paulo, Rio de Janeiro, Buenos Aires, Bogotá, and Mexico City. A historical-comparative qualitative analysis of these cases will help us understand the trajectory of their participation in global climate governance. Furthermore, we question how this active international role interplayed with their local realities, alerting for the dangers of climate politics designed apart from their communities and local realities and based mainly on mitigation with little focus on adaptation and justice.

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*Governing synergies between SDGs:
A critical assessment of MSPs
transformative potential*

Cornelia Fast

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Multi-stakeholder partnerships (MSPs) working towards achieving Sustainable Development Goals (SDGs) set out goals, targets and strategies to fulfil their aims. At the same time, scholars are increasingly dedicating attention to whether synergistic governance of SDGs is possible, and if so to what extent and

under what conditions. While an increasing focus has been directed to the outcome and impact level of partnerships' governance, there is evidence pointing to an importance of continuously scrutinising and re-imagining the elements that are meant to constitute the basis of effective governance - the various policy tools adopted at the input and output level.

This paper applies narrative analysis and critical theory in line with Sarah Ahmed's theory of non-performativity, to examine the level of performativity, or in other words transformative potential, of partnerships' targets and working policies. In particular, this study assesses MSPs that have potential to link and govern synergies between several SDGs. The paper operates under the key assumption that a set of necessary elements need to be clearly outlined in the fundamental components that inform the partnership's work, in order for synergies to be governed effectively with impactful results. The contribution of this paper is not only significant to the emerging field of developing a sufficient definition and operationalization of the concept *synergies*, but also evidence aimed at generating fruitful insights on how to initiate or substantiate transformative working trajectories to achieve those.

Panel ID 103 | Onsite

Dynamics of Global Climate Change Diplomacy, Treaty-making, and Institutional Design

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Tracing urban climate mitigation co-benefits in four global cities

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Co-benefits from climate mitigation outweigh the costs. Despite the strong evidence in these respects, research on urban climate governance has so far struggled to establish an empirical link between co-benefits and local climate policies: poor air quality, specifically, does not seem to be consistently associated with the presence or ambition of local climate planning, nor with substantial emission reductions. Against this background, the present work investigates the relative role of air quality considerations in the climate plans of four C40 cities at the forefront of urban climate action: Berlin, Paris, Moscow and Montreal. Through a comparative case study, we show how air quality considerations play a different role for the development of the local climate action plan. In Paris, the traffic restrictions caused by exceeding PM10 concentrations opened an important window of opportunity for the introduction of low-emission zones, a key element in the local climate action plan. In Berlin, air quality considerations aligned well with the local energy-democracy movement, a key determinant in establishing Berlin's "solar city" ambitions. The development of new policies to transform Moscow into one of the capitals

with the best air quality prompted a gradual transition to a low-carbon economy, making the city's climate agenda more attractive in meeting international standards for sustainable development. Finally, air quality considerations in Montreal provided a strong argument for Quebec's hydropower industry to push the ambitious electrification of the local transport system. As a result, the link between air quality and climate action is not linear: institutional and socioeconomic attributes, not the size of the related co-benefits, determine whether air quality represents a driver for climate action. Implications for academia and policy follow.

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Systemic Risk Analysis of the International Environmental Treaty System: A Perspective through the lens of Problem-shifting

Ashok Vardhan Adipudi, Rakhyun E. Kim

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The development of global governance structures as systemic, interrelated, and ever-evolving prompts for consideration of systemic certainty, output, and resilience of our institutions. Systemic interdependencies and decentralized impact of institutional actions call for an objective analysis of risks posed to these structures. Problem-shifting is the phenomenon of international environmental treaties attaining their goals at the expense of the whole system. It reduces the ability of the treaty system to deliver a net positive output and is a source of systemic risk. Problem-shifting, thus, provides us a lens to understand and seek a resilient and risk-safe treaty system capable of delivering sustained environmental dividends. The cumulative problem-shifting risk, a form of environmental risk, is the chance of the international environmental treaty system being unable to meet its cumulative

objectives due to problem-shifts between various treaties leading to a net negative impact and deleterious effects on the earth's environment. However, implications of problem-shifting on risk tolerance and capabilities of this system have not been explored. Here, employing the lens of problem-shifting, we examine risk tolerance and systemic risk within the treaty system by developing a risk model and employing system dynamics modelling. We use systemic performance and points of failure, and stress in the network representing treaties to realize the dynamic evolution of the network by applying the developed risk model. Points of failure are tested using corresponding risk tolerance and flow of risk leading to an evaluation of cascading risks across the whole system. The work identifies certain nodes in the treaty network, whose performance is critical to the system's capability to withstand cascading risks. The work, thus, quantifies and tests the systemic risk posed by problem-shifting. Outcomes of the work would contribute to the literature on international organizations, adaptive governance, and their resilience to cascading risks at the system level.

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MSPs for the SDGs – An Analysis of the Architecture and Governance Functions of Multi-stakeholder Partnerships for SDG Implementation

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Multi-stakeholder partnerships (MSPs) are assumed to reduce implementation gaps of the 2030 Agenda and the Sustainable Development Goals (SDGs). While empirical research suggests that MSPs can complement state-led efforts in environmental and

sustainability governance, we still lack a deeper understanding of their composition and issue focus, as well as the specific governance functions they assume. In this paper, we present the results of a survey of over 130 multi-stakeholder partnerships (varying in size, budget and geographic scope) registered on the Partnerships for the SDGs online platform. First, we show how many and which SDGs are addressed simultaneously by the MSPs. We compare our results to interlinkages between the SDGs identified in theory to analyze whether the patterns shown in practice do actually mirror theoretically identified nexus. Second, we examine the underlying governance arrangements of MSPs by analyzing which actors combine in which constellation to address which goals or nexus. Third, we explore which specific governance functions different MSPs assume, including both hard and soft governance functions.

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Towards an integrative Earth-Space governance paradigm

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There has been an exponential growth in Space activities across the world since the last decade, due to technological revolution and increasing commercialization of the sector. This phenomenon can be understood as what policymakers, practitioners, and scholars call the 'New Space' - an era in which states progressively privatize the Space sector to foster more bottom-up innovations. Interestingly, most of these Space activities have been promoted as bringing new solutions to sustainability challenges on Earth. Asteroid mining has been portrayed as an alternative to terrestrial mining, Mars as a future habitat for humankind, and satellites as supporting the Sustainable Development Goals through monitoring. However, at the same time, the

world is already witnessing new environmental and societal challenges emanating from New Space. The progressive development of the satellite sector has, for example, increasingly congested the orbit with Space debris.

We argue that there are increasing interdependencies or trade-offs between Earth- and Space sustainability, which the current global environmental governance regime is insufficiently equipped to deal with. In particular, we observe increasing disintegration between Earth governance and Space governance through their institutional developments on two parallel paths. On one hand, the majority of formal institutions in place have been focusing on Earth governance, such as limiting the negative effects from Space activities to developments on Earth by preventing sovereignty claims in Space and by emphasizing that Space activities will bring benefits for humankind as a whole. On the other hand, intensified geopolitical interests and market competition as a result of New Space have prompted spacefaring actors to shape their own institutions in Space to legitimize their colonization activities on other celestial bodies such as the Moon, Mars, and asteroids.

This article will elaborate on the increasing trade-offs between Earth- and Space sustainability, and the extant institutions aiming to address these trade-offs in isolation by focusing only on Earth- or Space governance. We will propose an integrative Earth-Space governance paradigm, which considers Space as neither a dumping ground for human waste nor as a supply of infinite resources to meet Earth's demand. Addressing Earth-Space sustainability trade-offs requires not just Space governance but also environmental governance or more specifically earth system governance. We will discuss the potential governance architecture of the new paradigm and provide concrete policy suggestions.

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*How it started, how it's going:
Walmart sustainability 20 years on*

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In 2021, Walmart reported US \$559 billion in revenues and over 2.2 million employees. It also continued to drive globe spanning supply chains, with an estimated 100,000 suppliers worldwide. This is a company with huge buying power, positioning it well to also be a huge political force. For example, when Walmart changes its buying criteria, it has the potential to shift entire industries.

This is important for many reasons, not least that Walmart, in 2005, launched one of the largest business-led sustainability initiatives the world has ever known. As one would expect, it has been received with an admixture of celebration, self-congratulation, skepticism, and criticism. But the general reception shared across Walmart watchers was... surprise. Walmart was known for many things, but corporate social responsibility was not one of them. Walmart had become infamous for poor labour practices, running local businesses out of business, and contributing to suburban sprawl. This new sustainability initiative was a shock to almost everybody.

Why did Walmart engage in sustainability almost 20 years ago? In what ways has Walmart's approach to sustainability changed over these years? And what can these findings tell us about the evolving role of business in sustainability politics?

In exploring these questions, this paper engages in some of the core fault lines in debates around the power and influence of business as an agent in earth system governance, using a unique but important case study showing the way in which sustainability becomes embedded in large corporations and how 'doing sustainability' in particular ways does (and does not) evolve over time. While the rollout of Walmart's sustainability

initiative was a product of a particular time with global norms, people, company history and economic necessities all playing roles, since then the sustainability initiative has not only survived, but evolved in potentially important ways since this original confluence of forces.

Based on a mixture of fieldwork and deskbased research, and mapped against political economy debates around 1) the effectiveness of business-led environmentalism, 2) the related legitimacy of undemocratic, profit-maximising entities driving these sustainability decisions, and 3) the implications of an individualized approach to sustainability that centres the parameters of possibility in relation to the needs of the business model, this interrogation of (almost) 20 years of Walmart's sustainability not only renews and updates these debates, but also promises some potentially surprising findings around the evolution of this particular initiative.

Panel ID 104 | Onsite

Sectoral Climate Governance: Transportation and Energy Transitions

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Insuring future automobility: Car insurers' anticipating and commodifying the risks of connected and automated vehicles

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Connected and Automated vehicles (CAVs), e.g. vehicles that do not need drivers for certain or all driver tasks (particularly acceleration, deceleration and steering), are transforming road-transport. As vehicle insurance is a legal obligation in many countries, motor vehicle insurers are one of the key stakeholders in the governance and adoption of this innovative and potentially sustainable technology. Generally, insurers anticipate futures by imagining uncertainties and transforming them into commodified risk by qualifying and quantifying potential damages to and from CAVs. Together with an active nudging towards less-risky forms of behaviour, insurers' anticipatory processes thus actively govern people's everyday mobility. This paper offers an empirical exploration of the expectations, challenges and activities of insurers towards CAVs. It draws on a literature review and 31 qualitative interviews with insurers and other experts in the United Kingdom and the Netherlands. At a sectoral level, the analysis confirms challenging, simultaneous local and international, open-ended discussions about 1) the shift in liability from drivers to

automated driving systems, 2) a commercial conflict over in-vehicle data access and 3) the future of shared mobility. Interviewees anticipate that the outcome of these discussions will affect their underwriting, risks, claims processes, business models, product offerings and competitive strategies. Simultaneously, the analysis highlights how individual insurers, based on different anticipations of the speed of transition, the importance of automation technology and their own internal capacities for change, have a range of responses around (non) participation, lobbying and learning. In unpacking the anticipation towards CAVs by insurers, it becomes possible to reflect on a more conservative and institutionalized form of anticipation, including the effects on the speed of adoption, their distributed nature or their inclusivity.

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Circles of Global Climate Governance. Power, Performance and Contestation at the UN Climate Conference COP26 in Glasgow

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The working paper examines the UN climate conference (COP26) organised in Glasgow in November 2021 as a transnational mega-event, which constituted not only an important moment in international climate talks, but also a temporary convergence point for a multitude of actors and an arena for conflicts and contestation over framing within a broader global policy space. This perspective allows us to offer a view of the current state of global climate politics more comprehensive than those of analyses focused mainly on the

negotiations. Using collaborative event ethnography, over two weeks eight researchers identified the material, spatial and social dimensions of the conference. We identify three circles of climate governance, which framed practices, interactions and debates in Glasgow. These comprise an inner circle of state-led negotiations ('The In'), an official side programme ('The Off') and a relatively heterogeneous wider environment of self-organised events ('The Fringe'). Each circle is populated by a different set of actors and enacts a distinct representation of 'the global'. Our analysis of dynamics within each of these circles shows that climate governance has entered a new and contradictory phase, where some boundaries are blurred while others are reaffirmed, and where old conflicts resurface while new dividing lines appear. The Paris architecture for reporting and review has been finalised, but thus far the new approach has failed to close gaps between pledges and objectives for mitigation and climate finance. Global political and corporate elites have seemingly come to acknowledge the climate emergency and the need for a global low-carbon transformation, but the solutions proposed in Glasgow remained partial and fragile, and tightly contained within the dominant horizon of capitalist market- and techno-fixes. The communication strategy of the UNFCCC and the UK Presidency used increasingly radical terms to convey urgency and momentum, which in turn risked emptying activist notions of their content and force. A growing part of the climate movement reacted with critiques of corporate takeover and calls for "real zero" instead of "net zero". In the conclusion, we examine a series of contentious issues and provide avenues for reflection on the future of climate governance.

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Managers of complex change? The interplay between intergovernmental treaty secretariats in global environmental governance

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Dealing with climate change, biodiversity loss, and desertification ranks among the most complex and pressing challenges for international society today. Despite apparent ecological and political interdependencies, national governments agreed to address these problems independently through multilateral environmental agreements (MEAs) due to diverging economic and power-related interests. As a result, coordination across institutional boundaries has remained rather limited over the past three decades. However, policy makers and scholars alike have increasingly called for an integrated approach within international institutions towards solving these problems, spanning different levels of governance and comprising a multitude of actors next to national governments, including the private and business sector as well as civil society. In this context, and despite their restricted mandates and decision-making capacity, intergovernmental treaty secretariats have recently started to adopt a more active role in global environmental policy-making by reaching out and coordinating with other secretariats across policy domains. Filling a research gap on the interplay between multiple international bureaucracies and its consequences for inter-organizational relations, this paper adopts a case-study approach and traces the genesis, structure, and consequences of the interactions between three intergovernmental treaty secretariats in global environmental governance, i.e. the secretariats of the *United Nations Framework Convention on Climate Change*, the *Convention*

of Biological Diversity, and the *United Nations Convention to Combat Desertification*. Engaging in new forms of overlap management, the interplay between the secretariats involves different levels of coordination ranging from strategic internal working groups among executive staff over to different outreach activities targeting relevant external entities, including transnational initiatives and actors. Against this background, the results of this study align with recent scholarly findings that secretariats have started to employ different orchestration strategies to advance existing institutional responses towards a more ambitious and integrated approach of addressing transboundary environmental problems. The paper synthesizes and contributes to research on institutional interplay with a particular focus on overlap management and transnational environmental governance, inter-organizational relations, and international bureaucracies.

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The role of global environmental consultancy firms in the circulation of the notion of 'resilience'

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Global private environmental consultancy firms are intrinsically part of complex global networks of earth system governance. Yet, this non-state actor has been essentially ignored in earth system governance research spheres and policy sciences. In this paper, we explore the agency of this actor in circulating ideas and governance paradigms at global scales. As an emblematic case, we focus on the ways in which consultancies in the global water sector use and enact the paradigm of "resilience", and ask: How do global private environmental

consultancy firms in the water sector acquire, translate, and enact paradigms and ideas in earth system governance?

With this research question, we zoom into the top global private environmental consultancy firms advising on ‘resilience’ transnationally. We interview consultants in leadership and managing roles working and promoting consultancies around ‘resilient water solutions’ from the top global environmental consultancy firms, such as Arcadis, Jacobs and Aecom, among others. We use semi-structured interviews and Q-method to uncover predominant perceptions, definitions and characterizations of resilience; to identify sources of ideas and sites of learning; and to explore how these translate into consultancy solutions and frameworks. Inter-case analysis will further highlight patterns of similarity and difference between consultancy firms and establish conclusions about the inner workings within the wider field of global environmental consultancy firms and their role in earth system governance.

This paper offers insights into the top global environmental consultancy firms and their role in the circulation of the paradigms and ideas within global environmental governance in general. As well as specific insights about the understanding and promotion of ideas of resilience. Beyond this empirical contribution to a better understanding of an under-researched actor in the earth system governance architecture, we contribute to conceptual debates around the concepts of policy diffusion, transfer, circulation, and translation, in conceptualizing how consultancy firms upload, shape and download the paradigm of resilience globally.

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The Sustainable Development Goals and urban transformation: A typology of city SDG engagement.

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The Sustainable Development Goals (SDGs) offer a transformative vision for a more sustainable and equitable society. The SDG agenda is relevant for a variety of actors – from nation states to small communities – but the populations, resources and capacities within cities are particularly important for the achievement of the goals. Since the agenda’s ratification in 2015, city governments around the world have been progressively acting towards it, trialling a variety of approaches based on their individual contexts. However, only a small number of these engagements have been formally investigated in the literature, with little detail about how they are currently being undertaken or the variations in action between cities. This study aims to empirically map the differing ways that city governments are currently engaging with the SDG agenda, and how these engagements relate to urban transformation (UT).

Cities were selected for study on the basis of their publication of a Voluntary Local Review (VLR), a formal, self-reported tracking document which details a cities actions and progress towards the SDGs. A process of web scraping was then undertaken to gather additional documents that give further detail about each of these cities SDG engagement (such as city budgets, long-term city strategies, newspaper articles and press releases). In total, 400 documents were gathered in relation to the SDG engagements of 28 cities.

An iterative coding process was then undertaken in two parts. First, the VLR’s were openly coded to identify the broad ways that the cities were engaging with the SDGs. Second, all of the documents were then coded

for these engagements, as well as for any practical details about how they were implemented/governed, and for the presence of 15 factors which have been found to be important for UT. This two-part coding process produced a number of results, including: a typology of the SDG engagements currently being utilised by city governments, individual charting of the combination of engagements utilised by each city (and the process, agency and governance which underpins them), mapping of emergent patterns in the engagements based on a number of city characteristics (such as geography, wealth, previous experience with sustainable development frameworks etc) and the presence/dynamics/interactions of the factors of UT in relation to the different types of SDG engagement.

Panel ID 105 | Onsite

Sustainable Governance of Value Chains: Transnational and National Contexts

Panel Day and Time: TBD

Panel Room: TBD

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Contesting Legitimacy in Global Environmental Governance: An Exploration of Transboundary Climate Risk Management in the Brazilian-German Coffee Supply Chain

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Stronger interconnections between people, ecosystems and economies in a globalized world are changing the scope and nature of global environmental governance. One area where this is becoming increasingly evident is climate change, where there is a growing recognition that climate risks can be transboundary in nature, crossing international borders as people, goods, and capital do. This suggests that a multiplicity of actors – state and non-state – have plausible claims to be engaged in or responsible for the governance of transboundary climate risks (TCRs). However, it is presently unclear on what premises a global governance institution to do so might be constructed and the roles various actors may play therein. This absence of established roles and norms creates a space for political contestation with legitimacy at its center. In this paper, we unpack the contested nature of legitimacy by examining the governance of TCRs in agricultural supply-chains. Empirically, we analyze 41 semi-structured interviews across the Brazilian-German coffee supply chain in an effort to characterize the primary modes of governance available to manage TCRs and their perceived institutional sources of legitimacy. We identify five distinct governance pathways, each underpinned by a distinct operationalization of legitimacy. These governance pathways are not necessarily mutually exclusive; it is plausible for several to co-exist, though the relative balance between their importance in a given context may vary widely. We argue that these five pathways and the role of legitimacy in navigating their differences are transferrable to other challenges in global environmental governance. Further, we argue that legitimacy is best understood as an object of political contestation, wherein actors deploy various sources of legitimacy differently in an effort to legitimize their preferred approach to TCR management, delegitimize others, and advance their own vision of just global environmental governance.

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The Roundtable on Sustainable Palm Oil (RSPO) and transnational hybrid governance in Ecuador's palm oil industry

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The expansion of Latin America's palm oil frontier has spurred an explosion of interest in the social and environmental impacts of palm oil production. Researchers have been particularly focused on the effectiveness of global sustainability certification standards in addressing induced vulnerabilities. Only a small fraction of this research, however, analyzes how the local institutionalization of global standards has shaped national and sub-national structures of environmental governance, or regional conceptualizations of authority. It also fails to examine how the entrenchment of global standards has reworked local social relations inhering within formal and informal palm oil governing arrangements. To address these gaps, this paper draws on the case of the Roundtable on Sustainable Palm Oil (RSPO) in Ecuador to answer the following research questions: 1) How does the local introduction and institutionalization of RSPO standards (re)shape national and sub-national environmental governance structures and relations? 2) How do RSPO standards reconfigure long-standing notions of power and authority? Drawing on extended fieldwork, the paper finds that the introduction of RSPO standards has prompted three major shifts in domestic palm oil governance. These shifts are: 1) technicalization of community-company relations, 2) hybridization of governance coalitions 3) regionalization of governance efforts. Taken together, these transformations point to an emerging transnational hybrid governance regime that blends public laws

with private guidelines to reach national and international sustainability objectives. The regime has enabled the emergence of new palm governance authorities in the sector yet at the same time, it has reinscribed the uneven power relations of palm oil governance. The study concludes that future research and policy efforts must go beyond simply evaluating RSPO standards in local spaces, and instead aim to improve the social relations that exist within agro-commodity chains in order to make the governance of sustainable palm oil more socially-inclusive and just.

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International Cooperation on New and Emerging Technologies: A Theoretical Framework

Florian Rabitz

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New and emerging technologies in Artificial Intelligence, genome editing, energy production and many other fields play increasingly crucial roles in international politics, in particular for global sustainability governance. So far, only limited efforts have been made so account for their theoretical status from a perspective of, broadly defined, rationalist cooperation theory. This presents a stark contrast to the lively theoretical developments and discussions in other fields, notably Science and Technology Studies. I propose a parsimonious theoretical framework which conceptualizes new and emerging technologies in two dimensions: the global distribution of the material, cognitive and other capacities that determine the distribution of the gains, costs and risks associated with a technology; as well as the scientific, technical and economic uncertainty that attaches to this distribution. Capacity distributions and uncertainty operate both independently and in interaction with each other. Together, they determine the severity of the collective action problem for

international cooperation on new and emerging technologies. Greater asymmetry in capacity distributions and larger degrees of uncertainty increase the zero-sum elements in the collective action problem. This can complicate and even prevent effective international cooperation unless additional mechanisms are present for offsetting the severity of the collective action problem. I elaborate on two such mechanisms: issue linkages and excludable benefits. These can allow effective outcomes even where capacity distributions and uncertainty create a substantial degree of severity in the collective action problem: linkages can offset distributional conflicts through mutual concessions on disparate issues which, in the aggregate, are net beneficial for each participating state; and excludable benefits allow states to reap gains through cooperative arrangements with exclusive membership. As a deliberately reductionist approach, this framework can explain why, when and how international action on new and emerging technologies is prone to ineffectiveness and failure. For empirical illustration, I draw on the field of biotechnology where the availability of mechanisms for offsetting the severity of the collective action problem explains variation in cooperative outcomes across the issue areas of biosecurity, biosafety and genetic resources: The availability of linkages and excludability respectively explain successful regime formation in the cases of the Cartagena- and Nagoya Protocols to the Convention on Biological Diversity, whereas their absence explains cooperation failure on a verification protocol to the Biological Weapons Convention.

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Environmentally upgrading the Mexican beef value chain: a GVC-EG analysis.

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A global food system functioning on the basis of geographically dispersed, yet intrinsically connected and reproduced industrialised agricultural practices has emerged to satisfy and encourage the worldwide meat-based diet. At present, poultry and pork are the most demanded animal proteins, followed by beef and lamb, among them, beef has received more attention when it comes to its environmental implications. Namely, beef contributes to global environmental change via land-use change, including forest clearance, greenhouse gases emissions, increased water scarcity or pressure, and biodiversity loss. Here I investigate the Mexican beef and live cattle value chains, unpacking their governance structures whilst simultaneously exploring recent efforts for environmentally upgrading the chain. This paper contributes to an emerging interdisciplinary research agenda on Environmental Governance studies and their interlinkages with Global Value Chain (GVC) literature. GVC analysis is synonymous with the study of the economic aspects of value chain governance, especially the role played by lead firms in determining the conditions in which upstream suppliers participate and potentially 'upgrade' within these chains. A growing number of contributions have begun to apply GVC concepts to wider issues of social and environmental sustainability explaining, for instance, the rise of transnational sustainability standards (TSS), or local and regional stakeholder environmental agreements. Most contributions on agri-food commodities have shed light upon land-use change issues, and their socio-economic implications for palm oil, soy, and coffee. Theoretically, with higher internationalisation,

an agri-food chain would be exposed to the normative preferences of large buyers, which within the GVC-EG literature are regarded as promoters of environmental upgrading or global environmental governors. I explore the recent efforts for environmentally upgrading the Mexican beef chain in face of the common thrust in GVC-EG literature. The article draws on qualitative analysis and data comes from primary source documentation and semi-structured stakeholder interviews. The current governance structure for the chain shows an increased consolidation, yet actors' environmental responsibilities remain obscured mostly due to long-term weak environmental regulations, fragmented authorities, and export-oriented agricultural policy-agendas. Early EG processes at the first-tier supplier node are a direct output of NGOs interventions, yet environmental upgrading remains at the smallholder stage with little to no value transmission over the following nodes; mid-chain actors and consumer-facing firms have no incentives to participate. A potential avenue for change is seen in shorter agri-food chains that value environmental upgrading locally, dissociated then from those who would be expected to be promoters of environmental upgrading.

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*Digital multilateralism in practice:
Extending critical policy
ethnography to digital negotiation
sites*

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The COVID-19 pandemic has significantly increased the use of online tools in the conduct of multilateral environmental negotiations. Although scholars have recognised that Information and Communication Technologies (ICTs) have gradually been reshaping traditional diplomatic practice, ICTs are not

considered to be transformative of diplomatic practice itself. However, owing to the COVID-19 pandemic states have had to rush into unprecedented and unpredictable forms of digital cooperation that are poorly understood.

To illuminate this uncharted area, our research applies combined digital and critical policy ethnography to two online dialogues within the framework of ongoing negotiations under the United Nations Convention on the Law of the Sea (UNCLOS) towards a new treaty for the protection and sustainable use of marine biodiversity beyond national jurisdiction. Digital critical policy ethnography conducted at two online sites enables us to study the political effects of emerging international practices. We re-interpret digital diplomacy in terms of “communities of practice” developing across, and connecting, physical and digital sites.

Virtual communications amongst state and non-state actors mirror traditional forms of diplomacy whilst introducing new practices that may change conventional forms of international treaty-making. We propose the term *digital multilateralism* to capture these new forms and conclude that it can have two effects: deepen the background knowledge of actors that form a community of practice and create new inequalities.

Panel ID 106 | Onsite

Assessing Transformative Impacts of the Sustainable Development Goals

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Sustainability reporting after the SDGs: Steering implications of the global goals on businesses in Japan

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The United Nations 2030 Agenda assumes that the private sector will play an active role in the implementation of the Sustainable Development Goals (SDGs). In response to this, Japanese companies have been actively integrating the global goals in their sustainability reporting and business strategies. In this article, we evaluate the extent to which Japan's top 100 listed companies have responded to this trend through a review of their disclosure of the SDGs in their annual sustainability reports. We identify how the SDGs are implemented in their business activities and communicated in their nonfinancial information to explore the potential steering effects of the global goals on business strategies and reporting frameworks. While the "integrated and indivisible" nature of the SDGs offers alternative approaches for business action, our study finds that companies continue to adopt a narrow focus on the global goals as a business opportunity to increase corporate profits. Moreover, the fragmented and voluntary aspect of the existing reporting frameworks results in a

degree of leeway in the way companies decide what and how to disclose. This could be due to the flexibility the SDGs provide for implementing the goals through technical communication and approaches that appeal to business discourse. The article offers new insights into the contribution of companies to the 2030 Agenda, thus advancing the literature on the steering impacts of the SDGs in shaping business action and accountability.

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The Architecture of Phosphorus Governance in the EU: Towards Institutional Innovations?

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Phosphorus (P) is an essential element for all life on Earth that has so far been subjected to fragmented governance across levels, scales, geographical space and policy areas. While it has reached the European Union's strategic list of critical raw resources and will be regulated as of 2022 by the EU fertilizers' regulation - a landmark of the Circular Economy action plan - there has been little political interest in it. There has so far been limited aspirations to embed P as central to food systems' sustainability transformation akin to carbon for climate change or hydrogen for energy industries. A transition towards a coherent P governance system would require: 1. an in-depth, fine-grained analysis deciphering the fragmenting aspects of top-down environmental regulations in the EU, which oftentimes clash, and 2. orchestration of best policy practices, hybridization of instruments and institutional innovations, which are

scattered. This paper examines phosphorus governance through the Earth System Governance architecture and agency lenses by juxtaposing the inward-looking, problem-specific top-down governance resulting from inter-state agreements to that of non-state actors, claiming that they are better suited to drive transformations. Taking the architecture and agency lenses of the Earth System Governance paradigm, it seeks to identify orchestrators of institutional innovations that drive regime change and understand the stakeholder perceptions on this process. It employs social network analysis and scoping interviews at a stakeholder conference consisting of technical experts, practitioners and representatives of academia, who have in-depth expertise of regulatory problems and observations of the fragmented phosphorus governance resulting in a combination of responses that target these deficiencies. The articles results are of relevance to both the scientific community interested in accelerating transitions to sustainability via coherent governance regimes and to policy-makers working on a range of natural resources.

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Which way, State Oil?

Understanding energy transition strategies of national oil companies

Scott McKnight

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Why have national oil companies (NOCs) of the Global South adopted different energy transition strategies? Variation in these strategies is clear when examining differences between a NOC's investments in low-carbon and high-carbon assets as well as the NOC's commitments to carbon neutrality. This paper puts forth a mid-range theory built on two causal questions. First, does a home-state prioritize the reduction of carbon emissions? Second, what is the nature of the NOC's capacity (i.e. vertically integrated vs

specialized; primarily based onshore vs offshore)? These two causal variables combine to generate either a 'Transformer', 'Middle-roader' or 'Defiant' energy transition strategy.

National oil companies require closer attention given their weight in the politics and finances of their home-state, as well as for the energy they supply to world markets. Likewise, given the carbon-intensive nature of their operations, NOCs are also integral to meaningful attempts to reduce greenhouse gas emissions. The high stakes at play therefore demand a deeper understanding of national oil companies and the causes behind their varied energy transition strategies.

This paper dispels the myth that NOCs, despite being either fully or majority-owned by their respective home-states, merely respond to needs of the home-state. Instead, this theory also emphasizes important firm-level factors, which in part are limited by path-dependent processes. In other words, while the home-state's influence is strong, it is not uncontested as NOCs have their own interests, capabilities and constraints.

This theory-building effort emerged from in-depth interviews with 115 professionals intimately knowledgeable of the case-studies of NOCs in Brazil (Petrobras), China (CNPC, Sinopec and CNOOC), Ecuador (Petroamazonas and Petroecuador) and Mexico (Pemex), as well as from various sub-literatures of political economy that presented possible answers to these energy transition strategies.

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What makes sustainability institutions fit for purpose? A normative and functional framework of institutional design

Okka Lou Mathis, *Florian Wieczorek*

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Many governments around the world have created specialized sustainability institutions in the context of the UN Rio Conventions and agreements like the Paris Agreement and the Agenda 2030 for Sustainable Development. These national institutions supposedly give “the future a permanent place” in politics as stated for example by the Parliamentary Advisory Council on Sustainable Development in Germany (PBNE 2018). In other words, such institutions are meant to bring sustainability and explicitly a long-term orientation into political decision-making. Empirically, however, the landscape of sustainability institutions is highly diverse,[1] hardly offering us an idea of how sustainability should be institutionalized in order to overcome the drivers of political unsustainability.

Thus in this paper we take on the challenge of providing a framework of how to think about sustainability institutions, based on sustainability as a guiding normative principle and institutions as a social means of achieving it. Our research question states: What general features of sustainability institutions follow their function, i.e. effectively integrating a sustainability-orientation into political decision-making? To answer this question, we firstly provide a principle of sustainability that fits our purpose of guiding the design of political institutions. Secondly, we carve out the core problems of political unsustainability, drawing upon literature on democratic short-termism and governance for future generations as well as on ecological democracy, the green and the sustainability

state. Third, we take the drivers of political unsustainability and flip them around, arriving at a set of ideal features to avoid or alleviate these drivers. The so obtained framework centres around bridging electoral cycles, balancing vested interests, representing young people and taking future generations' interest into account, including interests of contextually affect people beyond borders of nation-states, and deepening democracy e.g. by using deliberation and sortition. We argue that sustainability institutions need to be constructed taking these ideal features into account. Lastly, we conclude with a reflection on the adequacy and political feasibility of the institutional features sketched out in this paper.

The contribution of our paper is a framework around crucial dimensions and ideal features that help orienting sustainability institutions towards their purpose as part of institutional architecture for the socioecological transformation. Our framework offers a structure for assessing the purposefulness of the formal design of existing sustainability institutions (*are they designed to matter?*), and possibly a guideline for reforms or for the creation of new institutions.

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Does the High-level Political Forum on Sustainable Development serve as an effective orchestrator? Towards better conceptualization and evaluation of orchestration in global governance

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The High-level Political Forum on Sustainable Development (HLPF) was mandated in 2012 by the Rio+20 outcome document to steer follow-up and review of the 2030 Agenda and the SDGs at the global level. It is created with high

hopes, that it will function more effectively than its predecessor, the Commission on Sustainable Development. However, commentators have expressed concerns as the HLPF has been given limited authority and resources, making it reliant on soft modes of influence to realize its objectives. In that sense, scholars posit that the HLPF is best conceptualized as an ‘orchestrator’ that works primarily through its intermediaries. Yet, there is lack of empirical evidence to suggest whether the HLPF is an effective orchestrator, and if not, why. Our study takes an evaluative approach to assess the impact of the HLPF. Has the forum been effective in influencing debates, decisions, plans and operations of other actors to align with SDG processes and establish links with those (outside) the United Nations System? We start with a critical assessment of existing scholarly examples of ‘successful’ orchestration in global governance and build an evaluative framework. Thereafter, we use a mixed-method approach, reliant on qualitative as well as quantitative analyses of key documents, including Voluntary National Reviews, but also publications of key actors envisioned as potential intermediaries to investigate. Examples of such potential intermediaries include the United Nations Economic and Social Council, the United Nations System Chief Executives Board for Coordination and the five UN Regional Commissions, among others. To categorize our results, we fit our observations into a typology of ‘orchestration activities’. Thereby, we aim to further not only the discussion on the HLPF as an orchestrator as such, but also the overall scholarly debate on orchestration theory. We end the study by making some suggestions for future revisions and reforms to the HLPF. In addition, we reflect on the broader significance of this case study when it comes to stimulating effective orchestration in global governance more generally, which leads to suggestions relevant for the post-2030 governance landscape as well.

Panel ID 107 | Onsite

Governing an Integrated Earth System in a Fragmented Landscape: Innovations for Policy Coherence

Panel Day and Time: TBD

Panel Room: TBD

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Are we moving towards integrated sustainability? An expert survey among organisations.

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The integration of socio-economic and ecological systems has become a central challenge in earth system governance. Such integration can only succeed when it is aligned with changes in awareness, values and practices at both the individual and the organisational level. While topics of sustainability integration have been the focus of significant research, few scholars have so far focused on subjective understandings which are crucial in the development of sustainability norms and eventually concrete practices. This paper tries to bridge this gap and asks: how and to what extent do experts and professionals across the globe understand and operationalise notions of integrated sustainability? Which factors play a significant role in shaping their perceptions and practices?

To address these questions, we designed an online survey, which we circulated to over 5000 experts and professionals working for organisations ranging from international organisations to NGOs and from government

agencies to businesses, relying on snowballing techniques through access points in both national and international networks. The survey was then analysed for the 508 respondents using descriptive statistics and regression methods. We examined the respondents' understanding of sustainability integration using both a pillarised model where all three dimensions of sustainability (environmental, economic, social) are considered equally important and complementary to each other, and a hierarchical 'nested' model, where one of the three dimensions is considered superior to the others. We also tested for the role of demographic attributes, such as affiliation, seniority and geographic location, as well as for that of professional priorities, as potential explanatory factors for variation across respondent's understandings of sustainability integration. Finally, we looked for differences in the depth of integration patterns by investigating perceptions at different levels: descriptive, normative, and operational.

We observed a complex interplay between pillarised and hierarchical understandings of integrated sustainability across our respondents. Statistically significant variations pointed towards the relevance of three main types of factors. First, we observed a significant link between demographic factors and perceptions of integrated sustainability. For example, respondents working in academia tended to be less compatible with the pillarised model than other professional categories, while polled experts from the Global South tended to be less hierarchical than those from the Global North. Second, we also observed a relative lack of importance of professional priorities in determining respondents' approach to integration. Third, we noticed considerably more variation in respondents' normative and operational approaches to integration than in their more descriptive understandings of sustainability.

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What drives the emergence of private sector governance for Zero Deforestation Commitments? The case of the Amazon and the Cerrado Biomes

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Zero Deforestation Commitments (ZDCs) have become a powerful framing for companies or coalitions of actors to address public concerns about forest loss and degradation. They reflect a larger trend in global sustainability governance where non-state actors play an increasingly important role. The number of private pledges has grown exponentially as the acceleration of forest loss in tropical regions has been linked to agricultural expansion and especially to forest-risk commodities.

Recent studies on ZDCs have analyzed the environmental effectiveness of these commitments. The Amazon Soy Moratorium (SoyM) case has been extensively studied as one of the main successful agreements to one. The SoyM was the first voluntary zero-deforestation agreement implemented in the tropics. Its success is attributed to the regional focus and its governance structure, which is characterized by industry-wide engagement, a collaborative network of multiple actors and transparent verification systems.

The efforts to replicate this governance structure to address soy-driven deforestation to another hot spot biome in Brazil, the Cerrado, have not been as successful as in the Amazon. The industry and civil society dialogues focusing on halting the conversion of Cerrado's vegetation have not reached an agreement to implement a moratorium in the region. Soybeans have largely expanded in the biome during the last 30 years, and despite its importance for carbon stock and provision of ecosystem services, the Cerrado had lost 88

Mha (46%) of its native vegetation by 2017, lasting 19.8% of the native vegetation undisturbed. The deforestation rate in the Cerrado region reached 8.531 km² in 2021.

We conduct a comparative case study to reconstruct the historical process and conditions that enabled the ZDC for the Amazon to be implemented, while the negotiations for the Cerrado have not progressed. The paper focus on the power disparities among the networks formed and the specific institutional conditions that influenced the different environmental outcomes in the two contexts, despite both processes being related to the same global supply chain.

A process tracing method is applied to reconstruct the historical process and testing the causal explanation for the emergence of two different interregional arenas. The analysis is developed based on document and spatial analysis, secondary and primary data collection through semi structure interviews. This analytical framework is used to identify and weight the decisive factors that allow the emergence and implementation of a ZDC as a response to eliminate deforestation from global agricultural value chains.

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Building up the chain – The potential of sub-national Biodiversity Strategies and Action Plans for biodiversity policy integration

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Over the past decades, the literature on “environmental policy integration” (EPI) has assessed levels of policy coherence and identified a variety of facilitating and inhibiting influencing factors to improve policy integration. While limited levels of coherence have been attested, strong uncertainties

regarding underlying causal mechanisms and influencing factors that hamper a stronger prioritisation of environmental safeguards prevail. Further, analyses of “biodiversity policy integration” (BPI) are to date limited to horizontal integration at the national level. A deeper scientific consideration of sub-national spheres in multi-level governance and the vertical integration process remains to be further explored.

In order to approach these knowledge gaps, this study analyses the role of sub-national biodiversity strategies and action plans (SBSAPs) by looking at the case of Germany’s federal states (“Bundesländer”). Germany represents a specific case study as the federal system sees conservation as their responsibility, even though the national level holds the primary mandate to implement international targets defined by the Convention on Biological Diversity (CBD). In this study, I interview key political representatives from all 16 German federal states on their experiences with the implementation of their respective SBSAPs. Insights about coherent goal setting, collaborative capacity building and policy learning processes are at the heart of this consultation. The interview process is complemented by a comprehensive literature review of the strategy documents themselves providing further insights into the coherence of goals, reporting mechanisms and policy framing.

Based on the analytical framework of a scholar (Reference Removed) as a first starting point, I analyse *policy framing, subsystem involvement, policy goals, and policy instruments* as key dimensions for assessing the progress of policy integration. Further, a critical reflection of *integrative capacities* as well as *integrative leadership* sheds light on enabling conditions for effective policy integration. Based on these insights, I assess the coherence of the strategy targets with relevant targets on other political levels and related sector strategies. Analysing the orientation and quality of interactions with key actors reveals collaborative arrangements and possible “institutional lock-ins” or

"responsibility gaps". In addition, the design of policies as well as reported levels of implementation and evaluation are assessed to identify enabling factors. The generated insights shed light on the progress of vertical policy integration in order to better understand the role of sub-national policies and SBSAPs in the multi-level biodiversity governance.

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Beyond dyads: First- and second-order institutional interactions in regime complexes

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Regime complexes are complex systems of interdependent institutions where institutions have both direct and indirect impacts on each other. Yet studies of institutional interactions remain on dyads, in the absence of a framework which we can use to consider interdependencies and hence overall performance. We develop a conceptual model that goes beyond the typical, dyadic analysis of the literature on institutional interaction, which we call first-order interactions, and considers triads of institutional relationships that include also relationships between existing institutions, which we call second-order interactions. These second-order interactions, we argue, are where we begin to see the complex dependencies that constitute institutional complexity. In other words, a group of three interacting institutions is a critical interface where complex dynamics emerge, or the link between the microcosm of single or pairs of institutions and the macrocosm of regime complexes. We illustrate this logic by considering institutional

interactions between and among the International Seabed Authority, the Convention on Biological Diversity, regional fisheries management organizations, and a new international agreement on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. Building on both an historical account of why marine biodiversity beyond national jurisdiction was left out and an outline of emerging contours of the new agreement, we present a set of analyses of the six institutional interactions. We then discuss policy implications for the ongoing negotiation about what the new instrument should look like, if we were to take into account not only direct impact on existing relevant institutions, but also broader regime consequences enmeshed in institutional complexity. The analysis reveals what the conventional focus on institutional dyads has been unable to capture, and informs how institutional complexity should be approached in both theory and practice.

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Leveraging Private Finance for Public Good? State-Supported Private Finance for the Sustainable Development Goals (SDGs) in Indonesia

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Private finance is understood as essential for the attainment of the Sustainable Development Goals (SDGs) given the limits of public funding. This sets the premise for modes of (financialised) interventions devoted to 'unlocking' private finance for the SDGs. In this paper, we explore how the SDGs and the definitive turn to private finance in their

implementation are (re)shaping ‘intentional’ development in Indonesia, that is, the programmes, policies and practices aiming to leverage private finance for public good. We do so through tracing the ‘work’ required in assembling Indonesia’s first sovereign SDG bonds to fast-track progress towards the SDGs. Informed by extensive document analysis, semi-structured interviews and observations from SDG finance-themed conferences, we analyse the process of creating the ‘enabling environment’ for financialised forms of development. We show that in seeking to align private sector incentives with the SDGs, development programmes, policies and practices increasingly operate around disciplining technologies that operate in a register of risks to render sustainable development projects ‘bankable’ and countries ‘investment-worthy’. While environmental, social and governance (ESG) risks are taken into account, financial considerations dominate. The emphasis on financial legibility to create and grow markets of sustainable investments, we argue, eclipses (re)distributive concerns and risks legitimising interventions that reproduce uneven geographies of development in Indonesia.

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Strategies of reluctant treaty participation: dragging the chain on global climate change cooperation

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Overcoming the reluctance of some states to commit to and implement treaties remains a key challenge for international cooperation. While some reluctant countries may simply refuse to join treaties, others join yet fail to participate wholeheartedly or obstruct efforts at cooperation. In this paper we seek to

understand the different ways in which states may participate reluctantly in international environmental agreements. First, we present an analytical framework for categorising strategies of reluctant treaty participation. In doing so we connect recent developments in research on reluctance in international politics (in particular the work of Sandra Destradi) with the longstanding body of research on compliance with international agreements. We then apply this framework to the participation of G20 member states in agreements under the United Nations Framework Convention on Climate Change, focusing primarily on the Kyoto Protocol and the Paris Agreement. Drawing on a range of data sources, including (a) parties’ timing of treaty ratification and submission of UNFCCC reports, (b) reports of negotiations and (c) the longstanding ‘Fossil of the Day’ awards convened by the Climate Action Network-International, we aim to build a more systematic picture of which parties tend to demonstrate more reluctant behaviour than others. We also seek to ascertain whether this behaviour manifests itself primarily in terms of delay (e.g. failing to submit reports or update targets on time) or obstruction (e.g. making counter-productive proposals or seeking to block constructive proposals made by other parties) or a combination of the two. We conclude with recommendations on how parties committed to progress on global climate change cooperation could address the risks associated with reluctant behaviour.

Panel ID 108 | Onsite

Governing through the SDGs: Challenges of Steering and Coherence

Panel Day and Time: TBD

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Framing intellectual property rights and innovation for sustainable development: an analysis of the implementation of the Sustainable Development Goals

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The Sustainable Development Goals (SDGs) are an innovative form of global governance designed to tackle urgent challenges, such as inequality, climate change, and poverty. The implementation of this ambitious international agenda requires different resources, including personal, financial, and technological. In particular, the literature and United Nations documents recognise the importance of innovation and access to technology for the SDGs, especially in the case of knowledge-intensive goals, such as those related to health and energy. However, global access to technology is unequal, and crucial socio-technical transitions do not simultaneously happen in developed and developing countries. In addition, the international regulation of intellectual property rights can impose obstacles for technology transfer from the Global North to the South.

Drawing on a qualitative analysis of 45 Voluntary National Reviews (VNRs) from countries in the Latin American and Caribbean (LAC) region, this article investigates how developing countries have framed innovation, technology transfer, and intellectual property

rights in the implementation of the SDGs. This study analyses the narratives used to connect intellectual property to sustainable development and applies international political economy theories to interrogate the role of power in the context of the 2030 Agenda.

The analysis reveals that, while innovation and technology are topics that appear in almost all VNRs, the framing of access to technology and innovation policies varies considerably. This research suggests that aspirational views on intellectual property rights are prioritised, and few countries have a clear position on the TRIPS flexibilities. This paper presents an important contribution to the literature on the implementation of the SDGs as it provides an empirical example of developing countries' understanding of the links between intellectual property rights and sustainable development.

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Limited effects of the Sustainable Development Goals on policy integration. Insights from text analysis on 159 international organizations

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Over the past decades, international organizations have become increasingly specialized in numerous sectoral issues. While this development has its advantages, increased specialization has also led to silos. This "silozation" is often considered problematic because the many novel challenges of global governance are interconnected. The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, have been heralded as a new global

program of action for breaking up these silos and integrating environmental, social and economic goals into one coherent agenda. The success of the SDGs depends on whether governance actors, including international organizations, adopt these goals as a new framework of reference and pursue the goals in an integrated manner. Have international organizations changed their practice in line with the policy integration requirements of the SDGs? A few available case studies indicate that at least some international organizations have adopted the SDGs as a framework. Yet a larger, comprehensive assessment of SDG use and policy integration by international organizations is missing. This is where our study contributes. We carry out a quantitative content analysis on the website texts of 159 international organizations in 2015, 2017 and 2019 to answer two important questions: First, are international organizations recognizing the SDGs as overarching goals to strive towards? Second, to what extent has this recognition led to increased attention for cross-sectoral interdependencies – across the SDGs – and policy integration? Our analysis draws on computational text analysis combined with manual coding. Our results show that the SDGs are increasingly mentioned over time, and policy integration has also increased in the observed time frame. However, more frequent reference to the SDGs does not lead to more policy integration. Rather, our results show that international organizations that were already working on policy integration, seem to also reference the SDGs more. Thus, while the SDGs are broadly and increasingly referred to by international organizations, this has not led to increased attention for cross-sectoral interdependencies. We thus conclude that the SDGs fail to deliver on one of their key ambitions: to increase policy integration.

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Do the SDGs foster sustainability integration? Evidence from an expert survey

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The integration of socio-economic and ecological systems is a crucial challenge in earth system governance. In 2015, the United Nations agreed on 17 Sustainable Development Goals (SDGs) to advance such integration across the economic, social and environmental dimensions of sustainability. Have the SDGs, hailed as the most advanced attempt at promoting sustainability integration, played a role in informing perceptions, priorities, and ways of working of individuals and organisations? Which factors affect the (perceived) scale and scope of their role? And are the SDGs really in line with full integration or do certain sustainability priorities weigh more than others?

While the general relationship between the SDGs and sustainability integration has already been researched, few scholars have so far taken a step back and looked into how individuals and organisations perceive and operationalise it. This research gap is remarkable given how subjective understandings can shape norms and eventually institutions and practices. To bridge the gap, we designed an online survey. The survey was circulated to a large sample of experts and professionals, relying on snowballing techniques through access points in both national and international networks. We first clustered the 508 respondents according to their professional affiliation, seniority, and familiarity with sustainability governance and the SDGs. We then used statistical tools to investigate the relationship between respondents' perceptions about the role and influence of the SDGs and their understanding and operationalisation of integrated sustainability.

We found that professional affiliation, seniority and geographical location are linked to significant variations in how respondents perceive the role and influence of the SDGs, and we also observed a strong link between increasing internal and external integration practices and greater engagement with the SDGs. A more mixed picture emerged when investigating the links between the SDGs and perceptions and operationalisation of integration. On the one hand, the SDGs emerged as significant integration factors. On the other hand, affinity with the SDGs was often correlated with stronger normative views on the importance of environmental protection. This complex mix of integration and prioritisation also emerged when analysing the importance of respondents' priorities vis-a-vis their views on the SDGs. Although professionals with social and environmental priorities tended to place greater value on the SDGs, the significance of these links was by no means systematic, which on the one hand strengthens the Goals' integration ambitions, and on the other hand fuels existing doubts on their allegedly stronger environmental content.

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Greening labour? Trade unions, integrated sustainability, and the SDGs

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The integration of socio-economic and ecological systems has become a central challenge in earth system governance. In 2015, the United Nations agreed on 17 Sustainable Development Goals (SDGs) to advance policy integration across the economic, social and environmental dimensions of sustainability. For this ambitious agenda to succeed, it is crucial that integration increasingly underpins the principles and practices of actors and

organisations across the world. As primarily socio-economic actors, trade unions constitute an ideal case to study this process by focusing on the integration of environmental consideration. Have their understanding and operationalisation of integrated sustainability changed, and can we observe any integrative effects of the SDGs? While labour environmentalism has been the subject of numerous studies focusing on the national level, its international and global dimensions have been investigated to a significantly lesser degree. This not only applies to the role of international trade unions, but also to how unions at the national level engage with global developments, including the SDGs.

To bridge this gap, we focused on the last 10 years and conducted a qualitative content analysis of programmatic and policy documents from the International and European Trade Union Confederations, two of the main international trade union centres, complemented with document analysis and interviews with officials from both national and international trade unions to refine our conceptual and empirical picture.

Our findings can be grouped along three main lines. First, trade unions have been significantly greening their discourse and initiatives over the last decade, and this process has been both catalysed and hindered by external and internal, political and economic factors. Second, by zooming in on the so-called 'green-red alliance' between trade unions and environmental actors, we reveal how the awareness on both sides of the 'inevitability' of the growing interdependence between their priority areas has been strengthening cooperation between them. Third, we offer new insights into the actual steering power of the SDGs. We highlight how the Goals are often taken up by trade unions not only as frames for both their conceptual and policy documents, but also to shape a number of initiatives. On the other hand, this influence is often not only uneven across and within trade unions, but also bidirectional, as trade unions actively try to shape the implementation of the SDGs according to their own priorities.

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The Treatymaking Trilemma: Design Trade-Offs in the Global Climate Regime and Beyond

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Scholars have frequently suggested that a depth-participation dilemma exists at the heart of international treatymaking. According to this idea, when states opt for stringent agreements, with strong enforcement mechanisms, this typically reduces the number of adherents. Building on work by Gilligan (2004), I argue that this trade-off only arises under specific conditions and that thinking in terms of a treatymaking trilemma that unfolds over time—where states balance depth, breadth, and symmetry—offers a more compelling framework for understanding the tensions policymakers face. In the first part of the article, I explain the trilemma: why it exists and how we can expect design trade-offs to play out across multiple negotiations rounds. I then illustrate the value of this framework by examining the global climate negotiations. I argue that this approach better captures the tensions we find in this case, and that extending it to other environmental agreements would be rewarding.

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Trickle-down politics? How global climate politics shape subnational climate institutions

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With the Paris Agreement, all Parties to the UNFCCC have agreed to tackle climate change through a decentralized approach based on individual nationally determined contributions (NDCs). Despite a commitment to ratcheting up ambitions over time, a majority of updated country pledges submitted in the run-up to COP 26 have revealed a mismatch between ambition and reality for limiting global warming to 1.5 degrees Celsius and a trajectory towards low-carbon development. In this context, subnational entities, such as provinces, states, regions as well as transnational initiatives and non-state actors play a particularly crucial role, as they often bear responsibilities for the implementation of international and national policies and comprise far-reaching political, administrative, and financial powers in different policy areas related to climate mitigation. Despite the emergence of numerous governance experiments aimed at reducing greenhouse gas emissions at the subnational level, promising initiatives frequently face the challenge of becoming institutionalized, that is, an upscaling and mainstreaming of formal and informal rules and practices. While scholars have studied the role and function of governance experiments with regards to addressing regulatory gaps or as alternative means of combating climate change vis-à-vis intergovernmental decision-making, we know little about whether and how top-down global climate governance can percolate to foster bottom-up decarbonization efforts. In a case-study approach, we compare insights from selected low-carbon initiatives in the energy sector of emerging economies to unpack if and

how global climate politics can influence the institutionalization of climate mitigation at the subnational level. Informed by research on multi-level governance and institutional interplay, we investigate the mechanisms, effects, and limitations of such trickle-down politics. We argue that international climate politics should more effectively engage with subnational contexts to harness cross-level synergies, harmonize centralized and decentralized responses to climate change, and catalyze societal transformations towards decarbonization.

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Governing Biodiversity: New Actors and Innovative Governance Constellations

Panel Day and Time: TBD

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Do the SDGs matter for the post-2020 biodiversity framework? Insights from Twitter.

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In 2015, the United Nations (UN) adopted the 2030 Agenda for Sustainable Development, with 17 Sustainable Development Goals (SDG) to be achieved by the end of this decade. This new global agenda for action is unprecedented in its ambition and scope, and is intended to apply universally: for both public and private actors, at all levels of governance, and across

all countries. While not legally binding, the SDGs are expected to steer the direction of sustainable development by offering a 'common framework' to work towards and a 'shared language' to speak. The effectiveness of the SDGs as a global agenda thus depends to a large extent on whether governance actors use the SDGs in political and governance processes. Empirically, little is known about the political use of the SDGs, and this is where our paper contributes. We assess how the SDGs are used in discussions around the development of a new agenda in one of the 17 SDG areas: biodiversity conservation. At the time of writing, the parties to the Convention on Biological Diversity (CBD) are developing the 'post-2020 global biodiversity framework' to guide action on biodiversity till 2030. At the latest CBD Conference of the Parties (COP15) in October 2021, the first draft of the post-2020 framework was discussed. Using discussions around the COP15 as a case, we answer two main questions: First, which actors are involved, and which are most influential, in discussions around the post-2020 global biodiversity framework? Second, to what extent do the SDGs feature in these discussions and who uses them? We collected data from Twitter, an online social network. We are particularly interested in Twitter data as the 'Twitter-verse' is an increasingly important place of political discussion and diplomacy, which allows participation of many different types of actors. Moreover, the COP15 was a fully online event, making it a particularly interesting case to observe online communication. We collected over 100,000 tweets on biodiversity of more than 54,000 users during COP15. Data is analysed using social network analysis, text analysis and manual coding. Initial results indicate that the SDGs are mentioned in only about 1.3% of all tweets related to the COP15. More influential actors, which include UN diplomats and organizations and large international NGOs, use the SDGs relatively more. While far from conclusive, these first results indicates that the SDGs are not so broadly used, and their use remains mostly within the UN.

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Bureaucracy matters: Administrative structure and performance in Brazil's federal protected areas agency

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Environmental agencies in developing countries frequently struggle to implement policy. Yet few researchers seeking to explain environmental outcomes in the developing world have focused on the internal functioning of environmental agencies.

I address this gap by analyzing the relationship between administrative structure and regulatory effectiveness in Brazil's Chico Mendes Institute (CMI), a federal agency which oversees one of the world's largest systems of protected areas. I focus on two questions. First, how might the re-allocation of CMI's personnel improve its performance? Building on findings suggesting the potential for substantial gains from personnel re-allocation, I then ask: what explains the severe misallocation observed?

To answer question (1), I use fixed effects OLS regression to estimate how the effect of protected area management team size on deforestation varies based on key predictors of deforestation pressure. This analysis covers 322 of the agency's 334 protected areas over the first ten years of CMI's existence (2008-2017). Model results suggest that various re-allocation initiatives may have prevented roughly 2,200 km² of deforestation—approximately 38 times the area of Manhattan—over the study period. More than 40 interviews with CMI staff who worked in the Amazon region during this period complement the econometric analysis.

To understand what accounts for the severe workforce imbalance observed, I primarily rely on interviews (n=45) and process tracing. In addition to the field staff mentioned above, informants included former agency executives

and headquarters-level staff who are familiar with personnel allocation decision-making processes. Results suggest that the imbalance results from multiple causes. I highlight the role of two institutions in preventing the agency from addressing rangers' preferences for working in biomes facing greater deforestation risk. First, I emphasize resistance by the Ministry of Planning to the installation of incentive-based personnel management systems commonly used to prevent workforce imbalances. Second, I underscore labor laws, which limit the agency's ability to mandate transfers.

These findings carry important implications for environmental governance scholarship focused on developing countries, which tends to focus on political obstacles to policy adoption and policy implementation, as well as policy design. They demonstrate that administrative structure can greatly affect the extent to which a public environmental agency is able to meet its objectives. Furthermore, they illustrate how less commonly discussed political institutions—i.e. resistance from agencies responsible for governing a civil service and public service laws—can undermine environmental outcomes.

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Deforestation dynamics in relation to socio-economic explanatory factors across the Amazon biome, 1990-2020

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The Amazon is the largest and most biodiverse tropical biome in the world. It spans over nine south American countries, with Brazil covering the largest proportion. Given the relevance of the Amazon for the entire Earth climate system, but also because of its natural resources and land extent this biome has been

subject to several policies for both the conservation and exploitation of its biodiversity. Few of these policies have had their intended effects, because they are often confounded by other social, political or economic processes.

A necessary step towards improving the governance of tropical socio-ecological systems is to gain the best understanding possible of the effects that underlying drivers (policies, politics, power dynamics, historic inertias, etc.) have on the proximal drivers of deforestation. Changes in proximal drivers such as human population growth, agricultural and livestock production, exploitation of natural resources, among others, are known to be related to spatiotemporal patterns of deforestation. Consistent analyses of these dynamics across the entire Amazon biome are needed to understand how underlying drivers and interventions interact with proximal drivers across contexts and time, but these have not yet been produced.

Aiming to fill this gap, we are developing a sub-national resolution (municipalities in Brazil, departments/states in the rest of the countries) analysis of the historic correlations between deforestation and proximal drivers of deforestation across the entire Amazon biome. We are modelling quantitative data on direct drivers of deforestation to detect correlations between drivers and deforestation, as well as interactions between the different drivers for the period 1990-2020.

Most of the drivers' data we are using was originally produced by governmental institutions, whereas as deforestation data, we are using a remote-sense based dataset generated by the European Union Joint Research Commission covering all the tropical moist forests of the world. In addition to analyzing drivers-deforestation dynamics, we expect to gain insights on the characteristics of the data needed for such analyses, as well as the current state and accessibility of the existent data across the Amazon.

Lastly, we explore links between the effects of direct drivers and the underlying causes dictated by local, national and global

governance processes at selected sites. We trace direct and underlying drivers back to political and economic levers capable of transforming current deforestation trajectories.

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Orchestrated interventions in local climate actions: the role of foreign, non-state actors

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Non-state actors (NSAs) are key actors in climate policy and practice, in both domestic and foreign domains. The contribution of NSAs to climate action at distinct governance levels is widely addressed in research. However, theoretical and empirical gaps remained concerning the influence of NSAs from one country (foreign NSAs) over climate governance systems in other countries. The ways foreign NSAs apply their power in local jurisdictions and the outcomes of these mechanisms are under-researched.

With the aim to contributing to filling these gaps, this paper examines the work of German NSAs in Israel to answer how and why foreign NSAs influence climate governance in other, local domains? Using Orchestration Framework, the paper examines operations of two German political foundations (the Heinrich Böll Stiftung and the Konrad-Adenauer-Stiftung), and the operations of the German Chamber of Commerce (AHK) in Israel. These relations provide an intriguing case to examine types of influence from a pioneering country in climate action (Germany) and a late-adopter country (Israel) – the latter faces also acute developmental challenges. The paper examines these relations and their outputs through semi-structured interviews with private, state, and non-state actors in Germany and in Israel, and relevant grey literature and official documents.

The findings reveal how German political foundations orchestrate other Israeli state and non-state actors and, simultaneously, being orchestrated by other/higher German governmental actors. Relations of that type in the private sector are less evident. The operations of political foundations enable some degree of innovation and autonomous action for Israeli actors to address the climate crisis, which leads also to the creation of new “climate coalitions” in the Israeli realm. At the same time, orchestrated actions seem to be limited in their ability to influence certain segments in the Israeli climate governance system, which harden the ability to challenge dominant approaches in Israel for tackling the climate crisis.

With that, the paper broadens the theoretical and empirical application of orchestration mechanisms and their relevance to climate actions. In addition, the paper adds to understanding of climate action developments in leading countries such as Germany, and late adopters such as Israel.

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Global Climate Governance: a Discourse Network Analysis

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The system of institutions governing climate change is often described as fragmented, polycentric or complex – 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.

Panel ID 110 | Onsite

Trade Provisions as an Instrument for Sustainability: Intended and Unintended

Panel Day and Time: TBD

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Beyond Sanctions: Coordination of International Climate Cooperation through Trade Policy

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In a bid to tackle the worsening global climate change crisis, trade policy has emerged as an important enforcement instrument. Preferential Trade Agreements (PTAs) in particular have been increasingly incorporating the enforcement of environmental commitments including climate change. As such, a significant body of literature has emerged examining how PTAs are being leveraged to promote climate action. A common theme in this literature is the use of PTAs as a credible-commitment policy instrument; that is, PTAs have primarily been used to address free-riding in the implementation of climate change commitments. This paper challenges the universality of this claim by demonstrating that PTAs in some cases are used as coordination-enhancing devices, absent sanctions. In other words, policy makers not only use PTAs to penalise noncompliance with climate change commitments, but also to promote compliance through diplomatic coordination absent sanctions. Empirical analysis of the paper is based on a detailed

case study of the development of regional climate policy in the East African Community, a South-South PTA. Findings from this paper underscore the limitations of sanctions, and the promise of diplomatic coordination, in using trade policy to enhance climate action. Furthermore, the findings point to the potential role of using PTAs to develop regulatory models that promote a just transition to low-carbon, climate-resilient societies especially in the global South.

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Trade provisions in MEAs: a carrot to join the club?

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Multilateral environmental agreements (MEAs) frequently include trade-related provisions that discriminate between member and non-member countries to the treaty. Trade-related provisions include, for instance, restrictions on the extraction of natural resources, references to preferential trade agreements, restrictions on the consumption of specific goods, or facilitated access to natural resources. The resulting preferential treatment can constitute a club good for member countries to an MEA by increasing trade flows among them. This can, in turn, increase incentives to join the MEA for non-members. A telling example is the Montreal Protocol, which restricts imports from and exports to non-parties of chlorofluorocarbons. These trade provisions created an incentive for several countries relying on ozone-depleting substances to join the treaty. However, no large-N study has investigated the effect of MEA trade-related provisions on later accessions. This research question is important because providing trade-related incentive for accession is a central argument in Nobel laureate Nordhaus' argument for the creation of climate clubs.

Using a novel dataset of trade provisions included in 654 MEAs concluded between 1945 and 2015, we analyze whether more trade-discriminatory MEAs obtain more accessions by former non-members over time. We distinguish between trade-liberalizing and trade-restrictive provisions. On the one hand, joining a trade-liberalizing MEA can be perceived as a potential gain for non-members. This is what we call the positive framing hypothesis. On the other hand, not joining a trade-restrictive MEA can be seen as a potential loss. This is what we call the negative framing hypothesis. We find that trade provisions in MEAs are associated with higher accession rates. This effect, however, is more prominent for MEAs with trade-restrictive provisions. This indicates that the negative framing has a stronger effect on countries' decision to accede to an MEA. This result is robust to controls for the characteristics of the underlying MEA including parties' average GDP, democracy scores, and provisions related to accessions.

This paper contributes to the literatures on environmental clubs, trade-environment politics, and institutional design. It provides important lessons on the types of MEA provisions that are attractive to countries when reflecting on joining environmental agreements and generates important insights for the ongoing debate on climate clubs.

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Diffusion of trade related measures to end Illegal, Unregulated and Unreported (IUU) fishing: a global pursuit?

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By way of the unilateral and trade-restrictive stance against Illegal, Unreported and Unregulated (IUU) fishing, the European Union

has positioned itself as a major market and normative power, driving its sustainability norms outwards. Focusing on the current European Union policy which mandates a seafood import ban from countries associated with IUU fishing, this work studies the effects of this unilaterally devised policy on non-EU countries' domestic efforts to control IUU fishing. The overall question is what is the current outcome of the international spread and adoption of this trade restrictive measure aimed at projecting global fisheries sustainability? Is this policy effective, and is it likely to have a desired effect of triggering governance/industry reforms in the intended countries? Drawing on two case studies from the Asia-Pacific – Thailand and Australia, this research examines its impact on seafood governance in these countries, whether the EU policy ambition aligns with the country-specific contexts and how much of a diffusion potential it holds to prevent IUU fishing that may be occurring in them. In Thailand, the 'yellow card' (which represents a first-stage warning before the import ban) has put pressure on the government to conform to the EU IUU regulation. The Thai fisheries reform indicates manipulating and socialization processes from the EU as techniques to spread the EU IUU policy into Thai institutions and regulations. Domestically, the issues of labour rights violations came out as a strong a local priority that uniquely altered the makeup of the reform. The Australian case shows the capacity of the EU policy to influence internationally the framing of IUU fishing as a governance problem to be addressed. But it also highlights the difficulties of 'translating' this discourse into specific domestic contexts that differ on traceability and labelling controls. Drawing on literature on policy diffusion, this work offers insights on how likely it is that countries will adapt to the changing policy norms regarding IUU fishing. Finally, we discuss the governance interactions between the EU and other fish exporting/importing nations which may need to be adjusted to improve the effectiveness of the aforementioned policy approach and whether its current mode of implementation

provides a scalable solution towards preventing global incidences of IUU fishing.

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Mobilizing For Climate. What Role For Foundations?

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Research on climate mobilizations have examined the particularities of mobilizing for such an important, urgent and global issue as climate change, showing the difficulties, like finding narratives, addressing such a complex issue or getting the politics on board . While the first mobilizations were conducted by environmental activists, the problem seems to be tackled today by a growing number of actors in different sectors who try and mobilize for climate.

Among them is the foundations world, where a new movement is emerging and developing. Indeed, since 2019, several coalitions were created in different European countries by foundations who wanted to contribute to fight climate change. In the UK, it was the Funders Commitment on Climate Change; in France La coalition française des fondations pour le climat; and in Spain, Fundaciones por el clima. There is also an umbrella coalition at the European level, with the European Philanthropy coalition for Climate and at the international level with the International Philanthropy Commitment on Climate Change. These coalitions try and foster the creation of similar initiatives in other European countries and worldwide.

Climate philanthropy is an understudied but key topic. If scholarship has shown the role of different climate movements – climate leaders movements, youth activism, NGOs mobilizations etc. – or different sectors (political, corporate etc.), few studies have focused on the role of the philanthropic sector. Those who have show how little foundations have done so far . Indeed, funding for

environmental issues only represent 2% of total spending of the philanthropic sector.

In this paper, we will examine this new social movement that brings European foundations together to mobilize for climate. We will analyze how they mobilize, the difficulties they face and the way they envision their role in the climate movement, hoping to play a key role in this major global issue, as intermediators between the economic, the political and the social world.

This work is based on a new research project I am conducting on the mobilization of the European philanthropic sector for climate, focusing on the coalitions of foundations. It is based on a qualitative survey, using different methods - interviews, ethnography (observations on zoom) and document / press analysis, at the crossroads between political science, sociology and anthropology.

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Examining Epistemic Justice in the Design of Nature-based Solutions

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Over the last decade, Nature-based Solutions (NbS) have gained traction as win-win-win options for climate action due to their ability to address social, economic, and environmental challenges, with much of the literature exploring ways to scale these solutions. Although a growing body of research addresses NbS in diverse disciplines, justice remains relegated to the margins of the literature . Despite the potential of NbS to lessen the vulnerability of individuals and communities, NbS can be framed or adopted in ways that reinforce existing inequalities or unsustainable practices, such as de-prioritizing local knowledge or monocropping, particularly when the knowledge and values of certain

actors are not incorporated into NbS design and planning. This paper examines how different epistemic actors, including local community leaders, NbS participants, and those designing and implementing NbS, contribute to NbS and the implications for justice. This epistemic approach departs from the widely-used distributive approaches . Using projects that incorporate NbS in Latin America, supported by UNDP cases, we employ a planetary justice framework (Biermann and Kalfagianni, 2020) to structure a comparative analysis of the depth of stakeholder involvement and the narratives of NbS deployed in various projects. We develop a typology of knowledge and values different organizations (e.g., including, but not limited to, community-based organizations with more localized “on-the-ground” knowledge vs. larger international nongovernmental organizations with technical and funding expertise) contribute. We then apply this typology to our case studies to analyze the extent to which these are reflected in actual project proposals. By applying an epistemic approach that examines whose input is considered legitimate as a starting point for analysis, we discuss how narratives relate to different stakeholders involved in NbS projects and whose knowledge and priorities are valued or privileged in NbS design and operation. This analysis illustrates what makes stakeholders legitimate agents in the research and practice of NbS, who is left out, and what practices may address any resulting inequities. Recognizing that understanding how knowledge is used in different contexts is a critical element for understanding power , this analysis sheds light on how prevailing power structures influence the just implementation of NbS. Finally, this paper connects these findings to the broader literature on environmental and epistemic justice, power and agency in climate governance; moving beyond discussions of NbS effectiveness for achieving environmental sustainability toward building justice and equity throughout their implementation.

Panel ID 111 | Onsite

Marine and Freshwater Governance Challenges: Actors, Institutions and Interactions

Panel Day and Time: TBD

Panel Room: TBD

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Diving into marine governance in Brazil: a systematic review

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The quest of the oceans is becoming more and more prominent in the international political agenda. It involves typical analytical issues of the public policy field, such as the governance of coastal and marine ecosystems and its challenges: overexploitation of natural resources, the need for political coordination between actors from different sectors and persistent financial constraints. How does research in this topic is consolidated? Who and where are the main researchers investigating political issues regarding the sea? What are some of the challenges that appear in knowledge building? Although there are interesting systematic reviews on the literature that looks at the interface between the socio-political and environmental aspects of marine conservation, not many focus on the specificities of developing countries with large coasts, such as Brazil, with latent coordination problems such as the institutional overlap between the responsibilities of the municipal, state and national levels regarding marine protected areas. Brazil is an important case for two main reasons. First, it is among the 20 countries with the most extensive coastlines in the world: 14 of the country's 26 state capitals (and over 70% of its population) are located on

the coast. The sea is a significant source of income for different sectors of the economy, such as tourism, fishing, mineral exploration, and civil construction. Second, the effective governance of the oceans in the country is even more pressing now due to growing risks associated with the exploration of oil and gas in deep waters, real estate speculation related to urbanization, tourism and aquaculture, pollution from terrestrial runoff, etc. Thus, we examined the literature on marine governance in Brazil using a database prepared with detailed information from 67 articles published between 1990-2022. In particular, we analyzed dimensions regarding bibliometric and substantive aspects within this body of literature.

Preliminary results indicate that the annual average of publications has increased considerably since 2017, the year in which the United Nations (UN) proclaimed the Decade of Ocean Science for Sustainable Development. In addition, between 2008-2016, 33.33% of the publications were financed by Brazilian development agencies, and this number more than doubled for 2017-2021 (68.29%).

We also found that, despite the relevant participation of Brazilian institutions in funding this kind of research, the most cited articles involve foreign institutional participation. Additionally, considering the type of institutional arrangement, 67% of the articles focus on local governance structures.

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Organizational reforms as steps towards increased governance effectiveness? – A study of reform processes (and their outcomes) of river basin organizations

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As both the environment and the context in which it is governed in the international and

transboundary context change over time, institutionalized cooperation mechanisms – such as regional treaties and organizations – that have been established to facilitate the effective governance of the environment often need to change as well.

However, such change is often lacking altogether or implemented in a manner that negatively affects the long-term effectiveness and resilience of an organization. Empirical examples from around the world show that, for instance, individual member states might delay or prevent change in order to pursue unilateral development agendas, changes of parts of an organization might jeopardize the overall functionality of the organization, staff of an organization might not support change processes for fears of individual losses or a lack of capacity, or change might be initiated by actors external to the organization and unaware of internal dynamics.

Understanding the dynamics behind organizational change processes – including their instigation, their implementation and their effects on an organization's ability to effectively govern the environment or natural resources – is therefore key for effective governance in the Anthropocene. Yet, our understanding of such processes remains limited and academic research remains in its infancy, if at all focusing on specific dimensions of organizational change and/or case studies of individual organizations.

Organizations managing shared water resources – River Basin Organizations (RBOs) – in many of the world's more than 300 shared basins have undergone considerable reforms in the past decade, with examples include the Commission Internationale du Congo-Oubangui-Sangha, the Lake Chad Basin Commission, the Niger Basin Authority, the Mekong River Commission or the Permanent Okavango River Basin Commission. RBOs thus lend themselves for analyzing processes that aim at reforming institutionalized cooperation mechanisms for managing shared natural resources and allow for drawing relevant conclusions even beyond transboundary water governance.

Therefore, the paper will focus on RBOs and on the basis of their experiences investigate whether, how and under which circumstances organizational change of these governance agents contributes to more effective earth system governance overall. Questions the paper aims to answer include: Why do RBOs engage in reform processes in the first place (and which dynamics trigger those developments)? Which agents – both external and internal – drive these processes? Which parts of RBOs tend to be addressed in reform processes and with which typical outcomes? And does the performance of RBOs indeed increase after reform processes?

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Governance towards water-related sustainability: A systematic review

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The global water crisis, it has been argued by the United Nations (2006), is largely a crisis of governance. Put positively, it is the way water resources and ecosystems are governed – by state and non-state actors – that makes a difference for the sustainable water use and the wellbeing of water ecosystems. With the recognition of social and ecological complexities and multifunctional characteristics of water and societal interdependencies, new and diverse governance forms started to evolve. Despite a broad body of literature on these different water governance regimes and their water-related sustainability performance, comprehensive synthesis is missing which would provide us with an overview of the patterns on what works and in which context

and allow us to identify informed hypotheses to establish a direction for further study. Taking a global comparative perspective, our study aims to provide such a synthesis by mapping water governance systems and their water-related sustainability performance.

In our systematic review, we draw on all published empirical research that has investigated water governance systems and their performance on water-related sustainability. Informed by core frameworks on water governance, we present rich and nuanced findings on both the body of literature as a field of research and on the link between elements of governance systems and their performance in terms of environmental sustainability. For example, we graphically depict co-authorship and citations and the geographical distribution of studies and authors. Our main results relate to patterns across governance systems and sustainable outcomes. In addition, we present clusters of water-related contexts and map the distribution of components of governance systems across these clusters. Finally, problematizing the relationship between paradigms and water governance characteristics, we also delve into complementarities between paradigms as well as explore the dynamic nature of the governance system.

All in all, the findings of our systematic review allow us to identify patterns of the water-related sustainability performance of existing water governance systems, including which building blocks they consist of. Through this, we aim to contribute to a better understanding of the dynamic nature of the water governance systems and serve as an entry point to explore the impact of a governance design on water-related sustainability performance. Furthermore, as the existing water governance literature seems to be in a stalemate of new ideas/paradigms, this study takes stock of past and current water paradigms as a way to move forward.

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The role of international cooperative initiatives in financing biodiversity

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Despite the efforts by national governments coordinated under the Convention on Biological Diversity (CBD), the state of biodiversity continues to deteriorate and the 2020 Aichi Targets have not been met. One of the main reasons for the limited effectiveness is believed to be the lack of sufficient and stable financial resources made available globally to halt biodiversity loss. In recent decades, funding for sustainable development has shifted from mainly public to also include private sources of funding. In parallel, we seen an emergence of numerous cooperative initiatives (CIs) across a wide range of environmental issue areas including biodiversity. These initiatives involve non-state and subnational actors, oftentimes working in partnership with states and intergovernmental organisations. They operate across national borders and perform governance functions such as implementation of biodiversity projects, information provision, as well as providing funds to achieve common biodiversity goals. Yet still, little is known about the role played by CIs as sources of additional finance for halting biodiversity loss. In this paper, we analyse 70 CIs focusing their financing function, contributions to financial flows and the types of sponsors involved. In particular, we examine different types of financial institutions and their potential to contribute to halting biodiversity loss. Our preliminary findings suggest that there are four distinct types of financial institutions: funds and foundations, international financial institutions, cooperatives of financial institutions, and financial strategy advisors.

Further, we present case studies to exemplify each of these types and describe each of their potential merits and pitfalls. Finally, we discuss our findings in the context of recent policy debates on the whole of society approach in the CBD and implications for financing of biodiversity protection.

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After the negotiations: is China on the right track to deliver its climate change commitment?

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The Paris Agreement has established a new international framework to accelerate reducing greenhouse gases (GHGs). Implementing the Paris Agreement is the key to enabling effective and sufficient climate action at the national level. As the world's largest emitter of GHGs, China plays an essential role in governing global climate change. The impacts of China's intensified efforts to engage in global climate governance are widely noted and debated. China submitted its updated Nationally Determined Contributions (NDCs) and the Long-Term Strategy (LTS) to the United Nations Framework Convention on Climate Change (UNFCCC) before the 26th Conference of Parties (COP) in Glasgow, which caused intentional disappointment as they were expecting more ambitious headline targets. However, what is more important than an ambitious pledge is an adequate and complete delivery of its pledge. Is China on the right track to deliver its climate pledge after six years since the COP21? This paper tries to solve two puzzles: first, how does a country translate its international climate commitments into national-level policies, and how does this international-national interplay affect its climate policy setting? Second, how to qualitatively measure whether a country is

on the right track to deliver its international climate commitment? The discussion unfolds in two parts. Part one discusses and constructs a set of criteria to map and measure a country's commitment delivery. Part two applies this framework to examine to what extent China's climate policy and action since 2015 fulfilled its pledge under the UNFCCC.

Panel ID 112 | Onsite

Institutions for Earth System Governance: Responsive to New Complex Challenges or Politically Empty?

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Subnational governments networks in global climate governance architecture: a preliminary study of their composition, functions, and patterns of association.

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Non-state actors are considered as non-party stakeholders at the United Nations Framework Convention on Climate Change (UNFCCC), the institutional core of global climate governance. According to the Marrakech Platform, although their role is considered important to achieve the UNFCCC objectives, they are only supplementary to states' actions.

Alternative channels available for non-state actors' participation in parallel initiatives are international climate initiatives, transnational networks, and orchestration platforms. Some

common characteristics of these elements are the existence of a public goal, a steering function, and the possibility of aggregating actors of different configurations. They can be categorized by their composition and by their main governance functions, such as information sharing, capacity building, and rule-setting.

This paper's objective is to analyze subnational governments' networking through international climate initiatives, presenting which are the main nodes and what are each initiatives' main governance functions. The network is depicted by its composition and analyzed through the concept of global governance architecture, defined as complex linkages among multiple governance elements. The main nodes are subnational governments and their ties are mutual affiliations to international cooperative initiatives. The centrality is measured by which nodes are present in more initiatives, representing a specific mode of interaction of this kind of actor.

The Climate Initiatives Platform is a portal hosted by the United Nations Environmental Program (UNEP) with information about international cooperative climate initiatives of non-state actors - cities, provinces, states, regions, and businesses. It contains 24 initiatives of regional actors, among which 15 are listed as Nazca initiatives (listed at the UN Global Climate Action Portal) and 23 are listed as still existing. While there is extensive work about city networks, less effort has been applied to the intermediary level between cities and national governments - the level of states and provinces, which is the focus of this research.

The expected results are a careful description of international cooperative initiatives currently listed in the Climate Initiatives Platform, their main governance functions, and composition. In analytical terms, it will be possible to assess patterns of association among the nodes and a snapshot of global climate governance architecture through linkages of subnational actors. This knowledge complements research about global climate

governance architecture and the interplay between its actors at different levels.

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The paradox of and progress towards rural water sustainability in Africa

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Halting progress towards rural water sustainability can be partly attributed to balancing universal drinking water services with financial sustainability. This paradox involves the latter often requiring institutional and financial regulations that to be effective may exclude the poorest, which will weaken or undermine the former. In recent years the rural water sector across sub-Saharan Africa has experienced processes of change towards greater uniformity through the spread of technologies and voluntary institutional arrangements. This study proposes a reconceptualisation of rural water sector planning and investment by unpacking the theoretical and practical tensions between homogenisation towards the community, market or state solution and pluralism dynamically realigning the three.

First, I advance a framework combining institutional isomorphism and cultural theory to offer insights into the theoretical tension between homogenisation and pluralism and how it is reflected in the practical tension between the professionalisation of water services and local diversity. I argue that coercive, normative and mimetic processes have led to the establishment of cultural regimes, while at times neglecting local pluralist institutions. This research investigates arrangements combining the state, market and communities that emerge under a realignment of isomorphic processes. Second, the framework is tested in Kenya, where two

types of institutional change, legal and institutional reform through devolution, and professionalisation of rural water services are critically aligned to potentially enable sector transformation. A survey with all 47 county water ministries of the first devolved county governments and three case studies of professional service models across the country drawing on data collection over three years provide insights into the potential of pluralist arrangements to increase the sustainability of rural water services. Finally, this study provides an approach to examining the establishment of cultural regimes. It also provides insights into which forces lead to the homogenisation of approaches across diverging contexts and into the circumstances that can lead to regime changes in the rural water sector.

I contend that reconsideration and reconceptualisation are required to avoid previous investment mistakes and to promote new thinking set in motion through the limits of current models and emerging approaches that are empirically documented through field experience. I conclude with a reflection on how this new thinking might contribute to policy and practice in the rural water sector in redefining approaches to promote multi-level water governance in order to leave no one behind, thus advancing the SDG of universal, equitable and safely managed water services.

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Engaging with Global Goals through Organizational jiu-jitsu: The case of the World Bank, the Sustainable Development Goals and reduced inequalities

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In 2015, 17 Sustainable Development Goals (SDGs) were universally agreed upon, to be

reached by 2030. Although many International Organizations (IOs) were active during the negotiation process and play a role in the measurement and implementation of the goals, little is known about the way in which IOs engage with global goals, like the SDGs. The current study attempts to fill this gap by studying the World Bank, an influential IO with a broad development mandate and an active role in the SDG governance framework. Using a mixed-method approach, we combine i) a quantitative analysis of 282 key World Bank documents, ii) 22 semi-structured interviews with actors from within and outside of the organization and iii) a qualitative study of the Bank's SDG strategy. We analyze five types of engagement including agenda-setting, discursive uptake, institutional adjustment, country-level processes and global review processes, zooming in on SDG 10 on reduced inequalities. We posit the term 'organizational jiu-jitsu' to capture the way in which the World Bank has been able to use the momentum of the SDGs to advance its own strategic agenda. Little evidence is found for the effect of the SDGs on the World Bank in return. Its subsequent engagement with the goals has been selective, efforts at organizational mainstreaming are limited, and inclusion in country-level processes remains largely voluntary. Because of the World Bank's success in shaping the global agenda and inserting its own benchmarks in the SDG framework, actors trying to exert influence are now doing so within the confines of the Bank's 'Twin Goal' filter, limiting their options to exert agency. We argue that organizational jiu-jitsu is likely to occur in the engagement of other IOs with global goalsetting processes. When confronted with existing organizational identities, global goalsetting in its current form might therefore be limited in realizing its transformative potential.

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Theorising Climate Diplomacy: Frameworks, Applications and Models

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This research provides a novel perspective to explain the observed positions of different countries and coalitions of countries in the international climate diplomacy orchestrated by UNFCCC, which was mandated under the auspices of UN in early 1990s. Previously, two prominent schools of thought have analyzed the evolution of climate diplomacy and subsequent evolution of international climate policy mechanisms to support the climate goals agreed upon in international treaties and agreements such as Kyoto Protocol and Paris Agreement. On the one hand, cooperative and competitive game theoretical frameworks have been applied to explain and predict the evolution of global GHG emission trajectories. Diplomatic positionality of various countries is explained by comparing the observed versus predicted patterns. Tragedy of commons and prisoners' dilemma type of game theoretical models are applied to predict the evolution of climate negotiations and international agreements aimed at mitigation and adaptation to climate change. On the other hand, scholars in the fields of environmental law, international organizations, political economy, political ecology, environmental governance and international relations have explored legal, moral and institutional dimensions of climate diplomacy. While both of these theoretical approaches to understand and explain international climate diplomacy have their strengths and drawbacks, this research presents alternate, complex adaptive systems and social ecological systems (SES) theoretical approaches to analyze the past and present trends of climate diplomacy and, in the process, lay the foundations for integrating and synthesizing game theoretical and

legal/normative dimensions of international climate negotiations. From this perspective, nation states are neither modelled as static, rational actors nor as purpose-driven moral arbiters. Rather, the diplomatic positionality and domestic climate policies of nation states are conceptualized as dynamically evolving stream of governance responses induced by constantly shifting public opinion, in particular citizen climate risk perceptions, beliefs in climate change science, trust of climate scientists, foresight of policy makers, domestic politics, international leadership during UNFCCC mediated Conference of Parties (COPs), governance norms and political ideology of dominant parties/players within countries across the world. Instead of assigning fixed "rules of the game", or assuming unchanging outcome functions for different players, or assigning fixed moral principles (e.g., protect human rights), the proposed SES approach to understanding climate diplomacy presents a very dynamic, empirically testable framework to understand and shape the future of climate diplomacy.

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*Non-State Action for the Post-2020
CBD Goals: A Stocktake of the
Effectiveness and Actors in
International Landscape Initiatives*

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As the Convention on Biological Diversity (CBD) is gearing up towards its next Conference of the Parties, it faces pressure to produce effective goals to halt biodiversity loss, as the Aichi goals it set for 2020 have mostly not been reached. As such, calls have been made to set a new kind of goals and to use different kinds of governance approaches to reach them. One of these approaches that envisions 'transformative change', rather than a

business-as-usual approach, is that of the Integrated Landscape Approach (ILA). ILA looks at the entire landscape in which biodiversity loss is countered, considering all actors within society, while aiming to improve food production, conservation of biodiversity and ecosystems, and livelihoods. Most of the research on organisations or initiatives using ILA is focused on the effects these approaches have—locally, regionally or nationally—within the landscape itself. Most of the ILA work done on the ground is supported by larger international initiatives, however, in which many different actors cooperate. This research identified 65 of such cooperative initiatives (CIs) that take a landscape approach out of the 391 biodiversity initiatives that make up the BioStar database, developed by the VU Amsterdam and PBL Environmental Assessment Agency. We have taken on an impact analysis—identifying the outcome, output and impact—for each of the four preliminary 2050 goals of the CBD, described in its post-2020 Global Biodiversity Framework (GBF). The aim of this analysis is to identify where these international landscape initiatives are already contributing to the 2050 goals and where the gaps still remain. Moreover, through a social network analysis of the initiatives and its members, we aim to find the actors that are present in multiple initiatives, and thus have the power to steer the collective actions of landscape initiatives. This identification provides for a stocktake of the contributions that these non-state actors are already taking towards the CBD's post-2020 targets and goals.

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Human values for multi-scalar tipping and governing the earth system stability and sustainability

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A transformative governance is urgently needed at multi-scale to realise the earth system stability and sustainability (ES3). Stabilising the Earth depends on the power of human values to govern, cooperate and act. The power of human values has potential to accelerate system change to attain the 17 UN Sustainable Development Goals and the Paris Climate Agreement. However, these global goals are more and more challenged by unprecedentedly rising level of emissions. High carbon concentration in the atmosphere is predominantly driven by anthropogenic activities, especially fossil-fuel industrialisation and urbanisation. A rapidly rising carbons is inversely shifting food, water, energy and livelihood choices to extreme limits. Accordingly, the earth system has been extensively researched to unearth various environmental tipping elements with a minute focus on the social tipping elements such as human values.

This review examines human value as a powerful element for governing to transform and sustain the earth system. Although human value remains relevant for forcing net zero carbon conditions, very little is known about it in the current literature and policy. A smooth transition is feasible only if critical attention is given to human values in regulating lifestyle, production, consumption and markets (systems, behaviours, institutions, policies and trading decisions) linked to governance. Such transition has been curtailed by a complex chain of values necessary for rebuilding back better and greenly recovering from ecological and coronavirus crises. For this reason, this paper explores and diagramatises cascading of values at 4-tipping pathways (individual, community, national and global) to buttress its

significance and the rationale why values must form central elements in the earth system governance.

The paper proposes human cooperation as a new catalyst for delivering best governance practices and argues that ignoring human values within actionable efforts to govern planetary boundaries will pose a barrier for the vision to limit global warming to 1.5 degrees. An in-depth scientific and transdisciplinary research into human value dimension of how to sustainably govern the earth systems, resources and peoples in the future is recommended. How knowledge of human values can multi-tip a large governance framework to speed and deepen transition to sustainable societies is strongly stimulated, to strengthen the notion that climate data, funds, partnerships and natural capital would all have to be collectively negotiated by incorporating positive human values of trust, fairness and openness as well as "system thinking".

Panel ID 113 | Onsite

Science, Expertise, and Stakeholders Earth System Governance

Panel Day and Time: TBD

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Towards radical policy change: the agency of experts and policy makers in the making of the Water Framework Directive?

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To answer the growing complexity of water governance challenges in a context of multiple management scales and climate change, scientific knowledge has been brought on the table to adapt water institutions. In particular, the attempt of the Water Framework Directive to improve the protection of water quantity and quality in Europe has received much attention in the literature. This radical (rather than incremental) change in institutional design was a complete overhaul in the architecture of EU water governance institutions. By the time it was adopted in 2000, it was considered as a breakthrough in water governance, even beyond the borders of the EU. Not only did the Directive bring into legislation innovative management paradigms such as the cost-recovery and river basin scale approaches, it also showcased new ways of using expertise in the making of evidence-based policy. What can explain such fundamental governance regime redesign processes? The Directive was negotiated in a context of great momentum and engagement for change in water policy towards a more holistic thinking (e.g. Integrated Water Resources Management paradigm). During this period, a multi-faceted process of boundary work has taken place essentially between three institutional groups: Water Directors, the European Commission and its set of experts, and member states' environmental attachés and expert delegates. This paper proposes to come back to the critical phase of development of these two WFD policy principles and to shed light on the combined agency of policy makers and scientists who took up this task. In particular, uncovering the past social and political dynamics of the science-policy interface during the epistemic grounding of the WFD is useful to better apprehend the contemporary European governance architecture and its struggles in implementing the legislation. We will show how actors operating at the science-policy interface were involved in the redesign and novel aspects of European water institutional settings. For this, we revive the memory of negotiators of the WFD from both the policy and the science side. Our qualitative data analysis reveals a distinct impact of

experts in the shaping of the cost-recovery and river basin scale approach, that has mostly to do with the power struggle between the European Commission and the member states. These political tensions have resulted in differentiated expectations towards producers of knowledge in the attempt to radically transform water management practices.

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Does scientific expertise matter in global environmental governance? Evidence from the UNCCD case

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Does expert advice really matter in environmental politics? Can scientific knowledge and evidence provided by experts actually lead to action and under which conditions? Academic research in various fields, including science and technology studies (STS) and international relations (IR), has focused at length on these questions, without reaching a definitive answer. Nevertheless, it has commonly been acknowledged that the position of expertise is especially delicate within the global environmental governance sphere, where values, worldviews and epistemological standpoints can increase in number. At this scale, academic discussions revolve around the distance that science should keep from politics and the role of institutional design in ensuring an effective relationship between the scientific and the policy sides. Simultaneously, despite challenges in its operationalization and debates about its usefulness, the CRELE (credibility-relevance-legitimacy) model is still being invoked as an ideal goal/aspiration to ensure an optimal uptake of science by policy in the domain of sustainability and environmental governance. On the top of this, power relations are often not problematized or mentioned only cursorily in the literature. Supported by evidence from the United

Nations Convention to Combat Desertification (UNCCD) case, this paper proposes an alternative approach to the question based on a midrange theoretical framework that takes into account contextual and problem structure factors. The paper concludes by stating that, 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 should take advantage of the rare 'windows of opportunity' that intergovernmental processes concede.

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Learning among supranational organisations in the EU towards the European Green Deal

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When the European Commission published the European Green Deal (EGD) in December 2019, it was welcomed as a step towards a transformational climate governance framework. Three aspects of the EGD have been recognised as innovative in the context of EU climate governance: (1) the importance of social justice in the sustainability transition; (2) the system approach; and (3) the emphasis on policy integration, where 'all EU policies and actions' should contribute to achieving the Deal's overarching goal of climate neutrality by 2050.

Several studies have already investigated various aspects and dimensions of the EGD, including its potentially transformative governance role, but only limited research has been done on the *process* of inter-institutional learning in the EU towards the EGD. In other words, we do not yet know what knowledge was available to the European Commission and

other EU institutions during the development of the EGD, when and how learning took place, whether knowledge and learning was taken on board, or why. We aim to fill this gap by investigating the role of the knowledge and learning interactions between the European Environment Agency (EEA) and the European Commission, and other EU institutions, towards EGD.

First, based on literature analysis, document analysis and in-depth interviews, we trace the historical learning interactions, how and when they manifested and under what conditions they occurred. Second, we focus specifically on the knowledge exchange and learning processes leading up to the EGD. We thus identify channels of learning and how or whether they have changed over time. Third, we apply an analytical framework that accounts for and categorises key policy learning interactions between organizational structures, policy actors (individual and collective), policymaking contexts, and policy issue formulation. This allows us to reveal both formal and informal learning processes, and to highlight the multi-level and multi-directional nature of learning interactions among supranational organisations in complex policy issues.

Our paper contributes to literature on learning towards the development of transformational governance frameworks in three ways. First, we provide rich empirical data on an unexplored case of inter-organisational learning interaction at the supranational level. Second, we test a novel analytical framework and draw out new insights on processes in multi-level settings dealing with complex policy issues. Third, we highlight several avenues for future research, including remaining conceptual and analytical questions, particularly towards future transformational governance framework development.

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Who to listen to? - Understanding Authority in the emerging Marine Biodiversity Regime Complex

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Regime complexes have been increasingly documented in recent years as a phenomenon of global governance architecture. Many have proliferated in the area of environmental governance, as an outcome of the multiplication of international treaties and regimes which increasingly interconnect and overlap. Noting that regime complexity in essence describes how diverse elemental institutions establish overlapping and (potentially rival) authority claims regarding international governance, academic interest has turned to understanding authority in regime complexes. Hence, some of the main questions regarding regime complexity are where and how authority emerges in global governance. Nevertheless, there is a continuous gap of empirical work addressing these questions. This contribution speaks to this gap by providing an empirical account of the sources, distribution and types of authority in regime complexes on the case of the emerging marine biodiversity regime complex.

We use the ongoing negotiations for a new legally binding instrument for the conservation and sustainable use of marine biodiversity beyond national jurisdiction (BBNJ) as a chance to observe the emergence of a new regime complex and the allocation of authority within it. The negotiations are bound to culminate with the establishment of a new international organization (IO) tasked to implement the provisions of the treaty. The new IO requires authority in order to bring about the foreseen positive change in high seas biodiversity governance.

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The Effectiveness of Environmental Provisions and the Greening of EU Trade. A Qualitative Comparative Analysis

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Environmental provisions in trade agreements are the key tool in place to govern the environmental externalities of trade. However, there is conflicting evidence on their environmental effectiveness along two cleavages: empirically, some scholars see positive effects, whereas others do not find systematic influence. Theoretically, there is the question whether trade agreements deliver on environmental objectives or whether they are asked to do too much when striving for other than trade targets. This study sets out to clarify the debate by investigating the conditions of effectiveness: Under which conditions do environmental provisions in trade agreements have an environmental effect on different trading partners? Zooming into the field of biodiversity, this study investigates the conditions of effectiveness of environmental provisions in EU trade agreements since 1992. It builds theoretically on the building blocks of environmental effectiveness of regimes and policy instruments. A Qualitative Comparative Analysis is used to specify contextual factors as well as the combination of conditions necessary or sufficient for a causal explanation. This method enables an investigation of equifinality and conjunctural causation with a medium number of cases. The outcome includes environmental performance, the conditions consider domestic, relational as well as design variables, such as integration of value chains, enforceability, integration of value chains, and environmental impact assessments. The EU can be seen as most-likely case for effectiveness given its trade weight and it

environmental ambition. Data is derived Trade and Environment Database TREND, which includes 308 environmental provisions in 630 trade agreements from 1947 to 2018. The findings show how the effect of environmental provisions is conditioned by contextual factors and trading partner features. The results of the study contribute to existing research by using a method not yet applied to this topic and relatively recent data, which enable a better empirical grounding. It further refines the theoretical frameworks on environmental effectiveness in the trade policy. Eventually, it also contributes to a more differentiated debate about the effectiveness of environmental provisions and non-trade items.

Panel ID 114 | Onsite

Knowing, Learning and Innovating for a Changing Earth System

Panel Day and Time: TBD

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Digitally-enabled innovations have the potential to rapidly reshape climate governance

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Rapid societal transformations are required to keep global average temperature rise well below two degrees Celsius by 2050. An increasingly diverse set of initiatives are

leveraging digital technologies to transform society. Given the rapid pace at which these initiatives emerge and the accelerated rate of technological innovation, few connections are made as to their common approaches and motivations, especially in the global south. To address this, we developed a database of such initiatives from around the world. We propose a categorization of four types of strategies: data mobilization, optimization of existing strategies, incentivizing and automating behavioural change, and enhancing participation and empowerment of individuals. We analyse connections between types of strategies through the lens of the Earth System Governance framework's original 5 A's – Architecture, Agency, Adaptiveness, Accountability, and Allocation & Access. This work provides a first step towards understanding how digitally-enabled initiatives are contributing to re-imagining climate governance.

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Hive Mentality in European Climate Governance: When Political Networks Hinder Innovation

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Under which conditions can we expect innovative ways of framing problems and solutions to emerge in political networks? The climate crisis forces us to adapt existing policies and rethink how we conceive governance problems and solutions. However, the patterns of innovation in policy debates are not well understood. In 2019, the European Green Deal (EGD) sparked a heated political debate: unprecedented in scope, the EGD introduced several innovative policy tools and reframed the discussion around the compatibility of climate policies with more traditional priorities of European governance.

This research builds on network and discourse analysis theories to understand how actors interacted in this policy debate. The frames mobilized reveal how a problem is perceived, defined and is being resolved. By tracing ideas promoted by a wide diversity of actors in discursive networks, we investigated where new ideas and frames originate from, by whom and how they are diffused. We expected that innovation is more likely to emerge when specific structural conditions and configurations of actors are met in policy networks.

We selected two policy networks structured around specific policy instruments of the EGD, namely (1) the proposal of a carbon border adjustment mechanism, and (2) the reform of the Common Agricultural Policy and its compatibility with the “Farm to Fork” initiative. These policy areas involved various types of actors and represent the institutional interplay between environmental and non-environmental domains. We compared how different configurations of actors in these sectors impact discourse coalitions.

Collecting and coding more than 7000 press articles, we identified 171 distinct ways to perceive policy problems and express solutions over 20 years (2001-2021). We analyzed actor and frame networks for each of our policy debates to understand their structure, focusing on tight connections in the network, presence of brokers, and innovative frames used by actors.

Our findings suggest that actors who act as brokers between heterogenous communities facilitate innovative frames. However, their diffusion is limited by the level of constraint of the network: in dense and cohesive political networks, the normative pressure to propagate already existing frames hinders the apparition and diffusion of innovative frames. Moreover, when new actors such as NGOs enter the debate, they often assume the role of brokers and contribute to innovation in framing.

This paper is relevant for an audience interested in the diffusion of frames in

political networks and the patterns of innovation in environmental politics.

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Private Affiliations in International Organizations

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International civil servants and national delegates operating in international organizations (IOs) are agents acting on behalf of principals: collective IO members for the former, individual governments for the latter. While international civil servants and national delegates are formally committed to the interests and objectives of their respective principals, allegations of Conflicts of Interest (COI) are frequently leveled across a variety of IOs, notably regarding the supposed role of the private sector in hampering effective action on environmental issues. While these allegations can vary in terms of their credibility, they indicate the potential challenges which international public policy faces from the existence of private affiliations. Such private affiliations consist of relations of loyalty, duty or obligation that exist beyond the commitments of international civil servants and national delegates towards their respective principals. Private affiliations do not necessarily affect these principal-agent relationships. They can even be synergistic if they enhance the capacity of agents to act on behalf of their principals. Both from a normative perspective and from a perspective of governance effectiveness, private affiliations are problematic if they are inconsistent existing principal-agent relationships. I develop a conceptual and methodological framework for describing, and ultimately explaining, patterns of private affiliations understood as the formal and informal linkages existing between international civil servants and national delegates on one hand, and private as well as civil society organizations on the other. I select

the International Maritime Organization (IMO) as an “easy” case for showcasing this framework. Based on public, biographical data I generate 2-mode networks in which individuals are linked to organizations. Network analysis highlights the comparatively large centrality of key business actors, a finding that does not necessarily imply the existence of COIs but is consistent with the existing anecdotal evidence on regulatory capture in IMO. The preliminary analysis would imply that existing patterns of private affiliations negatively impact the IMO’s organizational performance on crucial environmental issues from maritime pollution up to greenhouse gas emissions from shipping. This project being in a very early stage, I conclude by discussing future extensions and improvements to the conceptual and methodological framework, including the use of Exponential Random Graph Models for predicting tie formation in the network.

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*Governing the transitions:
Architecture and agency of policy
communities in urban climate policy*

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Urban climate policy is one of the fastest evolving policy domains across the world. With the growing recognition of the central role of cities in countering climate change, urban interventions are taken more seriously than ever before. Globally, climate governance in cities is at different phases of evolution. While many cities in the global north have formally institutionalized climate policy, the same is not true for the global south. Institutionalized mechanisms to ensure continued sustenance of climate action are largely absent or are in the early stages of evolution in most cities of the global south. This also could mean that governance architecture in these scenarios is

more dynamic and is less rigid. At the same time, with the increased climate awareness and consolidation of climate actions as an essential part of developmental planning, the state is taking a more active and authoritative role in the climate governance. Such institutional changes can have great implications for the existing agents and the policy process bringing in novel challenges and opportunities.

Through a case study of urban climate policy in India, this paper will discuss the role of policy community in the policy process and how they are impacted by transformations in governance regimes. In this study, I use the term policy communities to refer to the interconnected social formations with shared frameworks, expertise, and interests in a particular policy domain who generate and contribute policy alternative. Such a conceptualization will not only help us to accommodate a diverse set of actors but also more clearly organize them according to their role and influence in different stages of the policy process. The agenda-setting and policy planning in Indian cities has been recently witnessing considerable tendencies of centralization. Over time, the state, especially the national government is becoming more proactive and is actively integrating urban climate policy into its urban agenda. This hints at a strong shift towards a more hierarchical model of management in climate governance. The ongoing transformation is also highly political and is fast altering the architecture of climate governance that brought in initial gains for many Indian cities. This can have strong implications for the agency of actors, degree of fragmentation in governance architecture, problem definition, agenda-setting process, and framing of policy solutions. The study will discuss these new developments and implications of these for the earth system governance and its goal of just and inclusive transitions.

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How do Philanthropic Foundations Reconfigure the Governance of Global Marine Biodiversity Conservation?

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Against the backdrop of the COP15 of the Convention on Biological Diversity, several key foundations in global conservation philanthropy have pledged approximately \$6.5 billion of investments for a “30x30” goal of global biodiversity conservation – to conserve 30% of the planet’s marine and terrestrial areas by 2030 . Although philanthropy has a major influence on the governance of global biodiversity conservation, our understanding of the role of philanthropy in environmental governance remains limited. To fill this gap, our study explores how philanthropic foundations exercise influence on the governance of global marine biodiversity conservation by answering two main questions: 1) What strategies and practices do philanthropy foundations mobilize to pursue their goals for global marine biodiversity conservation? 2) How does philanthropy enhance equity in the existing architecture of global marine biodiversity conservation? We understand governance from an assemblage thinking perspective, which global conservation governance can be seen “as processual, dynamic, and contingent constituted through constantly shifting assemblages of state and non-state actors, devices and narratives that collectively configure fields of governance”. Through semi-structured interviews with leading philanthropic foundations and their grantees in the “30x30 Ocean” campaign, our study explains how the network of philanthropic

foundations reconfigure the governance of marine biodiversity conservation by channeling their conservation ontologies and epistemologies into the making of the *Post-2020 Global Biodiversity Framework* through grantmaking and narratives. By following the conceptual framework of equity in conservation developed by , we assess the distributional, recognition, and procedural dimensions of equity perceived by key marine protected areas (MPA) grantees in five continents around the world. This study advances the understanding of philanthropic foundations as agents of global conservation governance and generates insights into the equity implications of philanthropy in the governance of global marine biodiversity conservation.

Panel ID 115 | Onsite

Treaty Law and The Treaty System: Dynamics, Compliance, and Problem Shifting

Panel Day and Time: TBD

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Earth System Law as a new Legal Paradigm for Global Plastic Governance

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The industrial, commercial and domestic use of plastic products is currently at an all-time high with production reaching approximately 359 million tonnes in 2018. This

unprecedented use of plastics signifies that plastic waste generation is also on the increase, whether properly collected or not. Reports indicate that 60 percent of plastics that have ever been produced end their lifecycle in landfills while the remaining are either incinerated, recycled, or left unattended in the natural environment. Plastic pollution has been shown to pose a threat to every part of the earth system and is also considered to be a planetary boundary threat. With no international legal framework in place currently to regulate plastic pollution in its entirety, humanity has to make do, for the time being at least, with existing international legal frameworks that address some aspects of plastics pollution as part of a wider problem such as ‘marine litter’, or through voluntary instruments. With environmental laws’ reactive approach to dealing with the world’s ever-changing complex environmental concerns, I propose ‘Earth system law’ as a new legal paradigm with an Earth system perspective that can be drawn on to proffer solutions to the complex problem plastic pollution presents to the Earth system. In this paper, I explore Earth system law’ holistic approach to eliminating fragmentation of existing laws regulating various aspects of the earth system through its analytical and normative perspective.

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Changes in UN global communication on the impact of the COVID-19 pandemic and the environmental crisis: text-mining analysis

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The coronavirus pandemic has created an environment in which policy-makers need to

tackle multiple crises at once. First, the economic crisis caused by the lockdown. Second, the public health crisis. And thirdly, the climate crisis. The uniqueness of this situation is also added by the fact that so far, all these crises have practically been resolved separately from each other. This case raises the following question: Is there a shift in the discourse on coping strategies towards linking health, climate change and biodiversity loss?

To answer this question, the authors consulted UN news stories and policy papers released by the UN Secretary General, UNEP and the World Economic Forum published since the start of the pandemic. To search for relationships between the selected topics in the UN materials, text mining was chosen as a research method, which allows not only to identify such relationships, but also to quantify them.

This research revealed that the link between climate change, biodiversity loss and the emergence and spread of disease has become a peripheral topic in UN news coverage during the COVID-19 pandemic. The number of news stories that link a pandemic, biodiversity or climate change is negligible compared to the total number of news stories published. Despite this, the analysis revealed two types of relationships. First, the causal relationship: the emergence in discourse of ideas that environmental degradation and biodiversity loss create the conditions for the type of animal-to-human transmission, that has repeatedly resulted in vital epidemics. Second, pandemics, climate and biodiversity are linked in the context of post-crisis recovery: tackling climate change and biodiversity loss must be central to post-pandemic recovery plans.

The analytical reports prepared by the UN Secretary General, UNEP and WEF contain only the second type of relationship, “post-crisis”. The WEF report is entirely devoted to the application of natural climate solutions to address the climate crisis. Other reports also refer to the “climate”, “biodiversity” and “COVID-19” keywords in the context of post-crisis recovery.

The main result of the study: the connection between issues related to health and the spread of coronavirus infection in the world, economic and environmental problems is indicated in news reports. Moreover, we should expect its updating in connection with the holding of the next conferences within the framework of the UNFCCC and the UN Convention on Biodiversity.

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Investor-state contracts on minerals, petroleum, and land of 62 countries in Africa and Asia affect on water governance

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In view of increasing globalisation, the ongoing promotion of foreign direct investment, and the lack of comparative literature on how water property rights are changing in the global South, this article asks: How have property rights in water evolved through investor-state contracts on mineral, petroleum, and land issues in Africa and Asia? We analyse 80 publicly available contracts - 22 mineral, 40 petroleum, and 18 land – of 62 African and Asian countries. We conclude that: (i) in addition to a state's water law, water allocation is also implicitly governed by contracts and international investment treaties, (ii) states de facto privatise water by allocating quasi-property rights through the granting of contracts to foreign international investors, (iii) waters exploited by virtue of contracts are excluded from the public domain, (iv) states appear to have lost their regulatory power and control over the water resources as investor's water use is protected by Bilateral Investment Treaties (BITs), arbitration and compensation claims, hampering the state's ability to effectively and adaptively govern water, and (v) contracts will still be in place as the effects of climate change

become more noticeable, and can be inconsistent with states' development policies.

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From 'dead weight' to constructive leadership? Understanding China's role in international climate change negotiations

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As the world's largest emitter of Greenhouse gases (GHGs), the People's Republic of China (China) has received mounting pressure from other states to increase climate change mitigation efforts in line with its changing emissions profile. Concurrently, the role of China within the international climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) has changed over the years. In contrast to being a 'dead weight' at the Copenhagen summit in 2009, China has been viewed as 'a leading figure' in climate negotiations since the Paris conference in 2015. Yet there is little discussion addressing the latest picture with updated information. With the Paris Rulebook concluded at the Glasgow Conference in 2021, it is time to take stock of China's role in international climate negotiations since the Paris Agreement 2015. To keep the discussion manageable, this paper focuses on China's overall strategy and performance through the lens of Article 6 of the Paris Agreement to assess its role in shaping the content of pivotal provisions on the rules under Article 6. In more detail, we ask: What has been China's position, and what is China's engagement in the Article 6 negotiations? Has China become a more constructive player compared with its past performance? The empirical assessment is based on semi-structured interviews with key stakeholders and participatory observations at Glasgow Conference. The examination is

complemented by the content analysis of relevant literature, position paper submitted to the negotiations, and summaries by the International Institute for Sustainable Development in its Earth Negotiations Bulletins (ENBs). Our work contributes to two parts: (1) A reconstruction of related International Relations (IR) theories and the development of a set of indicators to characterize a country's engagement in international climate negotiations. (2) An examination and clarification on China's role in the negotiations from 2015 to 2021 in completing the Paris Rulebook by applying the above framework.

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Challenges to reef restoration and adaptation policy in the Anthropocene

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In the Anthropocene, coral reefs are increasingly threatened by climate change and other anthropogenic drivers. Restoration and adaptation based on novel and emerging technological interventions is therefore attracting considerable attention. Progressing reef restoration and adaptation will require policies that enable the development and deployment of such interventions, whilst ensuring that unreasonable risks and impacts are prevented.

This study examines contextual factors that influence policy design and implementation associated with reef restoration and adaptation in the context of Australia's Great Barrier Reef – where reef restoration and adaptation based on novel technological interventions is emerging as an important option for addressing coral reef degradation.

Drawing on the Institutional Analysis and Development framework, contextual factors

are conceptualised here in terms of the environmental and technological setting, policy beliefs and policy and regulatory environment. The latter includes different institutional arrangements that structure the policy-making process. Together, contextual factors affect how actors engage in the restoration and adaptation policy design and implementation.

This study offers recommendations for developing anticipatory and adaptive approaches to policy that may prove useful in other jurisdictions, where technological interventions are likely to play a role in ecosystem conservation. Further, it contributes relevant insights into policy challenges for the use of novel and emerging technologies for environmental outcomes beyond coral reefs, an emerging issue in the conservation literature.

Panel ID 116 | Onsite

Law, (In)Justice and Power in Food and Climate System Governance

Panel Day and Time: TBD

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Food Sovereignty: Transforming power and justice in food system governance?

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The food sovereignty movement seeks to deliver environmental sustainability and food security by addressing issues of power, justice and democracy in the global food system. However, food sovereignty has been criticized as being separate from the systems of governance and political economy that shape global food systems, and thus being unable to create transformation. In this paper, we explore these claims by looking at how enactments of food sovereignty are seeking to create change in food systems.

Our results are based on a systematic literature review of 173 case studies of food sovereignty from around the world. Our quantitative cluster analysis demonstrates 7 clusters of distinct types of food sovereignty project: 1) regional; 2) local food systems in the global north; 3) agroecology; 4) national focus (global south); 5) Indigenous food sovereignty; 6) Rural (global south); 7) Urban (global north). From each of these clusters, we took a sample of 5-6 cases for in-depth examination. Here, we analysed papers for discourse on what systems they sought to change, where it intervenes in that system (which leverage points), what the intervention is, and what the process of change is.

At the time of writing this abstract our findings are not finalized, but we intend to demonstrate different transformation pathways. Preliminary results show that different clusters of food sovereignty have different systems to transform. This is particularly evident between global north, where transformation is about *undoing* entrenched neoliberal forces; and in the global south, where it is about *resisting* neoliberal forces. We also find an emphasis throughout on local scale actions. Acting at a local scale can strengthen *resistance* at the local level. However, where the project seeks to *undo*, by not deconstructing the systems that matter, food sovereignty can end up reinforcing dominant paradigms.

Our findings tie into discussions that governing transformations needs to relate to both the creation of something new AND the deconstruction of unsustainable systems.

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The Politics of Climate Change in South Asia: Regionalism and Fragmentation

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Despite the global nature of the climate change problem, regions have emerged as pivotal stakeholders in global climate governance. Regional organizations such as the European Union (EU), the African Union (AU), and the Association of Southeast Asian Nations (ASEAN) have introduced climate action strategies, which are tied to the international climate regime governed primarily by the United Nations Framework Convention on Climate Change (UNFCCC). South Asia also has regionally oriented climate change-related policies, streamlined through either regional organizations such as the South Asian Association for Regional Cooperation (SAARC) or other bilateral/minilateral mechanisms. In addition, since 2000s, the South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka) have introduced several climate mitigation and adaptation policies domestically. These policies are not only a response to domestic vulnerabilities, but they are also linked with international climate policy.

The South Asian countries share geographical and socio-economic similarities that tend to homogenize climate vulnerabilities such as extreme weather events, health hazards, water stress, sea level rise, etc. Many vulnerabilities are transboundary in nature. However, these similarities have not yet led to a comprehensive regional strategy, except in a few cases such as disaster management due to geopolitical fault-lines, differing perceptions of these vulnerabilities, and economic imperatives. While India is seen as a laggard by its neighboring countries on promoting regional climate cooperation, countries such as Bangladesh and the Maldives, owing to the

existential nature of the threat (as perceived by them), are vociferous champions of climate action on international platforms.

Against this background, this paper discusses the climate change-related challenges faced by the South Asian countries and the policies that governments have adopted to address the likely effects of climate change. It additionally looks at the ‘regional’ (transnational) climate initiatives, by focusing on regional organizations. It uses the concept of ‘regionalism’ to analyze the evolving dynamics of regional climate cooperation as well as interlinkages between the domestic, regional, and international realms pertaining to climate governance. Importantly, the paper also draws parallels between the policies introduced by individual countries in South Asia, and the challenges faced by them to implement them. Without overemphasizing the geopolitical dimension of regional cooperation, it attempts to provide a more nuanced view of politics of climate change in the South Asian context – by focusing on shared problems, causes for cooperation and fragmentation, and the interactions between the three levels of analysis – domestic, regional, and international.

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How do the Sustainable Development Goals shape local sustainability actions? Evidence from Australian local governments

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Though the SDGs are formally adopted by state-level actors, the United Nations calls for joint efforts from multiple governance levels, including the local community level. Local

governments around the world are encouraged to ‘bring the SDGs to the local level’, often through mapping and reporting their progress against the SDGs. These are proven to be challenging because local governments have limited local capacity—not to mention having specific local contexts that are not always compatible with global framework. Despite this challenge, the SDGs are still gaining prominence as a common language among stakeholders in the sustainability space, and local governments are still picking up on the SDGs albeit in diverse ways.

Little empirical work has been done to explore how the SDGs shape local sustainability actions outside the mapping and reporting activities. This paper identifies the various ways SDGs are shaping local sustainability actions and explores the process behind them. The study incorporates semi-structured interviews with representatives from 14 local governments in Australia who make use of the SDGs in their local sustainability actions. With the SDGs not formally being endorsed by the national government, local governments in Australia are finding ways to connect their local sustainability actions with efforts at the broader level. The findings suggest the SDGs uptake among Australian local governments are varied, embedded in one or more steps in local sustainability actions: visioning, developing strategy, action, and reflection. In cases where they have limited capacities, local governments prioritise some of the most relevant SDGs goals and targets and embed them into local planning. There are also cases where they integrate SDGs with locally existing sustainability plans or combine the SDGs with existing initiatives. Local communities are also using the SDGs beyond progress reporting, particularly as tools to develop local community vision of sustainability and as a common language to communicate sustainability across multiple sectors and institutions.

With 8 years left until the 2030 deadline of the SDGs, SDGs action at the local level can be seen as a work in progress; progressing slowly or unevenly at early stages while local actors seek

to strengthen their capacity. This paper contributes to the discussion of what can be done to make sustainability action locally grounded but still globally relevant.

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Polycentricity, Global Democracy, Orchestration, and Governing through Goals

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University of Cambridge, United Kingdom

Governing accelerated transitions is no simple task. For the last decades, transboundary environmental problems have represented a quintessential puzzle for the international community. There is now a pressing need for appropriate governance arrangements and architectures. This article builds on Earth System Governance (ESG) perspectives to study how the notions of polycentricity, global democracy, orchestration, and governing through goals can be combined to provide a global framework apt to cope with accelerated transitions and transboundary environmental issues. Central questions of the ESG implementation plan are investigated: *Which changes and new developments of global governance architecture are needed to address the challenges posed by contemporary global environmental change?; What forms of architecture and agency are most effective in earth system governance across scales?; What kind of governance are best suited to cultivating adaptiveness and reflexivity?; and What creative tools are materializing that can accelerate action toward desirable futures?* It is argued that polycentricity is part of the answers to all these inquiries as it provides a tailored approach for governance across scales. It also suggested that global democracy, orchestration, and governing through goals offer opportunities to coordinate and involve stakeholders at all levels. Whereas the notions of polycentric governance, orchestration, global democracy,

and governing through goals have been studied in parallel, it is argued that their combination is key to orienting environmental governance architectures. Building on the interdisciplinarity research within the ESG community and semi-directed interviews with experts and stakeholders in environmental governance, this article explores theoretical and practical avenues for future governance architectures. The findings should be useful to those interested in overcoming the challenges of accelerated transitions and contextual constraints to unite communities and organizations toward common goals.

Panel ID 117 | Onsite

Regime Complexes and Institutional Interactions
Onsite

Panel Day and Time: TBD

Panel Room: TBD

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IWRM and water-related ecosystems: To what extent does IWRM implementation play a role in changes in the extent of water-related ecosystems?

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Integrated Water Resources Management (IWRM) has been playing a central role in the water governance and management of many countries worldwide since the 1990s.

Recognizing the significance of an integrated approach to water management as a way to achieve the Sustainable Development Goals (SDGs), the Agenda 2030 integrated IWRM into the SDG global indicator framework and commits to measuring the progress of IWRM implementation through SDG indicator 6.5.1. Ultimately, we are interested in to what extent the application of IWRM improves the sustainability of water systems. Previous studies have attempted to look at how IWRM implementation impacts certain water-related sustainability issues such as water efficiency, demand management, climate change adaptation, and water security (Jensen and Nair, 2019; Mersha et al., 2018; Rouillard et al., 2014). Yet, the existing research – mostly single or small-N studies – does not provide a comprehensive picture regarding the sustainability pattern of IWRM implementation on a global scale. Our study aims at providing general insights drawing on country-level performance across water-related SDG indicators (i.e., SDG 6.5.1 and SDG 6.6.1) over time.

To test the associations between the degree of IWRM implementation (i.e., independent variable) and changes in the extent of water-related ecosystems over time (i.e., dependent variable), we conducted a regression analysis, controlling for effects of confounding factors, such as economic development, political system, regional climate, etc. For quantitative data, the research draws on open-source databases including IWRM and SDG 6.6.1 Freshwater Ecosystems Explorer data portals. We triangulated the results from the quantitative analyses with qualitative data - collected through interviews with key informants- using cases selected based on a Most-Similar-System-Design. Based on the results of the mix-methods analysis, we undertook theory-guided process tracing to unpack the causal mechanism behind patterns detected in the regression analysis.

Our main findings relate to the association between the degree of IWRM implementation and changes in the extent of water-related ecosystems over time. In particular, we analyze to what extent the IWRM framework

in interaction with contextual complexities contributes to the progress towards sustainability of water-related ecosystems. Through this, we aim to contribute to the existing debate on the effectiveness of the IWRM framework as a top-down diffused governance paradigm and conceptualization of the linkage between IWRM implementation and the wellbeing of water ecosystems.

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Policy interactions within policy mixes for climate change mitigation: cases from the electricity sector

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This paper researches the temporal patterns of policy interactions, specifically for climate change mitigation and within the electricity sector. Climate policies do not emerge and evolve in isolation. For more than three decades, European countries have adopted a variety of policy instruments for climate change mitigation, expanding their climate policy portfolios. Policy designs have become more varied and specific in terms of sectoral focus, targeted actors and technologies, regulatory pressure and stringency. As a result, climate policy portfolios now consist of numerous and diverse policy instruments, increasing their complexity. Yet, academic research on how policies that are part of broader policy mixes interact with each other remains scarce. It is not clear if the increasing complexity has led to synergies or discord within policy mixes. This paper aims to contribute to a better understanding of modes of interaction among policies within sectoral policy mixes for climate change mitigation.

The objective of this paper is to identify patterns of policy interactions within climate policy mixes for the electricity sector at

national level in two European countries: Germany and the United Kingdom. Germany and the United Kingdom are important jurisdictions to study because they are high-emitting countries and have different policy instruments to address climate change mitigation at domestic level. Drawing from the interdisciplinary literature on environmental governance, this paper considers the temporal evolution of climate policy portfolios within the electricity generation sector for the years 1980-2020. To do so, I construct a novel framework that details quantities and qualities of policy interactions, i.e. the number of interacting policy instruments and the level of synergy between the instruments. The quality of policy interactions, i.e. the level of synergy, is operationalised to measure coherence between the designs of policy instruments in respect to relevant metrics for climate change mitigation, e.g. targets for CO₂ emission reduction or uptake of specific low- and zero-carbon energy technologies. The framework is applied by conducting an exploratory mapping methodology for the cases of Germany and the UK. Following, I identify and analyse the over time patterns of policy interactions, both in terms of quantity and quality of interactions.

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Large-scale cross-country comparison of changing decarbonisation ambitions

Ebba Matilda Minas

Stockholm University, Sweden

Within the decarbonisation research field there is an increasing number of studies that explore whether different institutional governance systems are better suited for climate governance than others. A challenge with this approach is the limited space it gives to changing power dynamics of the state in relation to the other actors and stakeholders involved in the policymaking process (e.g. industry representatives, NGOs,

environmental groups, labour market representatives etc). Research has shown that, even amongst high decarbonisation performers, there has been a shift in actor relations and that the industry has gained a stronger position in the policymaking process. In contrast, environmental groups and NGOs have increasingly become excluded from the dialogue. This changing relationship is in need of further examination, as well as its impact on decarbonisation policies of states. This paper aims to explore this issue by studying the decarbonisation policies of states over a longer time period, and the policy diffusion from the global to the national level. This will be done by conducting a large-scale cross-country comparison with the overarching aim to map out the changing national climate policy ambitions. The focus here will be to establish whether certain political economic models have a greater capacity to govern industrial decarbonisation than others, and whether this changes over time. As the state plays a different role in differing types of governance, the capacity for policy diffusion and institutional change also varies.

Theoretically, Varieties of Capitalism would be utilised, as the framework clusters states into three different types of governance systems; Coordinated Market Economy (CME), Liberal Market Economy (LME) and Developing Market Economy (DME). Additionally, the paper will build on the concepts of institutional change and policy diffusion. The project would examine whether CME states have higher decarbonisation ambitions, and whether this trend changes over time.

Methodologically, longitudinal data will be collected from the annually reported Nationally Determined Contributions, and complemented with additional data, e.g the OECD, the EU, Grantham Research Institute to construct a broad dataset. This dataset would allow the study to explore the political economic models over time, as well as their decarbonisation ambitions. The project could thereby increase the understanding on whether the political economic models of states can hinder or enable decarbonisation policymaking on the national level and

contribute to the literature on the decarbonisation ambitions of states.

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The Political Impact of the Sustainable Development Goals: Findings from a Multiyear Research Project

Frank Biermann¹, *Maya Bogers*¹, *Melanie van Driel*¹, *Thomas Hickmann*², *Agni Kalfagianni*¹, *Rakhyun E. Kim*¹, *Francesco S. Montesano*¹, *Carole-Anne Sénit*¹, *Marjanneke J. Vijge*¹, *Abbie C. Yunita*¹

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In 2015, the United Nations launched its 2030 Agenda for Sustainable Development, with at its core 17 "Sustainable Development Goals" (SDGs) with 169 more specific targets. Seven years after the launch of these global goals, we need to ask whether they had any effect on international, national and local political processes. Answering this question is the key concern of this paper, which presents the first main results of a five-year study programme that involved a dozen researchers along with a large network of international collaborators. The research programme built on a mix-method approach, combining social network analysis based on online data sources; global expert surveys; over hundred interviews with international and national decision-makers; several country studies in both Global North and Global South; and extensive document analysis largely at the international policy level. The overall conclusion of the programme, which we present in this paper, is that the SDGs have not lived up to the huge expectations often proclaimed during their launch in 2015. Measurable political impacts of SDGs are detectable but rare, and our research did not identify major transformative processes that can be causally linked to the SDGs. Instead, our studies revealed several complex processes around the SDGs that have

not in any way led to transformative change. We observed for instance instances of institutional bidirectionality where the global goals mainly reinforced prior positions of key actors that could easily align with the goals; instances of organizational integration and co-optation of SDGs that did not alter key policy parameters; the legitimization of unsustainable behaviour concurrent with broad discursive support of the SDGs; and the demobilization of critical political spaces because of the often-empty transformative narrative brought about by the SDGs. And yet, we also observed that at times the SDGs could change political processes as well. For instance, the 17 goals offered some civil society organizations a normative frame they could use to hold governments to account and they might have helped align social movement actors around a common agenda. Based on these findings of a broad research programme that has intensely studied the political impact of the SDGs over the last years, the paper also opens the debate about the long-term future of "global governance by goals" as a novel mechanism of international politics, pointing towards several alternative directions that international and national governance actors might wish to take to further advance global sustainability.

Panel ID 118 | Virtual

International Climate Cooperation and Pathways of Change

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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From Transparency to State Behaviour Change: Exploring Causal Pathways under the International Climate Regime

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Transparency – in the form of reporting information on climate ambition and action, and a review of this information – has become a backbone of the international climate change regime. While reporting and review have been part of the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) since its inception, pronounced emphasis was placed on transparency in the 2015 Paris Agreement. Under the Paris Agreement, transparency explicitly aims at building mutual trust and confidence, and at promoting effective implementation. Various observers also underscore that transparency can lead to increased climate ambition and greater accountability. Little, however, is known about whether and how transparency arrangements bring about these desired procedural and substantive effects.

Several theoretical pathways have been suggested in the International Relations literature as possible mechanisms through which transparency can induce state

behaviour change. These include state-to-state learning, shaming and faming, domestic mobilisation and socialisation. These various pathways often rely on specific conditions. They are linked for example to the robustness of transparency arrangements; state compliance towards transparency rules; the existence of domestic accountability mechanisms; or the extent to which “transparency intermediaries” improve the actionability of disclosed information for a variety of stakeholders such as civil society organizations and the media.

In this paper, we examine the extent to which these theoretical pathways materialize in the international climate regime. To do so, we review the academic and grey literatures to find examples and case studies of how these pathways work in practice. Beyond these specific illustrations, we are also interested in understanding which of the conditions highlighted by scholars for the pathways between transparency and state behaviour change to work are met (or not) in the international climate regime.

The paper will highlight empirical gaps that need to be addressed by future research to better understand under which conditions transparency produces which effects. It will also provide insights into the kind of transparency arrangements and overarching conditions that are needed to ensure that the Paris Agreement’s catalytic model of governance achieves its ambitious objectives.

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Mapping the Multilevel and Multi-actor Governance Architecture of Shipping Emissions

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The climate agreements of Kyoto, Paris, and now Glasgow all avoided tackling the problem of climate emissions emanating from shipping,

instead assigning the responsibility for this to the International Maritime Organization (IMO), the recognized international organization governing the shipping sector. However, the governance architecture of shipping is highly complex, made up of a collection of actors and structures, at the center of which stands the IMO. What is the architecture of the international shipping regime and how does this affect the process of policy change?

The IMO began as a technical organization based in international treaties. Over time, however, it has added competencies to address the environmental challenges as agreed in the International Convention for the Prevention of Pollution from Ships (MARPOL) and in regard to emissions, Annex VI. Today the IMO is the center of multi-level and multi-actor maritime governance, involving nation-states, non-governmental organizations (NGOs), industry associations and classification societies. This complex governance architecture may present challenges, or opportunities, for actors seeking to influence standards and regulations for emission reductions in shipping. Within this fragmented governance system, some of these actors have become active policy innovators, while others have served as brakes on the process of change.

As an international organization, the rules, standards, and regulations that the member states of the International Maritime Organization (IMO) adopt apply as a global standard. This has led some scholars to apply the policy literature to maritime governance and the IMO. Yet little academic research has been done on policy change within the global governance architecture of shipping.

The emissions issues are dealt with in the Marine Environmental Protection Committee (MEPC), it is within this body of the IMO that the members' positions are presented and debated. Consequently, this paper proposes to identify the organizations, the key actors and the policy flow that were most influential in shipping emissions issue area by examining the submissions to the MEPC by IMO member states, IGOs and NGOs who hold voting or

observer status at the IMO. Beyond MEPC submissions, public statements and data from their websites will be used to categorize the actors, where they act and map the policy flows between the multi-levels. As the global climate governance seeks to address the urgent needs of climate change, this novel research provides insights into how policy change occurs in this changing complex governance.

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Overcoming a fracturing North-South divide? The realities of triangular cooperation on climate change

Sebastian Haug

German Development Institute, Germany

The division between the (rich) North and the (poor) South has become a prominent feature of discussions about climate change action. While advocacy groups have employed North-South framings to highlight responsibilities and the need for an international transfer of resources, academic contributions have found evidence for both heterogeneity across the board and the persistence of North-South macro patterns. More recently, large international gatherings such as the Conference of the Parties in Glasgow have shed light on a fundamental fracture that – at least partly – undermines simplistic North-South assumptions: between “the big emitters in both the global North and South, on one side, and vulnerable countries in the rest of the world, on the other”. Against this backdrop, I focus on triangular cooperation as an increasingly popular modality in climate-related collaboration processes, often hailed as an ideal way of overcoming entrenched divides. Traditionally, triangular cooperation has been understood to function as a support for South-to-South exchanges, with recent reiterations highlighting that all countries from across the income spectrum can potentially

take over roles as beneficiaries receiving support, pivots sharing experience and facilitators accompanying the process. In practice, however, illustrative evidence suggest that triangular initiatives are seldom shaped by (poor) developing countries but tend to be dominated by traditional (Northern) donors or emerging (Southern) economies. To what extent, then, is triangular cooperation just another example of “big emitters” on both sides of the North-South divide dominating the scene? With reference to ongoing attempts by both Northern countries (including EU member states) and large Southern players (such as China) to expand their joint engagement with climate change, I discuss to what extent, and how, triangular cooperation offers a mechanism to overcome entrenched divisions, and/or furthers the interests of Northern countries to dodge financial commitments and of large Southern countries to independently decide about how to reduce CO2 emissions. Overall, I suggest that triangular cooperation initiatives exemplify an international space that, while blurring traditional North-South lines, continues to be shaped by the fundamental distinction between those that dominate interaction and those that do not.

Panel ID 119 | Virtual

Governance Through Goals: Taking Stock, Moving Forward

Panel Day and Time: TBD

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Are the Sustainable Development Goals Transforming Higher Education Institutions? – An Analysis of Steering Effects and SDG-Embeddedness

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Universities arguably play a critical role in creating just and sustainable futures and achieving the SDGs. Apart from their key role in contributing to the Goals, it is argued that universities should also understand the SDGs as a governance framework enabling internal transformations – influencing strategies, implementation plans, collaborations, funding, research, teaching, and community engagement. These internal transformations would, in turn, allow universities to better contribute to the Goals and ultimately support large-scale societal changes.

Responding to the interest in Higher Education (HE) for the SDGs, universities are increasingly expressing their commitments to the Goals. Examples of these commitments include: signing voluntary agreements for the SDGs, reporting to the Times Higher Education Impact Rankings, and mapping university research and curriculum against the Goals. However, there are questions whether these commitments to the SDGs have led to transformations within universities.

In this study, we analyse the types of SDG-led changes and the level of SDG-embeddedness in four universities in Australia and Mexico. Based on a qualitative case study, we identify the steering effects of the SDGs (i.e. discursive, institutional, relational, and resource) and analyse the extent to which the Goals are embedded within each university – distinguishing between accommodative, reformative, and transformative changes.

Preliminary results of our case comparison reveal that discursive effects are the most common, hinting at transformative change; where universities are supposed to engage with the SDGs to deeply question and rethink their paradigms and purposes. However, institutional, relational, and resource effects that would support these more profound transformations are rare. Regarding institutional effects, most efforts are deemed accommodative and reformative since they are focused on introducing policies and establishing committees to better support SDG-reporting. Finally, relational and resource effects are the least common across universities since they are dependent on national and sub-national governmental positions towards the SDGs, the government's understanding of the role of universities in society, and the university's funding sources (i.e. private or public).

Conceptually, we align this paper to the broader aims of the ESG 'Taskforce on the Sustainable Development Goals'. Particularly, we aim to contribute to the Taskforce's efforts to understand the implementation of the SDGs at different scales (i.e. universities). We also contribute to the discussion of methodological challenges in analysing these implementation processes.

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Do Constitutional Structures Matter for Climate Change Mitigation?

Steve Lorteau

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The optimal allocation of constitutional powers is an important question in earth system governance. Within this vein, it is often suggested that constitutional structures play a vital role in shaping climate change outcomes. Constitutional structures, like federalism and unitarianism, play an important role in shaping the territorial scope of climate change policy. It is for this reason that scholars have often debated the comparative advantages of environmental federalism vis-à-vis other modes of government. Proponents of federalism insist that overlapping climate regulations drive down greenhouse gas (GHG) emissions, while proponents of unitarianism counter that unified national regulation is more effective. Yet, as commentators have observed, this debate has tended to rely on general intuitions, conceptual models, anecdotes from individual states, or comparative insights pertaining a select group of states. This study seeks to overcome this limitation with comparative empirical data. This paper uses regression models to compare whether unitarianism and federalism predict GHG and carbon dioxide (CO₂) emissions after controlling for economic and population differences. Using data from a sample of 138 to 173 countries from 1990 to 2018, this paper finds that constitutional structures do not predict emission rates. This paper also fails to find evidence of systemic differences in a sample of states recently transitioned from unitarianism to federalism. These results suggest that formal constitutional structures are less important than previously thought with respect to GHG and CO₂ emissions.

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Governing through goals? SDG 17 and South-South cooperation

Sebastian Haug

German Development Institute, Germany

The Sustainable Development Goals (SDGs) adopted by United Nations (UN) member states in 2015 are currently taken as the quintessential example of global goal setting. Literature on “governing through goals” suggests that there is ample evidence on how the SDGs as “internationally agreed policy goals orchestrate the activities of governmental and non-governmental actors” . In this paper, I focus on one specific modality included as a means of implementation under SDG 17 – South-South cooperation – to examine whether, to what extent and how “governing through goals” plays out in practice. While most Southern stakeholder seem to broadly agree on what South-South cooperation is about – in line with the UN definition that understands it as collaboration between developing countries in all kinds of domains – they are divided over what its operationalization should look like. Over the last decade, different multilateral, civil society and multistakeholder bodies have tried to provide suggestions and generate consensus on what exactly South-South cooperation is and how it should be measured and reported on. Against this backdrop, a subgroup of the UN’s Inter-agency and Expert Group on SDG Indicators has been trying to find a way out of a highly politicized debate to define South-South cooperation more thoroughly, but so far without success. For South-South cooperation, the “governing through goals” approach thus seems to have been a non-starter: in the absence of a broadly agreed operationalization, global reporting and accountability mechanisms are unlikely to yield the typical governing effects the literature

associates with goal setting. I discuss what the failure to reach agreement on the concrete traits of South-South cooperation, and how it should be measured and reported on, can tell us about the “governing through goals” approach; and I discuss why failed coordination on South-South cooperation is not only a reflection of divided constituencies but also points to alternative ways in which global goals impact coordination formats beyond orchestration. Instead of providing reporting and accountability mechanisms, I suggest that the “governing” functions of global goals can also consist in pooling different strands of ongoing conversations, forcing underlying complexity to the light and offering nodal points for future discussion and collaboration.

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Empty institutions in world politics

Radoslav Dimitrov

Simon Fraser University, Canada

Why are some international institutions without any policymaking powers? Some international organizations and policy agreements are empty eggshells that are deliberately designed not to deliver results. Their mandates deprive them of any capacity for policy formulation or implementation. Examples include the United Nations Forum on Forests, the Copenhagen Accord on Climate Change, and the UN Commission on Sustainable Development. Similarly, the Paris Agreement on Climate Change is a loose framework that state actors could utilize as an empty institution that enables legitimized inaction. Research for this presentation is based on participatory observation of twenty-one rounds of international negotiations over ten years and interviews with diplomats, policymakers and observers. Empty institutions serve two political functions. First, they are political tools for hiding failure at negotiations, by creating a public impression

of policy progress. Second, empty institutions are “decoys” that distract public scrutiny and legitimize collective inaction, by filling the institutional space in a given issue area and by neutralizing pressures for genuine policy. Contrary to conventional academic wisdom, institutions can be raised as obstacles that preempt governance rather than facilitate it. The paper presents the analytical framework and main arguments in a book that will be published by Oxford University Press.

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Bad COPs? The (Ir)responsibility of Conferences of the Parties to Multilateral Environmental Agreements

Isık Girgic, *Rakhyun E. Kim*

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Conferences of the Parties (COPs) to multilateral environmental agreements (MEAs) are autonomous institutional arrangements with an increasingly influential role in environmental norm, strategy, and policy setting, which should, in principle, be accompanied by a corresponding level of responsibility. However, a seldom-questioned assumption that decisions of COPs are inherently ‘green’ seems to have discouraged a scholarly discussion on the responsibility of these treaty bodies. Moreover, COPs are not typically considered as international organizations, despite showing numerous key characteristics in relation to their functions and mandate. As regards international organizations, it has been recognized that they have in the past made controversial decisions that led to undesirable outcomes, or even ‘internationally wrongful acts’. In response, international legal scholarship made efforts to develop adequate responsibility and accountability mechanisms, notably the 2011 Draft Articles on the Responsibility of International Organizations (DARIO) of the International Law Commission. However, little

attention has been paid to the applicability of this emerging body of law to international environmental institutions, including COPs. The lack of clarity on the legal status and international responsibility of COPs leaves a significant gap in global environmental governance, especially considering the potentially harmful implications of their decisions for not only present (e.g. ocean carbon sequestration, use of biofuels), but also future activities (solar radiation management). This research goes beyond the conventional view of COPs and conceptualizes them as a potential source of environmental problems, whose decisions may not only help solve a problem, but also create new ones. Drawing on the emerging body of law on international organizations and an in-depth analysis on the evolution of COPs, we question what legal options can be envisaged to hold COPs responsible for their actions. Firstly, we argue that qualifying COPs as international organizations is a useful approach to ensure responsibility and accountability. This allows the use of a series of options designed for international organizations, including DARIO and other alternative solutions (e.g. global administrative law, constitutionalism, internal panels). Secondly, we put these options under scrutiny to assess their possibilities and limits in effectively addressing environmentally unsustainable actions of COPs. Lastly, we propose a series of recommendations for enhancing the applicability of the international responsibility regime to the environmental context. We anticipate our work to be a starting point for further reflections on possible institutional solutions to improve the overall sustainability and effectiveness of global environmental regimes.

Panel ID 120 | Virtual

Innovations in Governing Complex Systems

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The evolving structure and dynamics of the network of multilateral environmental agreements

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Multilateral environmental agreements (MEAs) interact with one another and form a complex and evolving network. How this network adapts over time, with what consequences on the dynamics of inter-treaty cooperation are important questions to address. Previous research has approximated the structure of the network with treaty-to-treaty citations found within the treaty texts. Yet, the acyclic nature of such a citation network and the limits of network analysis have prevented a full understanding of the structure and dynamics of the treaty network. This study makes a breakthrough by mapping a dynamic network of 770 MEAs using 1958 and 1662 citations found in their treaty texts and the decisions adopted by 31 conferences of the parties, respectively. To construct our treaty network model, we developed a natural language processing code and identified the citations from the total number of 10,591 documents downloaded from the IEA Database and ECOLEX. We then conducted network analysis and agent-based modelling. The combination of these two methods is a methodologically novel aspect of this study which has enabled an understanding of the dynamics on the network within the structural

constraints. The early results show that the treaty network undergoes a considerable degree of adaptation through the decisions. Further analysis will explore questions about how adaptive the network is, in which direction the network is evolving, and who is driving the change. Findings will have far-reaching policy implications for the improving the architecture of the treaty network for overall effectiveness.

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Adapting the international governance architecture to comprehensively address loss and damage resulting from climate change impacts

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Responding to the ‘architecture and agency’ and ‘adaptiveness and reflexivity’ streams of the conference call, this paper analyses the emergent international governance architecture to address loss and damage resulting from climate change impacts. Ultimately, it seeks to develop recommendations to strengthen the pertinent institutional setup under the UNFCCC and to inform its ‘Glasgow Dialogue’, a three-year process adopted by the recent UN climate change conference ‘COP26’ in November 2021 to build a designated funding structure. The establishment of the Warsaw International Mechanism (WIM) on Loss and Damage associated with Climate Change Impacts by COP19 in 2013 and Article 8 of the 2015 Paris Agreement have firmly anchored loss and damage as a distinct item of multilateral climate governance. Yet, it remains far from

settled how the international community seeks to 'avert, minimize and address' loss and damage as the implementation of the Paris Agreement moves forward with the first Global Stocktake to take place in 2023. A stark case in point is the COP's agreement on the aforementioned 'Glasgow Dialogue' as an ostensibly face-saving adjournment of heated and ultimately inconclusive debates over the need for a designated Loss and Damage Facility. This paper reviews the conceptual basis for addressing loss and damage in the institutional context of global climate governance and explores the functions of an international governance structure capable of comprehensively addressing loss and damage resulting from climate change. Comprehensiveness is defined with reference to article 8.4 of the Paris Agreement as a means to look beyond prevalent policy debates on the mobilization of loss and damage finance and climate risk transfer mechanisms. While the latter primarily respond to adverse impacts associated with extreme climate events, like floods or hurricanes, this paper argues that a comprehensive governance architecture will need to be better adapted to growing concerns about, inter alia, slow onset climate impacts, non-economic losses and the general resilience of communities, livelihoods and ecosystems. The paper argues that an insufficiently comprehensive governance architecture results in weak interlinkages with adaptation governance and growing frustration among climate vulnerable developing countries. This in turn burdens multilateral climate governance and the effective implementation of the Paris Agreement more broadly. The paper identifies priorities for three functional domains of a prospective comprehensive loss and damage governance architecture: capacity (as defined by vulnerability, resilience, means of implementation); structure (institutions, policies) and agency (multiple actors).

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*The Problem Shifts Database:
Towards protecting the environment
'as a whole'*

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Global environmental problem-shifting, or the pursuit of a global environmental objective by undermining the chance of achieving another, is of increasing concern in the age of interconnectivity. Certain decisions may lead to problems that are more chronic and severe, which may in turn shift elsewhere, thereby creating a network of shifting problems. Yet we have a limited understanding of when problem shifts occur and how problematic they are. Who makes the decision to trade a problem for another problem, under what conditions, and to what effect? These questions remain under-investigated, at least in part due to the common bias that environmental institutions are inherently green, and hence their side effects unintended or inevitable. Where the phenomenon has been researched, evidence remain scattered in various case studies exploring it under different concepts such as spillover. Here we introduce the problem shifts database by systematically identifying and organizing empirical cases with a novel analytical framework. The database presents generic types of problem shifts identified from over 100 cases collected through a global survey and expert interviews. Each entry provides a literature-based review of the causes and effects of, and governance responses to, environmental problem-shifting. Preliminary analysis of the dataset shows that problem shifts are often not simply unintended consequences as many were anticipated at the time of decision-making, warranting further research into the political dynamics of underlying risk-risk trade-offs. Furthermore,

the observed degree of interconnectivity between problem shifts suggest that there is a latent risk of systemic institutional failure triggered by a critical shift. Our synthesis also suggests that governance responses targeted at addressing individual trade-offs in isolation may not suffice to improve the collective problem-solving potential of international environmental institutions, and system-level interventions would be needed. We conclude with a research agenda on the complex dynamics of problem-shifting in global environmental governance, which we argue is a key prerequisite for protecting the environment ‘as a whole’.

Panel ID 121 | Virtual

Governing Water: Authority, Politics and Sustainability in Regional and Global

Panel Day and Time: TBD

Panel Room: TBD

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Towards a Good Ecological Status? The Prospects for the Third Implementation Cycle of the EU Water Framework Directive in The Netherlands

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The aim of the EU Water Framework Directive (WFD) is to achieve a “good” chemical and ecological status for all waters by 2027. Currently, the Netherlands and other EU Member States are finalizing their plans for the third iteration of the WFD management cycle. In this paper, we conducted an ex ante

evaluation of these plans by assessing the perceptions of regional water authorities on goal attainment and the factors that account for it. In order to gain these insights, we first reviewed literature and developed a framework of factors that stimulate or hamper the implementation of the WFD. More detailed insights into the relevance and characteristics of these factors were found by applying the framework in two in-depth case studies. A more generalizable pattern was found by translating the case study results into a survey among the regional water authorities. We found that the majority of the participating water authorities expect that 50% (or more) of their WFD objectives will be achieved in 2027. However, hampering factors such as a lack of political will or the impossibility to address key causes of the problems that were identified during earlier management cycles are still present. Since it is doubtful whether they can be addressed by regional water authorities, we conclude that it will be unlikely that ecological ambitions will be met by 2027.

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(Re)greening? Evaluating institutions and impact of large-scale forestation initiatives on water resources

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Nature-Based Solutions (NBS) to climate change refer in many cases to re- or afforestation efforts to increase net carbon sequestration. Recent initiatives include the One Trillion Trees Initiative, launched at the World Economic Forum in 2020, and the Declaration on Forests and Land Use at COP26, besides many individual net-zero pledges from the commercial sector. The scholarship has

covered the challenges, advantages and risks of carbon offsetting through forest schemes, but has sparsely examined the hydrological impacts of such schemes on blue, green and atmospheric water; nor has it examined how sustainable these schemes are given existing water availability. Hence, this paper addresses the question: *How have forest initiatives accounted for water needs in their planning and implementation and what does this mean for forest sustainability and water use, given that in many parts of the world water demand far exceeds water availability?* Combining knowledge of the hydrological system with institutional analysis, this interdisciplinary paper studies five major forestation initiatives and evaluates them based on their inclusion of water resources in the policy of planning, development and monitoring of the schemes. The analysis will be based on content analysis of policy documents and scientific literature, the latter enabling us to draw conclusions on water requirements of forestation practices. We use a case study of the Great Green Wall Initiative in the Sahel to further highlight the implications for water governance. We expect to find limited emphasis on the impacts and trade-offs related to (scarce) water resources in the planning of forestation initiatives. Furthermore, we expect to find that the recent interest in commercial carbon offsetting has led to a growing share of private funding deriving from carbon credit markets, representing a shift towards a more dominant carbon-narrative in forestation, which may further disregarding impact on water resources. We conclude that such a narrative, spurred by the urgency to achieve net zero soon can lead – when unregulated – to negative side effects on water resources through forestation and unviable forest projects.

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Lessons Learnt in the Architecture of International Environmental Agreements

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International Environmental Agreements are a key interstate instrument to promote problem solving. We have around fifty years of experience in making such agreements. At the same time, there is growing evidence that the global community has not been able to adequately reverse the trend of environmental degradation. This raises the question: What have past decades of research on international environmental agreements revealed in terms of lessons learnt? What do these lessons imply for using such agreements as a tool for solving environmental problems? Building on several papers that have reviewed the scholarship either from a disciplinary perspective, or from the perspective of different environmental challenges, or from the perspective of agency, interaction and justice, this paper synthesizes the diversity of lessons learnt. We have clustered the lessons learnt into four categories – lessons from negotiations, treaty and agreement proliferation and fragmentation, lessons on agreement design (output) and lessons from implementation (outcome and impact). Going beyond these lessons, the paper concludes that there is growing evidence that international environmental agreements are necessary, even if they are not sufficient to address global environmental problems and that there is a growing need for leadership, innovation by secretariats; and orchestration to makes these agreements successful. Second, there is a growing need to recognize the multiple frames through which problems are perceived, as well as understand the non-excludable but rivalrous nature of many environmental problems.

Third, in current processes, economic interests tend to dominate over environmental interests and justice concerns, and this leads to both a withdrawal behind the principle of full permanent sovereignty as well as ignoring or marginalizing justice concerns. Fourth, however, there is growing evidence that if environmental and social justice concerns are not taken on board, environmental problems cannot be addressed. All this calls for a new economic paradigm. These lessons are critical contributions to the Stockholm + 50 Conference.

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Better Together (?): A Textual Study of Climate Governance Coordination Between Subnational and National Level Actors

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As the impacts of climate change accelerate, cities will continue to see the brunt of the effects, including urban heat island effects, flooding, droughts, and vector-borne illnesses. These climate change impacts will also exacerbate and compound issues of urbanization, including lack of accessible housing, insufficient infrastructure, healthcare, and access to essential services. Given these issues, it is curious that some countries, such as EU member states, have chosen not to actively include city actors as part of their Nationally Determined Contributions (NDCs). In this paper, I study whether cities and national actors actively name each other as collaborators, as well as the methods of collaboration on climate change between the two levels of governance. I explore the following research question: do cities include national actors in their city climate action plans (CAPs)? To answer this research question, I use

two qualitative, interpretive content analysis methods (patterning and narrative text analysis) to analyze a sample of 66 C40 member cities and 39 countries. I find that less than half (39%) of cities include national actors in their CAPs. Cities that plan for national-level coordination are more likely to be in the Global South and are less likely to be a member of the EU. Additionally, when cities do include national actors in their CAPs, I find that they are most likely to be included in one or more of the following four areas: financing, communications, utilities, and/or public works. I use two theoretical frameworks to make sense of my findings: social learning processes and power-based multi-level governance framework. Finally, I conclude by discussing the implications of the existing and missing relationships between subnational and national actors on the ability to swiftly and justly act to mitigate and adapt to climate change threats for vulnerable populations.

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International Organizations as “Custodians” of the Sustainable Development Goals: Towards increased institutional coordination?

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It is widely assumed that the fragmentation of global governance can impact coordination efforts among constituent institutions. Yet, the precise relationship between the fragmentation of global governance and the extent to which international organizations coordinate their activities, remains underexplored. In this article, we offer new empirical evidence derived from the so-called custodianship arrangements in which numerous international organizations have

been mandated to coordinate the data collection and reporting for 231 indicators of the 17 Sustainable Development Goals (SDGs). These complex custodianship arrangements provide a fertile testing ground for theories on the relation between fragmentation and coordination, because the arrangements for each of the 17 SDGs have emerged bottom-up with varying degrees of fragmentation. Our study makes three key contributions. First, we offer a novel operationalization of institutional fragmentation as well as coordination. Second, we conduct a comparative case study of the arrangements for SDG 3 (good health and well-being) and SDG 10 (the reduction of inequality). These arrangements differ greatly in the number of actors involved, and the extent to which a dominant actor can be identified. We combine desk-research with a set of 12 expert interviews to map ongoing coordination initiatives and assess the degree of coordination realized. We find empirical evidence in support of the claim that fragmentation negatively impacts coordination. Third, we provide nuances to this claim by identifying factors that impact the strength of this relationship. These include the steering capacity of a potential leading actor, the underlying problem structure of an issue area, the level of disagreement surrounding the problem and the absence of adequate resources to draw in those currently unable to ‘jump on the coordination bandwagon’. Based on our analysis we suggest further steps that might facilitate coordination in global sustainability governance. These include a better fit between institutional arrangements and the type of coordination required, appointing a leading actor for some areas to stimulate a more unified approach and the provision of sufficient resources for the overall functioning of the system of custodianship arrangements.

Panel ID 122 | Virtual

Interrogating Norms and Values in Earth System Governance

Panel Day and Time: TBD

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Transnational Environmental Norm Contestation Through Domestic Climate Litigation

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As proponents of Earth system law advocate reforming legal structures and thinking to meet systemic environmental challenges, questions remain regarding how transnational interaction among institutions might contribute to this process of innovation and evolution. Deeper understanding is particularly necessary regarding climate change litigation and its effects on planetary governance. There, domestic court engagement is widely documented and advocated, but the rapid evolution of domestic climate litigation has challenged efforts to systematically evaluate transnational interactions within and between courts. In particular, questions remain regarding whether-and how-domestic courts contribute to the cultivation, circulation, and contestation of international environmental law norms. Our study explores this question through robust qualitative review of a database of published climate court opinions maintained by Columbia University’s Sabin Center for Climate Change Law. We review domestic court opinions and filings, considering (a) the degree to which norms from the United Nations Framework Convention on Climate Change and associated agreements have permeated

domestic litigation, (b) the degree to which these norms are mediated, reinterpreted, and contested in diverse domestic contexts, (c) evidence of systemic exchanges and interlinkages among domestic courts, and (d) broader implications for the domestic governance of systemic climate and social challenges. In addition to formally documenting how international norms influence domestic climate litigation, our findings inform broader analyses in international relations, global environmental governance, and Earth system law. First, by characterizing the appearance and relative density of global norms and principles (a) across individual courts, (b) within discrete stages of domestic climate litigation, and (c) in the context of domestic challenges, we offer preliminary conclusions regarding the uptake of international climate norms and their amenability to domestic judicial contexts. Second, our focused analysis supports a richer understanding of domestic judges', litigants', and courts' roles in environmental norm circulation and contestation, supporting additional efforts to quantify how international environmental norms are applied domestically. Finally, this analytical project directly supports ongoing interdisciplinary efforts in Earth system law to reimagine domestic courts as venues for innovation in addressing systemic environmental challenges and promoting equity.

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Facilitating professional normative judgement through science-policy interfaces: the case of anthropogenic land subsidence in the Netherlands

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Societal decision making related to the sustainable use of land requires normative judgement. A normative judgment expresses a value judgement on whether a situation is desirable or not based on certain interests or principles. Such a principle can refer to an ideal situation (e.g. sustainability), but also the desired course of a process (legitimacy and/or transparency) or the desired relationship between actors (equality and/or fairness). This requirement has become both more urgent and more daunting over the years due to the wicked and therewith highly politicized nature of sustainable land use issues. Science-policy interactions can both facilitate and hamper professional normative judgement. Our paper sets out to illustrate this point by studying a concrete case study, that of anthropogenic land subsidence in the Netherlands. Anthropogenic land subsidence contributes to relative sea-level rise in the economically important Western peatland areas in the Netherlands. The implementation of mitigation, adaptation and compensation measures is lagging, partly due to science-policy interaction problems potentially leading to conflicts between stakeholders, including agrarians, climate scientists and inhabitants. The paper first inventories and reviews existing science-policy interfaces, here classified as institutions that act as interfaces, interfacing processes and mechanisms, and tools and resources. We find that existing science-policy interfaces have to some extent enabled enlargement of the solution space for addressing land subsidence issues, in

particular through collaborative modes of knowledge production facilitated through serious gaming as well as through the development of novel water management options. However, there is room to better incorporate the normative dimension into the knowledge production process and to address the root causes of unsustainable land use, which are related to the allocation of land use functions to plots, an inherently political issue. Not doing this leads to the risk of propelling what in recent publications from the field of public administration is termed a creeping crisis. We conclude that professional normative judgement is enhanced when researchers and societal stakeholders reflect more critically on their role and engage in more inclusive science-policy interactions. This requires science-policy interactions to move further on the path towards more widespread use of post-normal science and trans-disciplinary research. The latter also has implications for the roles of scientists in the knowledge production process, which need to be even more mindful of the normative dimension of their own role.

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A beacon of hope for a troubled planet? A critical analysis on China's authoritarian approach to constructing 'ecological civilization'

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The earth is facing an unprecedented ecological crisis. From climate change to species extinction, the urgency and gravity of the ecological situation in the age of Anthropocene has led to a call for concerted efforts across the globe to address the environmental emergency. Disappointed at the liberal democratic states' environmental inaction, as evidenced in the political gridlock after attempts to compromise capitalists' interests in overexploiting natural resources,

or to limit individual freedoms in engaging unsustainable behaviour, scholars turn to more decisive and draconian state actions in combating environmental problems, among which, China's authoritarian approach to constructing ecological civilization is an exemplary alternative.

Since the ascendance of Xi to power, China has been witnessing a transition to a 'green' China. Once seen as a country with prioritized economic growth, lax environmental standards, and consequently, serious environmental problems and health risks, such as soil and water contamination and cancer villages, China now shows solid determination towards environmental concerns by aligning the environmental mission with its legal and political agenda. The construction of ecological civilization required by the national constitution is such a mission on the agenda. 'Ecological civilization' is often viewed as 'sustainable development with Chinese characteristics', whose achievement requires concrete measures like strengthening environmental regulatory institutions, reducing carbon emissions, promoting renewable energy and phasing out polluting industries, notwithstanding the tension posed by the economic task meanwhile. China's state-led construction of ecological civilization is regarded as a newly radical solution to the planetary emergency, and accordingly, a potential beacon of hope for this troubled planet.

This paper, by critically analyzing the authoritarian approach to the construction of ecological civilization under the mandate of the Party-state, argues that the authoritarian environmental response is by no means a beacon of hope to address contemporary environmental challenges, either domestically or globally, considering China's influence around the world. With the exploration of the bureaucratic institutional fragility and human rights infringement under an authoritarian style of environmental governance, such as campaigns and ecological migration, this paper delineates how the top-down state-led construction of ecological civilization adopted

by an authoritarian regime not only fails to solve ‘the tragedy of the commons’ (individuals deplete shared resources), but also results in ‘the tragedy of the ordinaries’ (ordinary people whose human rights are violated in the name of environmental protection). This paper finally concludes with the necessity of the human right to a healthy environment in saving the troubled planet.

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The Drivers and Barriers of Enhanced Climate Pledges: A Mixed-Method Study

Harro van Asselt, Lauri Peterson, Francesco Benvegna, Maximilian Häntzschel

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The 2015 Paris Agreement requires its parties to submit five-yearly climate pledges in the form of Nationally Determined Contributions (NDCs) to indicate their sustained commitment to tackling anthropogenic climate change. These pledges constitute an important aspect of the Paris Agreement’s ambition mechanism that seeks to strengthen climate change mitigation over time. After the initial round of NDCs, most parties – including the world’s major emitters – have now submitted an updated or revised NDC as part of the second round of pledges. To assess whether the Paris Agreement’s ambition mechanism is functioning as intended, it is important to understand whether the second round of NDCs represent an increase in ambition and, if so, to what extent ambitions have increased. Moreover, there is a significant gap in the literature regarding the determinants of NDC development. In other words, what drives or hinders increased NDC ambition? Addressing these questions, this paper aims to provide one of the first systematic and generalisable analyses of the role of key drivers of and barriers to enhanced NDCs. Our study implements a mixed-method

design, employing both quantitative and qualitative methods. The study is structured in three inter-connected parts. First, the paper follows an innovative multi-dimensional decision-tree questionnaire to evaluate the change in ambition from the first NDC to the updated or revised NDC. Hence, we generate data regarding change in the mitigation ambition of countries’ NDCs based on a number of diverse dimensions of ambition, including changes in targets. Second, the paper identifies several potential drivers and barriers of national climate ambition, focused on *politics* (e.g. elections), *structural context* (e.g. natural resource dependency and climate hazards) and the *economy* (e.g. economic growth). Third, the paper qualitatively investigates the factors that support and dissuade the development of enhanced NDCs for key countries. We identify five critical cases based on the quantitative study, namely Australia, Brazil, Morocco, South Africa and the US. We offer two key contributions to the literature on (comparative) climate politics. First, we evaluate both overall and multi-dimensional ambition change based on updated or revised NDCs, which show whether and to what extent countries enhanced their pledges. These results improve our knowledge of the likelihood of the world achieving the Paris Agreement goals. Second, on the basis of the mixed-method analysis, our study presents a generalisable analysis of the significant drivers and barriers of enhanced NDCs, with examples from key countries.

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Policy Coherence for (Sustainable) Development as a Post-Political Condition

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The term policy coherence has been regularly employed since the end of the Cold War in efforts to reform or transform development

interventions for the better, including in recent debates on the COVID-19 recovery. The basic assumption is that (sustainable) development problems are in part the consequence of fragmented, siloed, and therefore incoherent institutional and policy design. In response, the solution that dominates official and scholarly discussions is centred on institutional reforms enabling more holistic and integrated policy responses. Without denying the importance of these discussions in bridging institutional siloes, they generally fail to critically examine the project of coherence building itself: its assumptions, operation and implications. In this paper, we engage critically with coherence building from a historical vantage point. Drawing on progress reports and peer reviews published by the Organisation for Economic Cooperation and Development, we show that the discourse and pursuit of policy coherence are emblematic of the post-political condition. They (re)produce depoliticising tendencies by naturalising approaches to sustainable development based on technocratic managerialism and universal ‘win-win’ policy prescriptions, decoupled from their actual contribution to sustainability. What emerges from this is a way of knowing and doing development that limits, if not prevents, possibilities for transformation.

Panel ID 123 | Virtual

Learning Processes and Changing Modes of Communication: Effects on Negotiations and Institutional Practices

Panel Day and Time: TBD

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Towards Water-Energy-Food-Ecosystem (WEFE) nexus governance: a Nexus Governance Assessment Tool for analyzing the fit of governance systems architecture

Caro Eline Mooren¹, Stefania Munaretto¹, Eva Sievers², Frank Hüesker², Isabelle La Jeunesse³, Dries Hegger⁴, Peter Driessen⁴

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Despite the tremendous progress in human development in the past few decades, many parts of the global population still face a lack of food security, energy security, access to clean drinking water and sanitation, while at the same time ecosystem services are degrading at a rapid pace. Up to now, sectoral policies have failed to address these issues. The Water, Energy, Food, Ecosystem (WEFE) Nexus has emerged as a promising response. Especially in the context of transboundary river basins, where actors from different sectors and countries compete over the same resources such as ecosystem services, putting extra pressure on biodiversity, resource use and allocation becomes highly political. Therefore a shift from sectoral to more

integrated governance is required. The nexus approach offers a way to create the conditions for such a change by fostering coherence and synergies and by managing trade-offs between sectors.

Political and cognitive factors, such as cultural institutional issues and power relations are currently overlooked in WEFE nexus governance literature, and the concept of nexus governance itself is underdeveloped. Currently, a dedicated nexus governance assessment framework does not yet exist. This research builds on the Governance Assessment Tool of scholars (Reference removed) and integrates it with elements from water governance, integrative governance, polycentric governance and collaborative governance literature to tailor it to the needs of the WEFE nexus. The outcome is a nexus focused Governance Assessment Tool.

The Nexus Governance Assessment Tool (NGAT) is a first step towards a comprehensive WEFE nexus governance approach to support the design of pathways for the implementation of nexus governance that is developed within the project (Reference to project name removed). The Nexus Governance Assessment Tool can be used to assess the current nexus governance architecture quality in transboundary river basins to identify entry points for change in existing governance regimes towards nexus governance. In particular, through specific indicators, the NGAT identifies policy and governance challenges and opportunities to manage trade-offs and exploit synergies across the WEFE nexus sectors, thus contributing to more efficient nexus governance. This presentation will illustrate the Nexus Governance Assessment Tool by using the Lielupe transboundary river basin (Latvia- Lithuania) as a case study.

Bressers, H., Bressers, N., Kuks, S., & Larrue, C. (2016). The governance assessment tool and its use. In *Governance for Drought Resilience* (pp. 45-65). Springer, Cham.

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Power disparities and diversities in food governance: The role of the regenerative agriculture narrative

Anja Karine Bless

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The dominance of industrial agriculture in food governance has degraded both ecosystems and the social fabric of rural areas across the globe. The current food governance architecture is comprised of a coalition of powerful multi-national agri-food corporations and Global North agents dictating the direction of food production. Yet these powerful agents continue to be challenged by counter-narratives advocating for more sustainable agricultural practices. Over the last decade, one such narrative, regenerative agriculture, has seen a significant rise in popularity. The growing interest in regenerative agriculture has been driven by engagement from farmers and agri-food corporations alike. Its competition with other sustainable agriculture narratives raises the question of whether diversity in sustainable agriculture narratives is helping to dismantle the current asymmetrical power relations in food governance, or instead exacerbate them. This paper explores how regenerative agriculture is attempting to fill the gaps left by existing sustainable agriculture narratives, and to heal rifts that are preventing the definitive transformation from industrial agriculture towards more sustainable systems. I examine how existing sustainable agriculture narratives reflect power disparities in food governance, and the extent to which regenerative agriculture is perpetuating these inequities. Drawing on Foucault's genealogical method, the paper explores the origins, pathways, and driving agents of prominent sustainable agriculture narratives, such as agroecology and sustainable intensification, and how they contextualise the rise of regenerative agriculture. This analysis exposes the risks associated with too great a diversity in

approaches for transforming agriculture and how these diversities might limit the ability to address power disparities. I propose that despite its attempts to unify disparate narratives of sustainable agriculture, the regenerative agriculture narrative is providing a vehicle for the continuation of corporate and Global North dominance in food governance. This could risk perpetuating injustices and inequalities in broader food systems governance and the dominance of industrial agriculture.

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Designing Enforceable International Treaties: A Case Study of the Minamata Convention on Mercury

Mathilde Gauquelin

Université Laval / Ghent University

This paper asks why multilateral environmental agreements have increasingly included non-jurisdictional compliance mechanisms since the 1990s. Existing literature often starts from the assumption that states rationally identify and bargain for the set of provisions that best serves their interests, including compliance provisions. However, new coding shows that cooperative compliance mechanisms have been included in treaties dealing with distinct environmental issues, whose problem structure and enforcement challenges vary, highlighting potential limits to bargaining-based explanations of treaty design.

This paper sets forth a causal mechanism that aims to account for transboundary ties among individual negotiators as an essential complement to fully understand treaty design. It suggests that through repeated interactions, public officials from distinct countries come to form transnational policy communities (TPC) that share common understandings and beliefs, including regarding the enforcement of the treaties with which they are involved. TPC membership is thought to precondition

the design options that public officials consider in the bargaining phase that follows. In turn, the inclusion of such provisions in new treaties reinforces the general belief in their appropriateness, further increasing the likelihood that they will be reused.

This causal mechanism is tested through process tracing, using the 2013 Minamata Convention on Mercury as a typical case of successful environmental negotiations. The causal process that led to the adoption of its Article 15, which establishes a facilitative and non-punitive Implementation and Compliance Committee, is traced through 30 semi-structured interviews with negotiators. The interviews confirm that individuals who previously worked on other treaties came in with a previous knowledge and trust of one another, as well as established preferences for treaty design. In addition, outsiders describe “insider” ideas as being difficult to modify. Sharing a professional role appears to largely influence preferences, with lawyers and scientific experts explicitly distinguishing themselves from one another. Nevertheless, other factors also matter: similar mercury practices, shared languages, regional groups, a shared legal tradition. There is also evidence that bargaining played a significant part to reconcile differing preferences across these various groups.

This paper confirms the necessity of accounting for individual-level factors to better understand treaty design as a whole. The TPC lens provides a structured account of the impact that group ideas and beliefs, as well as the oft-forgotten transboundary interactions between individual negotiators, can have on decision-making. It adds a new layer of depth to analyses of environmental negotiations that better reflects their dynamic nature.

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UN meta-governance for MSPs – fit for transformation?

Felicitas Henni Fritzsche

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Transnational public-private or multi-stakeholder partnerships (MSPs) for sustainable development have multiplied since the World Summit on Sustainable Development in Johannesburg 2002. Some researchers view MSPs as new, hybrid governance arrangements that can make up for implementation gaps and democratic deficits in global governance. They argue that cross-sectoral, deliberative, and iterative governance of MSPs could address the wicked, i.e. inherently uncertain, conflictual and complex problems in earth system governance. Other scholarly analyses have questioned the effectiveness of MSPs. There have also been analyses that outline a lack of accountability and legitimacy. This paper moves beyond this debate and engages with the underlying rationales and strategies of actors involved in MSPs – an emerging field of research. It shows that irrespective of their effectiveness, MSPs are still being used. For example, the 2030 Agenda and the Sustainable Development Goals (SDGs) re-legitimized MSPs as one of the means of implementation in SDG 17. There is a need for improved understanding of the United Nation's (UN) role in this, an important topic the literature has mostly neglected. This is underlined by existing scholarly work, which highlights that the UN plays an activist role and mobilises coalitions to advance MSPs as institutional change. It has also been argued that MSPs constitute a legitimisation strategy by the UN. This paper builds upon this and demonstrates a shift in UN meta-governance, i.e. its frameworks and guidance, for MSPs following the 2030 Agenda, approaching them as transformative instruments. The aim of this

paper is to scrutinise this practice more closely. It first maps the UN involvement in MSPs for the 2030 Agenda – asking which UN agencies typically collaborate in what kinds of MSPs (i.e. function and governance structure), involving what kind of actors and working on which issue areas. The paper then analyses the different discourses and practises UN agencies use in the realm of MSPs, focusing specifically on transformation. It thereby demonstrates that protracted contestations between UN agencies on what transformation entails, and more specifically on MSPs fit for transformation, persist. Lastly the paper discusses what implications this has for global earth system governance.

Panel ID 124 | Virtual

Multiple and Non-Traditional Actors in Earth System Governance

Panel Day and Time: TBD

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Multi-scalar climate action: the role of faith-based organisations

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The multi-scalar and complex nature of climate change requires action at multiple scales, by different actors, who engage in climate action in a variety of ways. This increasingly varied landscape also raises questions, however, on how these actors and their actions can be linked up or coordinated. This paper seeks to address this question by focusing on a type of

actor that has not received much attention in the literature on climate governance: that of faith-based organisations. Because the engagement of religious organisations tends to be less conspicuous, its presence may not be as readily apparent despite these organisations' deep commitment and "reach" – including into as yet untapped constituencies.

Through a relational approach that speaks to recent research in Science and Technology Studies and Geography, this paper analyses the ways in which Christian churches both enable new climate subjects to emerge by requesting others to take action, but also position themselves as multi-scalar climate subjects in the process. In doing so, this paper demonstrates that faith-based climate action is not a singular project with uniform logics, goals, and normativities embedded in it, but is a set of projects, characterised by plurality, and at times contradictions. Through focusing on organisations that operate at multiple scales we highlight the challenges of this multiplicity for linking climate action; and the importance of the 'translation work' undertaken by these multiscalar organisations in negotiating this.

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The European Green Deal and the Outside World: The Leakage Problem

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The paper examines the policy concept of leakage, the fear of deteriorating competitiveness caused by ambitious climate regulations, in context of the European Green Deal (EGD). The paper asks why and to what extent the fear of leakage has become a focal concern of the EGD, and studies how this concept is being approached by the EU. The answer is affirmative. Competitiveness concerns are indeed one of the transcending

logics of EGD. In the first instance, leakage reflects a realization that the climate goals of the EGD cannot be achieved without the use of climate-related trade restrictions. As the EGD aspires to be the foundation upon which the European economies move from a fossil and wasteful economy to a green and sustainable economy, it is clear that the EGD cannot not operate in the void left by an incomplete climate governance system and a paralyzed trade system. However, the leakage problem is a constructed reality, an anticipated future, so to speak, which is a product of perceptions, uncertainty and mistrust. Leakage is the fear of losing competitiveness rather than an experienced problem of having lost competitiveness. The EGD is a compromise between growth and climate– and is no longer merely a strategy statement. The paper examines how the fear of leakage has been translated into the EGD, from the Carbon Adjustment Mechanism, the Sustainable Product Initiative on the circular economy to 'due diligence' requirements in sustainable forest trade. In doing so, this study sees the EGD as a mix of transformative governance, up-scaled experimental governance and a governance complex of its own, meaning a system of communication, renegotiations and learning. The findings are primarily based on qualitative analysis of the EGD policy debate and document analysis of existing proposals and policy communications. The final section discusses the global 'embeddedness' of the EGD as a governance system, meaning its compatibility with existing norms and commitments, including inclusiveness and non-discrimination. The paper contributes to the literature on sustainable trade governance, focusing on leakage problem and thereby engages to concepts like transformational and experimental governance, and regime complexes. However, it is also contributing to the International Political Economy debate about how to reglobalize the world economy, and asks whether 'weaponization' of trade policies in the EGD, understood as the increased use of unilateral trade policy instruments, offer a viable and acceptable route towards a more sustainable world economy.

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The Effectiveness of Transnational Public-Private Partnerships. How Can We Learn More?

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Public-private partnerships have become a ubiquitous form of informal organization in global governance. Such initiatives are often embedded in pre-existing intergovernmental regimes, but also operate across national and local levels, engaging a variety of public and non-state actors. However, doubts remain as to the effectiveness of transnational partnerships.

Bringing different literatures into dialogue with each other, this largely theoretical paper elaborates a multifaceted framework for disaggregating the meaning of effectiveness and the pathways that lead to different partnership effects. It proposes a new theoretical framework that specifies distinct pathways to partnership effectiveness. These include: (i) the attainment of a partnership's self-declared goals; (ii) the creation of value for partners; (iii) productive collaboration inside a partnership; (iv) the impacts of a partnership on affected populations; and (v) its influence on collaboration and institutions outside a partnership. Ultimately, we seek to prove a set of tools to enable the inquiry into the problem-solving effect of a partnership and its contribution to overarching sustainability objectives, which may materialize (or not) to different degrees through the five pathways that we elaborate. In other words, we also consider the tensions and trade-offs that may emerge when aggregating the partnership effects across different pathways, as well as second-order and potentially catalytic effects.

Drawing on the broader literature on institutional effectiveness, the paper further identifies a set of conditions, related to the structuring of partnership arrangements, which are likely to shape their variable

effectiveness. These conditions focus on the relevance of contractual features and information sharing for accountability, the credible commitment of resources, the degree of adaptability and learning-by-doing, and the ability to foster innovation. The paper aims to offer a broadly conceived framework on effectiveness that can be applied to different contexts to critically scrutinize the multiple dimension and mechanisms through which partnership effects are produced. This disaggregated approach aims to engage with critical questions about the complementarity or contradictions of partnership outcomes and the extent of the cumulative effect of partnerships towards-problem solving. We use illustrative material from issues such as biodiversity, clean energy, climate change and global health in the exploration of the five pathways and conditions to effectiveness.

Panel ID 125 | Virtual

Subnational and City Actors in Earth System Governance: Networking, Learning and Influence

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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More than policy learning: How domestic politics influence international climate cooperation in Chinese cities

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Most analyses of China's urban low-carbon policy initiatives treat international cooperation as a source of policy learning, focusing on the techno-economic rationality behind the country's low-carbon policymaking. We challenge this conventional wisdom by showing how domestic political factors can affect the implementation of international low-carbon projects in Chinese cities. Our findings contribute to the literature on the role of local-international linkages in urban low-carbon policy initiatives, which to date has largely focused on how international climate city networks influence urban low-carbon initiatives in non-authoritarian states. Using Shenzhen, Nanchang, Xiangyang, and Wuxi as case studies, we find that Chinese cities are no longer in a position of simply receiving Western countries' lessons learned; they are now more equal players with international actors in formulating and implementing local low-carbon policy programs. This analysis provides a more nuanced discussion than is commonly found in climate politics of the motivations behind

increasingly proactive domestic responses towards climate change in China. It also has important policy implications for understanding and reacting to Chinese behavior, in international climate change cooperation and beyond.

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City Diplomacy for improved Air Quality policymaking

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Urban areas account for 50% of the world's population and Europe is one of the most urbanized continents in the world. With cities being the epicenter of worldwide globalization processes, they also became home to some of the major contemporary issues, among which the environmental crisis. Air pollution, in particular, over 400,000 premature deaths in Europe each year. Despite this, European countries still perform variously, as well as cities belonging to the same country. These results are affected by different factors, among which natural parameters, such as geographical positioning, but also by the robust or poor mitigation strategies implemented.

This paper investigates to what extent proper policymaking can improve the performance of cities and, as a consequence, countries, in terms of AQ. It reflects on whether shared problems in the practice of pollution containment or, on the other hand, replicable successful strategies exist. The research, therefore, aims at understanding the conditions for either one or the other scenario and ultimately identifying practices among the city diplomatic activities to replicate across different environments, which could best support cities in the strive to reduce air pollution. The research question (RQ) around which the paper will build its reasonings and hypotheses is formulated as follows: *How can city diplomacy contribute to tackling air pollution across European countries?*

By investigating the relations between city diplomacy and air quality, the paper fills two literature gaps. Firstly, while research studies often focus on the general concepts of global warming and greenhouse gases (GHGs), which have indirect links to the sanitary status of individuals, this study analyses AQ, which is directly relatable to the health conditions of humans and therefore useful in drafting local policies. Secondly, by conducting semi-structured interviews with city officials, this research investigates the prerequisites for cities to become diplomatically successful and overcome a specific climate-related issue, rather than on the potential of city diplomacy itself. This research categorizes cities' prerequisites under three dimensions or hypotheses, mentioned as potentially impactful in the existing literature but not yet investigated: the connective role of cities between top-down and bottom-up AQ solutions, the network dimension, where bilateral and multilateral relations, allow cities to draft improved AQ mitigation measures, and the financial, where direct investments from multilateral banks and international private funds to cities can improve AQ diplomatic activities.

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*The end of the COP as we know it?
Accelerating global climate
governance in a transforming world*

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With the Paris Agreement in force and its 'rulebook' completed at COP26 in Glasgow in November 2021, the annual sessions of the supreme decision-making body of the United Nations Framework Convention on Climate Change (UNFCCC), the Conference of the Parties (COP), are expected to shift from regime-building to implementation, monitoring progress and raising climate policy ambition. This paper considers five key governance functions of international institutions as a means to analyse and discuss how the COP and its sessions could evolve to better support implementation of the Paris Agreement: guidance and signal, rules and standards, transparency and accountability, means of implementation, and knowledge and learning. It identifies opportunities for improvement across all five governance functions and discusses who could drive change. Theories of institutional change and the deeply ingrained conflicts among Parties suggest that any reform under the UNFCCC will be difficult to achieve. Yet, the paper argues that the exogenous shock of the COVID-19 pandemic in conjunction with an on-going narrative shift in favour of ambitious climate action and concurrent changes in the COP's geopolitical context may provide a window of opportunity for substantive institutional change. Specifically, the negotiation time and space that is opening up by the conclusion of the 'Paris rulebook' could be redirected to engagement with the operational details of implementing climate action. Moreover, greater attention could now be given to better consideration of synergies and conflicts with other multilateral processes, notably regarding the other Rio conventions and the SDGs. Such work by the COP would require stronger involvement of more national ministries in addition to the ministries of foreign affairs and environment that traditionally participate in the COP process, as well as stronger involvement of non-Party actors within formal COP processes. It is assumed that institutional change to that end will need to overcome path dependencies and

require strategic efforts from key agents that are capable to drive and direct such change. Against this background the paper finally discusses whether and how COP Presidencies may be instrumental to this end. The paper thus responds to the ‘architecture and agency’ stream of the conference call as well as to the overarching theme of accelerated and inclusive transitions.

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“We do it our way”: The implementation of policy coherence for sustainable development by the EU and OECD

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The concept of Policy Coherence for Development (PCD) was criticised for its depoliticising effects and inefficacy in tackling negative transboundary effects of the global North’s policies. Seven years after the adoption of the 2030 Agenda, this paper reviews the effects of the follow-up approach of Policy Coherence for Sustainable Development (PCSD) that was globalised and institutionalised as the Sustainable Development Target 17.14. More specifically, it looks at the multiple and diverging pathways that the initial proponents of policy coherence, the European Union, its member states and the Organisation for Economic Co-operation and Development, took in transforming a traditional international donor agenda after its conceptual expansion and merger with the sustainability agenda at the global level. Drawing on the depoliticisation and path dependence literature, data from a survey of nine EU member states and a series of semi-structured interviews, the paper analyses the political and institutional changes triggered by the emergence of PCSD. It identifies three

major ways of coping with the 2030 Agenda: an upgrade of PCD mechanism, levelling with SDG implementation system and a setup of a new PCSD mechanism. It argues that the resistance to politicisation and the path dependence of the organisations and governments led to different configurations of the three approaches between and even within the same governance levels. This confusion ultimately leads to a dilution of political accountability in the global and sustainable development agendas, and it hinders the potential repoliticising effects of PCSD to tackle sustainability trade-offs.

Panel ID 126 | Virtual

Collaboration for global governance within and between nations

Panel Day and Time: TBD

Panel Room: TBD

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Transforming global south cities through networking agencies: A study of two cities in Cambodia

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The fast pace of urbanisation in the global south is presenting significant sustainability challenges and prompting development of strategies for urban transformations, particularly in rapidly developing cities. Scholars have recently posed a need for strengthening transformative capacities to enable transformations, including through inclusive and multi-form governance, and empowered communities of practice. Yet

there remains a crucial gap in understanding how transformative capacities exist and develop in developing country contexts. Southeast Asia, as a highly populated and rapidly urbanising region, is at a cross-roads for developing transformative cities for the future. This paper presents empirical analysis of interviews with thirty-five agencies, including public government agencies and non-government organisations, from two Cambodian cities experiencing urban transformations – Battambang and Sihanoukville. The paper explores how networking agencies with long-term engagement are playing a central role in driving institutional change and strengthening transformative capacities. Interviews with participants in the urban transformations in these two cities highlight the ways in which networking agencies have been effective in forming coalitions, driving reforms across scales and decision-making arenas, and in some circumstances, addressing power disparities. This study advances the understanding of transformative capacity frameworks and contributes to emerging knowledge on the architecture to strengthen transformative capacities in growing cities, enabling urban sustainability transformations.

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Japan and Brazil cooperation on Climate and Energy: From Global Strategic Partnerships to Japan-US-Brazil Exchange (JUSBE)

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The purpose of this article is to analyze how Japan has been involved in Brazil's climate change policies that promote renewable energy in the period from 2003 to 2021. The Asia-Pacific and Latin America relations are deepening in an increasingly multipolar world.

In the 2000s, Latin American countries, particularly Brazil, began implementing economic development projects through global strategic partnerships with Japan. In general, a strategic partnership defines a cooperative relation between countries or groups based on national security and (economic) interests. Previous studies on strategic partnerships have not thoroughly explored the dimension of "climate change," focusing more on economic and trade policies, and underestimated the aim and autonomy of recipient countries.

To fill these gaps, we combine insights from the literature on Earth system governance and foreign policy analysis (development assistance) to analyze the East-West climate cooperative relationship. Through literature review and document analysis, we aim to identify the conditions under which strategic partnerships between economic powers on climate change policies have been formed and developed. We argue that these conditions are anchored in three main factors: geopolitics, interdependence, and international norms.

The paper investigates Brazil-Japan relations by analyzing climate change policies in three political periods in Brazil: The Workers' Party (PT), Temer, and Bolsonaro administrations. Furthermore, Japan had the initiative to launch a joint statement on the Japan-U.S and Brazil Exchange in November 2020. Under this triangle cooperation, it will seek to strengthen involvement in Brazil towards achieving Sustainable Development Goals (SDGs) based on liberal global governance with human rights, democracy, and the rule of law.

By analyzing these two dimensions of the relations between Brazil and Japan, we can make two propositions. Firstly, identifying the conditions, objectives, and effects of the strategic partnership between Japan and Brazil can also be helpful to elucidate the dynamics and consequences of engagement through strategic partnerships between other emerging powers, such as India-Brazil relations.

Secondly, including the 2030 agenda for Sustainable Development in strategic

cooperation could promote comprehensive collaboration. As the confrontation between the U.S. and China becomes more acute, enabling the SDGs could mitigate conflicts between countries if strategic partnerships in addressing global issues go beyond the mere pursuit of economic interests. The practice could be a driving force in building cooperation between the two countries and creating more balanced relationships that attempt to restrain dominance and subordination in a less polarized order.

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Community Action and the urgency around climate and health policy in the Caribbean: agency and shaping of local priorities

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Do the concerns of local actors coincide with global norms relating to climate and health? Important development partners like the Pan American Health Organisation in 2018 and the European Union in 2019 have supported and encouraged the development of Caribbean SIDS' action plans and targets and the strengthening regional and national policy on climate and health. These developments are part of larger global trends around prioritizing and sensitizing relevant actors on the urgency of mainstreaming climate change into national health policy. Despite community engagement in climate policy gaining prominence, how global norms on climate and health diffuse into and are interpreted in community contexts is poorly understood. The study, by investigating community groups' approaches to resolve the members' challenges, sought to contribute to a better understanding of community led action on health and climate change and its

relationship with global agenda-setting and with norm diffusion in SIDS. The study is based on interviews undertaken between 2020-2022 with coastal community groups from one Caribbean SIDS and sought to give a space to local voices. The results of study contrasts dominant global narratives underlying recent regional and national policies and suggest that this area is still one of norm contestation between local development priorities and global norms on climate and health. The study contributes in the following ways. First, situated within norm diffusion debates, it develops a conceptual framework around scale, power and agency, and drivers of norm penetration in the context of health and climate change. Second, using regional and national policy documents, it tracks the recent historical trajectory related to the mainstreaming of climate into health regional and national policy in the anglophone Caribbean using the lenses of scale, contexts, power, and agency. Third, it registers the voices and views of coastal community groups on their development priorities in the context of climate change and health. Fourth, using the lens of norm diffusion, it highlights the disconnect between local voices and the global norms around the urgency and mainstreaming of climate change-health into regional and national climate policy. By pointing to the disconnect between community priorities and developing regional norms, the study can help development partners and national agencies to shape climate change and health policies in ways that are more inclusive of local needs. The study contributes to wider debates around norm penetration and contestation and around the power of external agents to shape local discourses and norms.

Panel ID 127 | Virtual

Managing ecosystems in the Anthropocene: Perspectives on adaptation from marine and terrestrial ecosystems

Panel Day and Time: TBD

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From inertia to slow motion: Learning processes behind UNCCD's adaptation

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Desertification governance took a pivotal turn in 1994 when the United Nations Convention to Combat Desertification (UNCCD) was signed. This environmental treaty resulted from “difficult and sometimes painful” negotiations among developing and developed countries in a context of “scientific controversies about the real nature and extent of the problem”. This may explain why the UNCCD stands out for its adaptability, at least on paper. The Convention provides for periodic reviews of various activities, which can help states monitor the need for potential treaty updates. It also created several institutions that can inform the adaptation process, such as a Committee on Science and Technology. Lastly, it includes procedures for adopting amendments and additional annexes.

Yet, in the 27 years of its existence, the Convention has never been amended or complemented by a protocol. This absence of formal treaty change may seem all the more puzzling that at the end of its first decade, the UNCCD was subject to harsh criticism from scientists and delegates alike. However, the UNCCD's adaptation to its new circumstances

should not be judged solely based on formal amendments and protocols. Since the entry into force of the Convention, each of the 14 Conferences of the Parties (COP) has adopted 31 decisions on average, some of which have contributed to institutional changes. In particular, COPs 8 and 13 established ten-year strategic plans to enhance implementation; COP-11 gave birth to the Science-Policy Interface; and COP-12's decision on achieving SDG target 15.3 on land degradation neutrality gave a new orientation to the Convention. These adaptations suggest that delegates have learned some lessons, and that at least part of these lessons have been institutionalized within the UNCCD framework. This paper investigates the processes behind and obstacles to such institutionalization. It builds upon causal pathways on how ideas influence policy outcomes, and conception of ideas as ‘coalition magnets’. It argues that multilateral treaty adaptation results from 1) experience and/or external influence; 2) deliberate efforts of a state coalition to translate its updated causal beliefs into the treaty system; and 3) inter-coalition learning to build consensus around new causal beliefs.

The paper traces processes linking learning and adaptation within the UNCCD framework through document analysis and 25 semi-structured interviews with key informants. The paper contributes to the literatures on institutional change, institutional learning, and desertification governance.

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Overall Effectiveness of the International Environmental Treaty System: Accounting for Problem-shifting

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International environmental regimes are intended to ameliorate the problem that led to their creation. Conventional formulations used to measure regime effectiveness, such as the Oslo-Potsdam solution, measure effectiveness on a scale across the spectrum - absence of the given regime and an optimum solution being presented to solve the problem. In doing so, they do not take into account the factum that problem-shifting as both an internal and external force of the regime either aids to or impedes the outcome of the formulation. Environmental problem-shifting, as treaties shifting their problems to different regimes in a bid to achieve their goals, questions their overall effectiveness in addressing the objectives that led to their creation and is thus an inalienable factor in this assessment. In this paper, we incorporate problem-shifting and its interrelationship across different treaties as a systemic factor into the formulation of regime effectiveness and examine the overall effectiveness of the international environmental treaty system; where overall effectiveness is defined as an overlap between the outcomes of individual treaties and incidences of problem-shifting. We use expert survey, social network analysis, environmental data from repositories including EDG and KNB, and statistical analysis to quantify the overall effectiveness of the system. We show that environmental problem-shifting reduces the overall effectiveness of the system despite the presence of some effective regimes. Further, we argue that the same systemic interlinkages that allow problem-shifting could in turn be mobilised to facilitate synergy, and effective problem-solving and improve the overall effectiveness. The work, as a quantitative study of problem-shifting's (in)effective contributions to the international environmental treaty system provides the basis for subsequent assessments of systemic effects of problem-shifting and provides a bird's eye view of the effectiveness of the whole system.

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Governing Synergies: Ocean, Forest, Biodiversity, and Climate

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Fifty years after the United Nations Conference on the Human Environment (UNCHE), a comprehensive environmental governance architecture is still needed. Fortunately, Earth System Governance (ESG) offers the lens through which adapted governance arrangements across sectors can be crafted. This article investigates the governance of four prominent environmental governance areas: ocean, forest, biodiversity, and climate governance. It asks *How can interdependent environmental issues be governed synergistically?* Aiming to move beyond inconsistencies, deadlocks, fragmentation, and overlaps in global environmental governance, it argues in favour of a comprehensive approach to the governance of these four key constituents of the Earth System. Through the lens of ESG, it offers pragmatic pathways toward governing their synergies and building a common governance architecture.

We first distinguish ocean, forest, biodiversity, and climate governance respective histories, networks of actors, and architectures. Second, we identify interdependencies and overlaps between the four areas where integrated and coordinated governance arrangements could prove beneficial. Third, building on the notion of governance synergies, we propose a framework for their integration. Based on the analysis of international, national, and local programs and interviews with different experts and stakeholders working in the four areas of environmental governance, we show that synergies between ocean, forest, biodiversity, and climate governance can be harnessed under a comprehensive multi-level framework, within common timeframes, and lead to concerted actions.

This paper brings together the theoretical and empirical insights of the last decades of research in ESG to develop governance architectures that work ‘beyond-silos’. It closes with the investigation of how governing synergies could help achieve the Sustainable Development Goals (SDGs), steer the momentum toward the objectives of the Paris Agreement, support ongoing efforts under the UN Decade of Ocean Science for Sustainable Development, bring coherence to forest governance, and influence negotiations on Areas-Beyond National Jurisdiction (ABNJ) and the post-2020 Global Biodiversity Framework. Ultimately, it aims to support the work underway to strengthen ocean, biodiversity, forest, and climate governance.

Panel ID 219 | Virtual

Sectoral Options for Advancing Global Climate Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Global Governance for the Decarbonisation of Energy-intensive Industries: Exploring Sectoral Options

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Energy intensive industries (EIs) account for about 20 percent of global greenhouse gas emissions. Accordingly, their decarbonisation is essential to achieve the mitigation goals of the Paris Agreement. At the same time, the transition of EIs is hampered by crucial barriers such as high global competitiveness,

long investment cycles and limited (market) availability of effective mitigation technologies. Global governance and sector specific initiatives offer great potential to address these barriers and increase the speed of industrial decarbonisation globally – a potential that has so far remained vastly underexploited. The paper aims at identifying and assessing in detail major options of global governance for closing the existing governance gap and advancing the decarbonisation of the main EIs (i.e., steel, cement and concrete, chemicals, and aluminium). To this end, the paper proceeds in two major steps.

Building on and updating recent analysis on the global governance of EIs, the paper first identifies existing gaps in the global governance of the transition of EIs, by comparing the theoretical potential of global governance along six core governance functions (signal and guidance, rule setting, transparency and accountability, means of implementation, knowledge and learning, and orchestration and coordination) with the existing supply of global governance. It finds that, while supply remains limited, recently established global sectoral initiatives provide a promising basis for further enhancing governance, in particular regarding the functions of signal and guidance, as well as rule setting.

On this basis, the article proceeds in a second step to identifying and assessing concrete options for enhancing the global climate governance of EIs to address the gaps identified and drive forward the transition to climate neutrality. It analyses if and how reforming existing institutions can address the identified governance gaps, before discussing the possible creation of new institutions to address remaining gaps (e.g. steel climate club). Several concrete sectoral governance options are presented and evaluated along the criteria of membership, institutional capacity and expertise, legitimacy/authority and feasibility of reform or creating new institutions. The analysis provides priorities and ‘feasible’ steps towards a better exploitation of the potential of global governance for the decarbonisation of EIs that

can drive forward the sector's transition to climate neutrality.

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On the Road to Somewhere? Assessing Climate Governance Gaps and Options for the Land Transport Sector

Catherine Hall, Harro van Asselt

University of Eastern Finland

Notwithstanding its overall importance, the United Nations (UN) climate change regime has so far played a limited role in driving sectoral transformations towards climate neutrality. However, the challenges and opportunities for sectoral transformations, as well as the need for, and potential of, international governance, differ across varying sectoral systems. Land transport is a major emitter of greenhouse gas emissions, and one of the most difficult sectors to decarbonise. Emissions from the land transport sector are projected to rise, with almost all transport activity continuing to rely on fossil-fuel powered internal combustion engines.

Against this background, this paper assesses the extent to which international governance can help promote the transformation towards sustainability and decarbonisation in the land transport sector. It first identifies the key challenges and barriers to sectoral decarbonisation in land transport, as well as any unexploited potentials. The paper then examines the potential of existing international and transnational institutions (including both intergovernmental forums such as the UN climate regime and transnational governance arrangements such as the SLoCaT Partnership) by mapping them against six key governance functions, namely: (1) guidance and signal, (2) rules and standards, (3) transparency and accountability, (4) means of implementation (5) knowledge and learning, and (6)

orchestration. The paper accordingly analyses the existing governance landscape to identify to what extent current institutions have been exploiting these governance potentials.

The paper finds that the overall international governance potential in the area of sustainable mobility remains underexploited. For example, the potential for providing transparency and accountability has only been exploited in some respects. The UN climate regime pays little attention to sector-specific developments, despite its comprehensive reporting obligations. Moreover, transport-specific tracking frameworks from other institutions are voluntary in nature and do not track the extent to which national public transport spending supports high or low emission pathways. The paper therefore explores how international governance may be enhanced in the land transport sector. Specifically, the paper will explore the potential of a transformational climate club focused on electric mobility to bridge some of the governance gaps. The paper draws on a review of available policy documents (including outputs from relevant international and transnational institutions), as well as secondary literature. The findings from this review are complemented by sectoral stakeholder interviews to identify options for institutional reform and the prospects of a climate club in the land transport sector.

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Governance landscape and challenges in the Agriculture, Forestry and Other Land Use sector for climate change mitigation

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Land-based activities are increasingly acknowledged for their important ongoing and potential contributions to the Paris Agreement's mitigation target of reaching carbon neutrality in the second half of this century by reducing emissions and increasing removals from the sector, as well as by its capacity to produce biomass to substitute carbon-intensive products. Land use also plays an important role in short- and medium-term mitigation targets set out in countries' Nationally Determined Contributions (NDCs). At the same time, land is a critical resource for multiple developmental and environmental objectives, providing food, fodder, fibre, fuel, and a multitude of other goods and ecosystem services that are fundamental to human well-being. Due to its finite nature, land is subject to competition among these different uses and objectives, and good governance of land is therefore fundamental to ensure socially and environmentally sound arbitrages among them. More specifically, the way land is accessed, managed and controlled plays a key role in ensuring sustainable social and economic development, peace and environmental justice. In this context, climate change mitigation must be compatible with the preservation of other ecosystem services and respect for local communities' rights, which requires a multiscale and fit-for-purpose governance structure. Despite some recent progress, land governance structures largely lack the capacity to adequately ensure that land is used to achieve a multitude of the objectives listed above.

This paper will assess existing AFOLU governance instruments to enhance ambition and implementation of NDCs while integrating environmental and developmental objectives other than mitigation, and study the barriers and possible solutions to the governance gaps that are identified. To do this, we will begin by reviewing relevant literature and interviewing stakeholders and experts on AFOLU governance. Second, we will discuss the key governance objectives in AFOLU. Third, we will map the current governance landscape in AFOLU and assess the extent to which existing institutions and instruments are able to

address climate change mitigation according to the identified objectives, as well as the challenges and barriers to said purpose, exploring remaining gaps and unexploited potentials. Last, we will explore and discuss different options to bridge these governance gaps - including reforming existing institutions, creating new ones, or improving the coordination across existing institutional arrangements - building on previous research and considering linkages between AFOLU and other sectors.

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Pathways to an International Agreement to Leave Fossil Fuels in the Ground

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Fossil fuels - coal, oil, and gas - are the single largest contributor to greenhouse gas emissions. To achieve the long-term temperature goals set by the 2015 Paris Agreement, fossil fuel production cannot continue to proceed unabated. Limits need to be set on expansion and a process agreed for managing decline of existing investments and infrastructures. Acknowledging the linkages between fossil fuel production and climate change, a growing number of countries have begun to take measures to restrict fossil fuel supply, including moratoria, extraction taxes and reforms of fossil fuel producer subsidies. While such supply-side measures can offer an important complement to traditional, demand-oriented climate policies, their effectiveness would be strengthened by international cooperation. International cooperation can help build trust that other countries are taking action, avoid leakage effects, and ensure a fair and equitable transition away from fossil fuel production. International institutions can help by setting overall goals, putting in place mechanisms to

strengthen transparency and accountability, offering capacity-building, financial, and technological support, and disseminating information, allowing for learning across countries.

However, there is a dearth of international governance arrangements focusing on the climate impacts of fossil fuel production, with the international climate regime only offering limited guidance to states and non-state actors. Nevertheless, with the launch of the Beyond Oil and Gas Alliance at the Glasgow Climate Conference in 2021, international cooperation on fossil fuel production is beginning to emerge. Academics and civil society organisations, in the meantime, are calling for a specific ‘fossil fuel non-proliferation treaty’ to complement the Paris Agreement.

An outstanding question is how international cooperation could evolve to bring about a managed decline of fossil fuel production. This paper explores two possible pathways – one following a club model, and the other more akin to a multilateral environmental agreement. Specifically, the paper discusses the participants in an international agreement, the forum through which cooperation will take place, the modalities, principles and procedures underpinning an agreement, and the incentives to induce cooperation. The paper concludes that the most likely scenario at this juncture is the emergence of club arrangements covering particular fossil fuel sources and groups of actors which, over time, can give rise to a more coordinated and multilateral response.

Panel ID 331 | Virtual

The “carbonification” of ocean governance: the oceans as the new ‘blue frontier’

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

731

The rise, fall and rebirth of ocean-based climate solutions.

Constructing the ocean as a necessary field of mitigation

Kari De Pryck

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In the context of debates on carbon neutrality, ocean-based carbon dioxide removal (CDR) solutions, or negative emission technologies (NETs), have gained scientific and political attention. Such interest is visible among other with the publication in 2019 by the Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) of an assessment of marine geoengineering techniques, or the attempt by the United States National Academies of Sciences, Engineering, and Medicine (NASEM) to develop a national research strategy for ocean-based CDR/NETs. In this paper, we explore current and historical developments around ocean-based CDR/NETs using both quantitative and qualitative methods. We present and discuss several network maps (using scientometric methods) covering a wide range of ocean CDR/NETs, including ocean fertilisation, blue carbon, ocean alkalisation, and artificial upwelling. These maps allow for an exploration of the evolution of the field as of today (November 2021) as well as in time (before and after 2015), and of its main actors

(institutions, funders, journals and scientists). Combining the network maps with document analysis and expert interviews (18), we show a shift from research on iron fertilisation in the 1990s and 2000s to blue carbon in the 2010s, which coincided with politico-scientific developments in the second half of the 2000 - e.g. the London Convention/London Protocol (LC/LP) resolution restricting iron fertilisation and the United Nations Environment Programme (UNEP) report on blue carbon - and a focus on no regrets strategies and co-benefits. We further link the recent interest in ocean-based CDR to the publication of the 2018 IPCC Special Report on Global Warming of 1.5 °C (SR15) which contributed to locking-in CDR in scenarios and pathways reaching 1.5 °C and to making the development of CDR approaches seem necessary and inevitable. Overall, we aim at drawing attention to the scientific and political strategies through which ocean-based climate solutions are being put on the agenda and the need to study them as *social constructions* and products of historical developments, collaboration and competition.

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Oceans in climate (in) justice: emerging claims between ocean governance and climate governance?

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The literature in international law, Law of the Sea and Island Studies has been questioning the appropriateness of climate and ocean legal regimes to address ocean changes. Given the unsuitability of UNCLOS and UNFCCC conventions to acknowledge the ocean as climate regulator, this article maps out how mechanisms linking ocean governance and climate governance have developed and operated since the Paris Agreement (2015). The paper relies on the analysis of official documents and video content released by the UNFCCC, UNFCCC COPs Pavilions (e.g. COP26 Virtual Ocean Pavilion), UN Oceans, UN Decade for Oceans and the FAO. It gives a specific attention to the political space of the UNFCCC with regard to the Ocean and Climate Dialogue, Nairobi Work Programme and the Marrakech Partnership. Although ocean governance studies observe an increasing 'climatisation' of ocean governance, we also suggest that an 'ocean vitalization' of climate governance might simultaneously be taking place. The latter is mediated by Small-Island Developing States (SIDS) and Least Developed Countries (LDCs), but also nations, civil society organisations, Black, Indigenous and People of Colour (BIPOC) movements, non-profit, non-governmental and scientific organisations. With regard to concepts emanating from European Afrofeminisms, Black Feminist thought, legal geography and political geography, we critically reflect on two aspects. First, ocean-climate governance actions seem unable to address the ocean-climate nexus, as they neither raise the ambition of GHG emissions reduction nor accelerate the 2050 goals timeline based on ocean tipping points. Second, the ocean-climate nexus plays a significant role within the lived injustices in rapid climate change of Global Majority groups- as defined by Campbell-Stephens in opposition to the use of the criticised term 'ethnic minorities'. However, these emerging ocean-climate governance mechanisms seem designed exclusively, thus sidelining Indigenous People, Black People and People of Colour's expectations, leadership and knowledge from tailoring the solutions. The paper concludes that understanding ocean governance and climate governance together

through ocean justice and climate justice defined as racial justice and knowledge recognition is essential to bridge the political, legal and justice gaps surrounding the governance of our ocean.

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Risking risk trade-offs in ocean fertilisation governance

Renate Reitsma¹, Rakhyun E. Kim²

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Risk-risk trade-off decisions have become inherent to the governance of environmental problems. The complex earth system, the existing structure of multilateral environmental agreements and increased human impact on the environment contribute to why decision-makers face environmental problems that cannot be solved without risking the creation of new and severe problems. For example, in 2007 Parties to the London Protocol were faced with ungoverned ocean fertilisation technologies used by private companies to mitigate climate change and offset carbon credits through the Kyoto Protocol. Inherent to the governance of ocean fertilisation is a balance between the devastating risks of climate change and the risks to the marine environment if ocean fertilisation technologies are used to mitigate climate change. How parties weighed these risks and why this process lead to the Protocol's Amendment of 2013 remains puzzling. A better understanding of risk-risk trade-off decision-making in environmental governance requires attention. The study aims to explain how and why risk-risk trade-offs happen in global environmental governance. We used an explaining-outcomes process-tracing method to trace the decision-making process of ocean fertilisation governance between 2006 and 2013. We employed an abductive approach between an assessment of

theory on risk-risk trade-offs, a systematic literature review of peer-reviewed articles that address the governance of ocean fertilisation, and empirical data collected through a content analysis of governmental documents and 15 interviews with observers and negotiators. The presence of causal mechanisms were identified through data observations that can be turned into evidence when they contribute to the explanation. This demanded an iterative process between the empirical data and existing literature and theory until a sufficient explanation of the risk-risk trade-off is the result. The result of this study is a reconstruction of the decision-making process in which trade-off decisions are the thread through the story around ocean fertilisation governance. We will have a better understanding of what trade-offs were considered and how trade-offs were weighed. We identify important conditions and mechanisms for risk-risk trade-off theory important in environmental governance. Influential factors and mechanisms include the weighing of risks, the influence of institutional structures, decision-makers' behaviour and problem framing of advocates. Finally, the study will demonstrate the usability of a process-tracing method for analysing risk-risk trade-off cases. The policy implications relate to the international governance response to emerging climate engineering techniques which involve high levels of uncertainty about effectiveness and risks.

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Contesting climate change in BBNJ negotiation: Practices of linking and unlinking marine biodiversity and climate change politics

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Two-thirds of the world's oceans and approximately 40% of the Earth's surface constitute what we consider to be the high

seas. Marine biodiversity in these areas is poorly studied, difficult to manage, and out of the scope of existing global environmental agreements. This is why governments started to negotiate a new international legally binding instrument for the conservation and sustainable use of biodiversity beyond national jurisdiction (BBNJ). Although issue linkages between BBNJ and climate change may at first glance significantly contribute to the effectiveness of environmental regimes aiming to protect the high seas, many governments are rather hesitant to frame BBNJ as a climate mitigation solution space. However, in the context of the BBNJ negotiations themselves, issue linkages between climate change and marine biodiversity are rather contested and a political issue itself. In the current treaty draft, climate change is either mentioned in relation to general stressors on the ocean and "cumulative impacts" or in conjunction with ocean acidification. However, most references to "climate change" are bracketed text contested by actors seeking to unlink BBNJ and climate change during the negotiations. Based on ethnographic data collected during four BBNJ intergovernmental conferences, we aim to analyse related practices and understand how and why governments strategically link and unlink BBNJ to climate change politics.

Panel ID 343 | Virtual

Post-2020 Sustainable Food Systems Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Bringing biodiversity to the table of global food systems law and policy: an interactive approach.

Dr Joanna Miller Smallwood

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Food production accounts for 80 percent of deforestation globally and unsustainable food and agriculture systems that overexploit natural resources are a key contributor to biodiversity decline. Paradoxically, human-led destruction of biodiversity, in part caused by food production and consumption systems, severely challenges the planet's ability to feed the world's population an adequate and healthy diet and to achieve Sustainable Development Goal 2 (SDG 2) to achieve zero hunger by 2030. With increasing global population and income levels, and rising consumption of meat and dairy products particularly in large transition countries, the environmental effects of food systems are set to increase by 50–90% by 2050. Such pressures push far beyond our planet's safe ecological limits.

More than ever, it is apparent that more effective governance is needed in relation to food production and consumption systems that properly accounts for biodiversity. The conceptual framework of interactive law is applied which sees certain conditions must be met to enable law and policy to be interactive. Interactive law sees that normative legal obligations do not necessarily flow from traditional sources of international law such as treaties and custom, non-traditional sources

such as decisions of treaty institutions and political agreements can be normative and achieve compliance when certain criteria are met, both at the international level and the domestic level.

Firstly, this research draws upon interactive law to analyse international laws and policies on food production and consumption including: the 1992 UN Convention of Biological Diversity Aichi Targets (Aichi targets and Post 2020 action targets), and the UN 2030 Sustainable Development Goals (SDGs) and their implementation in the UK, next data from interviews with actors implementing sustainable production and consumption laws and policies in the UK are analysed. The results are used to outline challenges and opportunities for post-2020 governance through strengthened implementation.

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*Of headquarters and country offices.
Mainstreaming agricultural
biodiversity inside the FAO.*

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Institute for Environmental Studies (Instituut voor Milieuvraagstukken, IVM), Vrije Universiteit Amsterdam

Global agricultural policies have traditionally focused on intensified production and output increases to secure the nutrition of a growing world population, especially in countries of the Global South. As a side effect, prevalent agricultural policies and practices account for around 70% of biodiversity loss globally. At the same time, agricultural output itself is highly vulnerable to biodiversity loss as exemplified by the loss of pollinators. Mainstreaming biodiversity into agriculture is thus imperative for long-term global food security and for the post-2020 global biodiversity agenda.

The UN Food and Agriculture Organization (FAO), traditionally a major promoter of agricultural intensification, has responded to

this challenge by integrating norms related to agrobiodiversity conservation in its key global policies. The FAO is a decentralized organization with highly independent country offices, some of which exercise strong influence on their host countries' agricultural policies and practices. Staff in these offices is said to be particularly oriented towards agricultural intensification as their primary objective. There is hardly any evidence whether and how norms related to biodiverse agriculture adopted at the FAO headquarters translate into its country and field-level work. Yet, if we are concerned with mainstreaming biodiversity throughout the global agricultural system, we need to better understand (obstacles to) the translation of norms of sustainable agriculture from headquarters to country offices.

As a first step to empirically trace such processes, I conduct a qualitative content analysis of FAO's global agricultural policies and planning on the one hand and FAO India country programs on the other hand. A comparison of the similarities and differences of these documents allows identifying the degree of uptake of global norms related to agricultural biodiversity at the country level. With India being home of the green revolution, strongly supported by the FAO, and having a highly intensified and output-oriented agricultural system, the FAO India office is a particularly apt case to scrutinize such norm-transmission within the FAO.

In concluding I offer some theoretical suggestions how future research might develop global norm socialization/localization research and international organizational sociology into an explanatory framework for intra-organizational norm mainstreaming. From a policy angle, I reflect on the implications of the observed degree of biodiversity mainstreaming inside the FAO for the broader global post-2020 biodiversity agenda.

738

Problems and prospects of multistakeholder governance for sustainable food systems

Dr Izabella Delabre

Birkbeck University

Multistakeholder approaches are considered a normative and increasingly dominant feature in the governance of sustainable supply chains and food systems. Such approaches promise to represent the interests of multiple actors in decision-making, and are underpinned and legitimised by the principle of deliberative democracy. This paper examines two case studies: the Roundtable on Sustainable Palm Oil and the UN Food Systems Summit, to highlight which global and local level stakeholders are included in governing, on whose behalf, how, and with what effects. Examining these cases reveals that in practice, “equal” treatment of all actors can serve to depoliticise participatory processes, create further exclusions of those most affected by unsustainable practices, mask the responsibilities of the culprits of environmental and social harms, and weaken accountability. Given the problematic practices in the multistakeholder approaches studied, the paper discusses prospects for more effective and equitable governance of sustainable food systems, addressing the questions: What opportunities are there to redress power imbalances within and outside spaces for multistakeholder governance? What alternatives and alliances exist that may support transformative governance for sustainable food systems?

739

The role of saline agriculture initiatives in addressing food and biodiversity nexus

Katarzyna Negacz

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Salinization, understood as an increase of the salt content in the soil, is one of the main challenges of contemporary agriculture. It threatens crop yields along with biodiversity, in particular in the coastal ecosystems, and exerts pressure on food security and sustainability. Progressing climate change with more persistent droughts and sea-level rise is expected to increase this challenge altering agricultural biodiversity. At the same time, an increasingly complex institutional landscape has evolved across multiple issue areas of global environmental governance related to salinization. Various public, private, and hybrid actors coming together by creating initiatives to address the issue of growing salinization through saline agriculture and establish sustainable food systems. Yet, little research has been done to evaluate their capacity to reach their goals. Therefore, the aim of this study is to analyse the performance of international saline agriculture initiatives, especially in terms of implementing sustainable food systems and supporting agricultural biodiversity.

In this article, we systematically evaluate the ability of international cooperative initiatives operating in saline agriculture to achieve their stated goals related to food sustainability and biodiversity. Drawing on the latest developments in the literature, we design a framework to evaluate their goals and results. We test the framework empirically on a dataset of 100 saline agriculture initiatives in Europe and North Africa collected via semi-automated content analysis and validated through expert interviews. Based on our results, we formulate recommendations on

how saline agriculture initiatives can be supported in achieving their goals.

The preliminary results reveal that the governance landscape is dominated by initiatives involving public actors with a focus on operational and on-the ground activities followed by information sharing and networking. The majority focuses on conventional agricultural biodiversity with some exploring halophytes, plants typical for salty environments. The activities of the initiatives address most often SDG2 “Zero hunger”, while SDG15 “Life on land” comes on the fifth place. We discuss these findings in relation to ongoing debates on challenges and solutions in the post-2020 Global Biodiversity Framework.

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Organic hazelnut production and biodiversity in the Caucasus: A sustainable farming pathway for Georgia?

Owen Cortner

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Land clearing for agriculture in the former Soviet Union country of Georgia had largely ceased by the late 20th century, so land use change related to agriculture will likely occur on existing agricultural land or fallow arable land. The pathways taken (e.g., intensification, extensification, organic, etc.) will have a major influence on the future conservation outcomes of agriculture.

Hazelnuts are an important crop in Georgia. Farmers are experimenting with the adoption of organic practices in hazelnut orchards to improve financial returns, access European markets, and reduce harm to the environment, especially invertebrate[1] and bird species. However, as of 2018, the Georgian government had not articulated specific policies for organic hazelnuts, availability of organic inputs was low, and many farmers

were not aware of organic farming generally or about the specific opportunities and challenges of producing organic hazelnuts. A policy institute identified three systemic recommendations for the hazelnut sector: increasing trust between value chain actors, value chain financing, and partnerships to build knowledge, skills and attitudes[2].

In the context of post-2020 food system governance, increasing trust and building knowledge-skill-attitude partnerships (KSAPs) are two critical areas of research. Trust and KSAPs speak directly to the theme of effective forms of architecture and agency and to the challenge of creating governance interventions and societal actions that move towards sustainability.

The research aims to answer two questions. 1) Which practices and production arrangements would encourage more trust between hazelnut value chain actors? 2) Which partnerships and educational efforts would increase the pool of knowledgeable, skilled, and confident farmers pursuing organic agriculture in the hazelnut industry?

Using semi-structured interviews, participatory design research, and games, we will explore answers to these questions from the stakeholders (e.g., farmers, processors, buyers, ISET/Tbilisi State University, Georgian Ministry of Environmental Protection and Agriculture) themselves. Semi-structured interview transcripts will be coded with NVivo and analyzed using grounded theory. Participatory design and game results will be summarized in quantitative and visual formats to present the types of decisions and preferences expressed by stakeholders. The results of the study will have an important practical bearing on wider adoption of more sustainable food system pathways in Georgia.

Panel ID 485 | Onsite

Global Sustainable Finance Governance: Architecture, Agency, Risk and Power

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Whose risk counts? Climate risk narratives in global green finance governance complexes

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Lund University

The role of financial actors in combating climate change has rapidly grown in recent decades, particularly through the increasing intersection between global financial governance and global environmental governance. The new phenomenon enlarges the transnational green finance governance field, in which new norms, standards, and policies are developed and affect financial flows to decarbonize the global economy. This trend diversifies the kinds of actors involved in global climate governance (e.g., central banks, bond managers, insurers, etc.), and these actors increasingly initiate new transnational governance institution, such as Ceres Investor Network on Climate Risk and Sustainability. Interestingly, a primary goal of these governance institutions is to respond to risks posed by climate change, and those governance institutions develop different types of risk frames—e.g., macroeconomic risk, policy risk, litigation risk, transition risk, or environmental risk. Understanding these risk narratives is significant because they lead to distinctive “de-risking” policies, benefiting particular types of climate-affected actors that operate under asymmetrical power structures in the global economy. This research

investigates how the existing transnational green finance governance institutions produce similar or different risk frames in regime complexes, as well as the normative implications of climate-related risk framings. We examine the following research questions. First, in the risk narratives of global green finance governance institutions, who/what is framed as a risk posed to whom? Second, what organizational characteristics explain the common or different risk framings? Third, how does the interaction between the governance institutions affect risk framing? Despite some previous studies on global green finance, there is a lack of studies showing a comprehensive overview of the current global green finance governance architecture as a complex system producing coherent or fragmented ideas and norms. This research aims to fill the gap. We explore selected 60 transnational governance institutions of green finance and conduct a mapping exercise by coding their official documents using frame analysis as our method. Our mapping shows that most global green finance governance institutions emphasize climate-related risks linked to financial stability over other types of risks, in particular, environmental risks. The financial risk frame leads to a “financial de-risking” process and shows the economization of climate change in global green finance governance. These findings contribute to the debates on climate change-related social transition linked to justice concerns in the Earth System Governance community.

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Risk and Reward: Why Corporations Join Sustainable Finance Governance Initiatives

Christian Elliott

University of Toronto

At a high-profile event in Glasgow in December 2021, the former Governor of the Bank of England Mark Carney announced an alliance of

banks committing to “net zero” emissions for their respective assets under management. The announcement rippled throughout the global media as commentators highlighted the US \$130 trillion dollars of capital this group wielded. The very same corporations that international political economy scholars often identify as being authors of their own regulation, where “quiet politics” of low-salience lobbying is argued to more fruitful context for actualizing policy preferences in national and international fora, are now parading their activism in high-profile transnational initiatives. In this paper, I address this puzzle and unpack trends and variation in financial corporate participation in the area of “sustainable finance”. Participation in transnational sustainable finance governance initiatives (SFGIs), I argue, is driven by the need to hedge forms of risk that not only implicate the financial sector directly but also indirectly via the real economy: physical climatic risks, regulatory risks (what bankers call “transition risks”), and reputational risks. While the degree of risk varies across national contexts and may be conditional on the characteristics of firms themselves, SFGIs create focal opportunities for rulemaking and engagement with public actors, aggregating information, and producing opportunities for reputational brandishing. To test the argument, I collect firm participation data from 46 SFGIs between 2012-2020. Using country-level characteristics (including a novel operationalization of sustainable finance policy stringency) as well as firm-level attributes covering both the participation group and a randomly sampled case control group, I estimate the conditional odds of SFGI participation counts with a zero-inflated negative binomial mixed effect model. The argument and the analysis have several important implications for political science scholarship, but perhaps most critically, this research challenges functionalist assumptions when it comes to non-state corporate participation in global governance and transnational rulemaking; instead of conceptualizing and modeling participation in terms of direct costs and benefits, I argue we should think about corporate participation as

mixed strategies that provide insurance or hedge risk against changing tides in politics and society.

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Transnational Governance and Public Policymaking in Sustainable Finance: Interactions, Influence and Impacts

Stefan Renckens

University of Toronto

Improving the sustainability of the financial sector and investment decisions has gathered increased attention in recent years. Transnational private and hybrid rule-making initiatives—comprising actors from business and civil society in varying multi-stakeholder constellations—have been active in this area for over two decades. Examples include transnational initiatives developing rules around Environmental, Social and Governance (ESG) indicators, climate impact disclosure, and financial instruments such as green bonds. More recently, some governments and international organizations have also started developing rules and policies on sustainable finance, such as the EU’s sustainable finance taxonomy, while others have held consultations that have not yet resulted in concrete new policies, such as Canada’s Expert Panel on Sustainable Finance. In their reports and policies, public authorities often refer to transnational governance initiatives as inspiration and sources of expert knowledge. But to what extent has transnational governance directly and actively influenced policymaking? Based on survey interviews with representatives of transnational governance initiatives and policymakers, this paper examines why, how and when transnational initiatives directly interact with policymakers (e.g., through lobbying) and their likely influence on policy outputs. The paper argues that only a small group of powerful and high-profile transnational initiatives actively

participates in policymaking and that the influence of transnational governance is exerted more by its structural and discursive rather than its instrumental power. The paper contributes to recent research assessing public-private governance interactions and interest representation by transnational actors.

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Monetary Architecture and the Green Transition

Steffen Murau¹, Armin Haas², Andrei Guter-Sandu³

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How to finance the Green Transition towards net-zero carbon emissions remains an open question. The literature either operates within a market-failure paradigm that calls for a Pigou tax to help markets correct themselves, or via war finance analogies that offer a ‘triad’ of state intervention possibilities: taxation, treasury borrowing, and central bank money creation. These frameworks often lack a thorough conceptualisation of endogenous credit money creation, for instance when resorting to loanable funds theory, and disregard the systemic and procedural dimensions of financing the Green Transition. We propose that ‘monetary architecture’, which perceives the monetary and financial system as a constantly evolving and historically specific hierarchical web of interlocking balance sheets, offers a more comprehensive framework to conceptualize the systemic and procedural financing challenges. Using the US as an example, we draw implications of a systemic financing view while considering a division of labor between ‘firefighting’ institutions such as the Federal Reserve and the Treasury, and ‘workhorse’ institutions such as off-balance-sheet fiscal agencies, commercial banks, and shadow banks. We

argue further that financing the Green Transition must undergo three ideal-typical phases—initial balance sheet expansion, long-term funding, and possibly final contraction—that require diligent macro-financial management to avoid financial instability.

Panel ID 514 | Virtual

Real World Applications of Earth System Law

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The qualitative and quantitative aspects of law’s contribution to climate change adaptation

Margot Hurlbert

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As the world is confronted with the complex problem of climate change, and the increasing frequency and intensity of heat spells, droughts, and floods, our ability to respond and adapt to these changes becomes increasingly important. The changes are systemic (affecting many social structures), complex (cascading thorough different sectors system, and geographies) and contested (as different responses are not always agreed upon).

While adaptation governance has been a focus of adaptation scholarship, the role of law in mediating and improving resilience, or becoming a barrier or ‘hard’ limit to adaptation, is just emerging in study. Qualitative methods are essential to determine which laws address adaptation to extreme events (preventative measures building capacity and resilience to increasing aridity, drought, floods, and fires) by studying

the framing and nesting of policy problems. However, assessing the degree of resilience and the extent of capacity to respond to the increasing impacts of climate change, and assessing 'risk' relies on quantification of vulnerability, exposure and capacity. Similarly, law's contribution to adaptation can be, and is increasingly informed by quantitative risk assessments. This paper reviews scholarship surrounding law and adaptation from both a qualitative and quantitative analysis. Illustrative case studies of adaptation law from Canada, Argentina, and Chile demonstrate potential for both qualitative and quantitative methods. While important formative work is occurring in Earth System Governance, more possibilities for future Earth System Law scholarship are outlined.

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Operationalizing nexus governance at a planetary scale: An earth system law perspective

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Nexus governance recognises that sustainability concerns such as water, energy, and food security are all interlinked, and provides an alternative to the fragmented regulatory approach that treats these concerns as distinct and unrelated issues. The need for nexus governance is also becoming increasingly apparent at a planetary scale. However, international environmental law remains sectorally fragmented in the absence of an overarching norm that would bring together myriad international environmental institutions. Recognizing such a shortcoming, a group of scholars have recently proposed earth system law as a framework to rethink law in an earth system context. Here we build on the emerging literature and argue that international environmental law's full potential would be realised if it were itself to

embrace a perspective that is commensurate with the nexus governance demands of an interconnected earth system. More specifically, we point to international institutional law, a body of law governing the relationship between international institutions, as holding the key to operationalizing nexus governance at a planetary scale. By so doing, this article contributes to the emerging earth system law discourse by reflecting on how an earth system law approach to some of the international legal norms governing water, energy, and food could better facilitate nexus governance at a planetary scale.

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The Emerging Network of Transnational Climate Litigation

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In recent years, climate litigation has grown considerably in scope and diversity in many jurisdictions. Judicial decisions on issues of climate change refer to one another, mostly within one's jurisdiction, but increasingly to decisions made in other jurisdictions. This practice has become increasingly prevalent in recent years, to the extent they create what one might call a transnational legal field in the form of climate litigation network. Yet, how has this network emerged and evolved? Which cases are most influential on a transnational stage, and why? How do norms flow and diffuse on the network? To address these questions, this study uncovers, for the first time, the network structure of the emerging climate litigation system, and conducts network analysis complemented by content analysis of individual litigation cases. The resulting climate litigation network consists of at least 800 national and international cases from 1990 to 2021 connected through roughly 2300 cross-references, and the network is

growing rapidly. The study quantified the evolutionary dynamics, the relative influence of particular jurisdictions, and the cross-jurisdictional diffusion of climate litigation. This study reveals key conceptual and pedagogical insights into the growth of climate litigation and the canon of climate change jurisprudence. Notably, the global climate litigation has expanded considerably in the past decade, especially following the Paris Agreement. Much of the network relates to four themes: land use law, state regulatory shortcomings, constitutional law, and the EU Emissions Trading System. The network also provides empirical evidence of domestic and international norm diffusion. The United States, the European Court of Justice, and the United Kingdom account for most cross-references, but contribute to a comparatively small portion of transnational cross-references. In contrast, Australia, Canada, and New Zealand are major contributors to the transnational network. This study highlights the complex networked structure of climate change jurisprudence and the role of cascading legal precedents in shaping the future of climate litigation.

Panel ID 554 | Onsite

Asia Pacific Regional Perspective on the Earth System Governance Research

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Regional model for collaborative emissions abatement through shared NDCs

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The purpose of this paper is looking for propose a new model of collaborating approach to speed up the emission's reduction at regional scale by barter goods. To give an idea of how this would work at the regional level, countries like Chile could postpone the deadline for achievement of their own emission reduction goals (carbon neutrality at 2050) by supporting other countries to achieve even more than what was pledged faster than Chile. This could be accomplished, for example, by exporting renewable energy or green hydrogen to neighbors or high emitting countries in exchange for being granted more time to reduce Chile's emissions and the possibility of receiving support from others. The model is based on trading time by emissions by others. In this context, e.g. Chile's natural advantage could be leveraged by the contribution of developed economies through technology development and transfer of technologies that we need to export renewable energy or green hydrogen at the lowest cost. Consequently, the trading of good/services is based on economic value for countries seeking emission reductions,

thereby avoiding incentives to trade at over-market prices. In this case, Chile could be a renewable energy exporter at the lowest prices or exchange a good (green hydrogen) for valuable goods/services such as hydrogen engines, batteries, or backup systems that are needed to accelerate progress to achieve our own goals. This collaborative approach could be deployed in Asian-Pacific Region by setting regional reductions of emissions accelerating the Paris goals upon new climate governance systems. The paper will discuss what kind of governance systems the region could require deploying a collaborative regional model.

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Asian Regional Institutions of Forest Governance: From External Authorities to Self-Governance

Hang Ryeol Na

ALL SEEDS ACADEMY

The purpose of this paper is to explore how governance institutions have evolved for forests in Asia. Focused on a regional (continental/inter-state) scale of forest governance in Asia, it will attempt to highlight some emerging trends through a comparative and historical study. From 1950, when the Asia-Pacific Forestry Commission was launched by the FAO, to the present day, when the ASEAN and APEC among others are actively operating forest governance programs through various forms of collaboration, the institutional evolution shows us a process of 'Asianization' of forest governance. While Asian regional forest governance had traditionally been implemented by external authorities such as the World Bank, Asia-based institutions have taken the lead since the turn of this century. It can be prescribed as self-governance in that 'forest users in many locations have organized themselves to vigorously protect and, in some cases, enhance local forests.' What can explain this Asianization of forest governance? The paper

will discuss a variety of explanations and insights for the Asian self-governance such as the institutional maturity of Asia-based organizations, the increased value of forests in the context of global climate change regime, diplomatic ambitions of Asian countries, and so on.

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A Community Management Plus Model for the Governance of Community Drinking Water Systems: A Comparative Case Study of Pond Sand Filter Systems in Bangladesh

Muhammad Badrul Hasan

University of Dhaka

Community drinking water systems (CDWS) in Bangladesh and elsewhere of the global south often fail to perform optimally. It is now widely acknowledged that a pure community management approach will not reverse this trend. The CDWS end-users need support from the external entities regarding the organization of collective action that some have labeled as community management plus (CM+) approach. In order to understand what this support could look like; we particularly zoom in on the role of public agencies. I ask firstly, what conditions explain variation in collective action among the beneficiaries of CDWS? And secondly, what conditions explain variation in collaboration between CDWS end-users and a public agency? I lean on the concepts and insights drawn from the commons' literature. After all, the community drinking water system can be framed as a common pool resource (CPR). Its users frequently face appropriation and provision dilemmas, that have to be solved to avoid its failure. Based on this literature, I develop a list of enabling conditions for (i) collective action among CDWS end-users, and (ii) collaboration between the CDWS users and public agency. I applied this list to study the governance of

thirty pond sand filter systems (PSF)-community drinking water systems- in the Southwestern coastal area of Bangladesh. Computing correlation, I find that large group size, interdependency among the group members, heterogeneity of endowments, a high level of dependence on PSF system, locally devised access and management rules, and well-working collaboration between PSF users and public agency officials are significantly associated with the occurrence of collective action among the PSF users. I also find that collaboration between PSF users and the public agency is positively influenced by transparency and inclusive decision-making procedures, but mostly by a relation that is characterized by trust. The study findings are expected to help the policymakers and practitioners to optimize the implementation strategy of CDWS and thereby help to avoid the failure of the CDWS in Bangladesh and elsewhere of similar contexts.

Panel ID 627 | Onsite

Making the sustainability transition politically feasible

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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“Holy transition”? The Church as ‘glocal’ sustainability transition agent: The case of the Panamazonian Ecclesial Network

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In its biological and cultural richness and diversity, as well as in the exponentially progressing depletion thereof as a result of

unsustainable *glocal* development patterns, the Amazon basin can be seen as a ‘small universe’ mirroring the relationship between humanity as a whole and “our common home” (Pope Francis), and therefore a critical setting to experiment with the governance of sustainability transitions. The *Pan-Amazonian Ecclesial Network* (REPAM) is an ecclesial service, platform and network founded in 2013, which promotes cooperation among Church organizations, civil society actors, and the diverse population groups and communities living in an area of 34 million inhabitants, who collectively stand in defense of cultural and biological diversity in the face of an ever-expanding extractive frontier. REPAM can thus be understood as an unprecedented experiment in church-mediated *commoning* (Gibson-Graham et al., 2016) at the meso-/macro-societal level.

Yet the REPAM experiment is relevant not only because of the ecological and cultural importance of the Amazon region, but also due to its model-character. Indeed, REPAM has kickstarted a domino-effect of (self-)reflection and transformation across geographical scales and institutional levels. First, REPAM is branching into various replicative experiments in “other biomes/ territories that are essential for the planetary future” (REPAM, 2019): the Congo River Basin, the Mesoamerican Biological Corridor, the tropical forests of the Asia Pacific region, and the Guarani Aquifer. In addition, the REPAM-experiment has led to a process of institutional self-reflection and transformation in the Catholic church at the global level, to include the stewardship of “our common home” as a central feature of its mission (the “*Amazonization* of the church”, in Pope Francis’ wording).

This paper seeks to account for these unfolding developments, distilling insights into both structural and contingent conditions enabling/constraining the role of the Church as a sustainability transition agent in a particular territorial setting (“governance for transition”), but also to theoretically reflect on the changing roles and functions of sustainability governance itself (“governance in transition”)

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Crowdsourcing Utopia. How Vienna's Environmental Alternative Action Organizations Tackle the Lack of Transformative Agency in Eco-politics

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Theorizations of environmental alternative action organizations (EAAOs) have ranged between a sustainable materialist politics and depoliticized activism with negligible effects. Criticizing universalist diagnoses, empirical researchers have presented situated 'both-and-interpretations' that demonstrate EAAOs' ambiguity in societies under austerity and new public management. Organizations in societies that have *evaded* harsh neoliberal restructuring, however, have been largely neglected so far. Addressing this gap, I scrutinize existing arguments based on qualitative research conducted in Vienna, Austria. Theory-driven participant observation of a library of things, a community garden and a clothing swap reveal that participants suffer from the absence of substantive eco-political actions by liberal democratic institutions and themselves personally. The EAAOs respond by 'crowdsourcing' utopian everyday practices: via non-contentious framing and flexible participation a multitude of individuals is attracted for co-creating sustainable routines. This strategy sparks considerable resonance among participants, yet precludes coordinators from utilizing this resource in political processes, while risking organizer burnout.

865

Earth System Crises and the Reactive State: Explaining Structural Lock-Ins

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Advanced industrial states have so far failed adequately to respond to the accelerating anthropogenic crises of the earth system, most notably the climate crisis and the mass extinction of living species. Policies toward a sustainability transition continue to be squarely limited to approaches that aim for "green growth" or growth-dependent "green deals" that rest on hopes for an absolute decoupling of economic activity from ecological impacts. Despite increasing evidence, that these hopes are unfounded governments still refrain from taking more radical transformative action that would effectively reduce levels of consumption and the overall social metabolism. What is more, states seem structurally unable to face the possibility of an end to economic growth and of alternative modes of providing welfare and social stability.

In this paper, I analyse the reasons for this structural lock-in of transition trajectories. In a first step, I review the prevalent explanations provided by different theories of the state and of political economy, which either locate the problem at the level of capitalist hegemony and profit interests or on the functional dependence of states on tax revenue. To this, I add another analytical angle by exposing the necessarily reactive nature of representative order, and thus of modern democratic states. Building on a social-constructivist theory of the state, I argue that representation is able to form a stable order only if it is constructed to "react" to a reality that is perceived to be generated outside that order. In relying on the market system as their external source of "independent" facts, democratic representative systems externalise "authorship" of reality and deny accountability

for it. They are designed to reactively manage these external facts and hence to limit political conflict around ideological discourses of how best to deal with a reified reality that is generally accepted as externally created. That way, an increase in “externally generated” market prices is typically accepted without public protests while a purposive intervention into prices (or consumer choice) by governments easily sparks mass protest and destabilises entire political systems. However, deep transformative action would necessarily have to “internalise” large parts of reality-production by subjecting them to purposive political decision-making. Transformation thus requires the active authorship of reality by representative institutions, which necessarily destabilises the institutional system. I conclude with a proposal to reconfigure representative systems in order to render them more amenable to transformative change.

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Imperial Socioecological Transitions of Economies in the Global North and the Internalization of Costs by Countries of the Global South: The Case of Chile

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Chile’s economic position on global markets is determined by the export of natural resources. Most of these primary goods are part of global commodity chains that sustain an “imperial mode of living” in countries of the global north, characterized by unsustainably high levels of material consumption. On the one side, these high levels of consumption of broad parts of the population of Western societies have stabilized them socially and politically. On the other side, however, this has generated

ecological costs often externalized into countries of the global south. Similar processes of “sustaining the unsustainable” are currently being repeated within the framework of the transition towards green economies. While in countries of the global north carbon emissions are reduced, countries like Chile are bearing the social and ecological costs of a thereby caused expansion of copper and lithium mining. A great share of Chile’s society is excluded from the monetary inflows of the vast export of commodities and is suffering the consequences of the country’s economic model such as health problems, land scarcity, loss of water and alternative sources of income. In our contribution to the panel we show that existing global inequalities are likely to be reproduced by current efforts of greening the economies in the global north. Looking at the case of Chile, we claim, that an imperial socioecological transformation in countries of the global north functions firstly through the reproduction of global north-south-dependencies, secondly through mechanisms of internalization in the countries like Chile and thirdly through the undermining of fundamental socioecological alternatives emanating from local actors. In recent years, Chile witnessed an increase in social and ecological conflicts, many of them articulating with each other and providing possible references for socioecological alternatives in the future. In order for the latter not to remain isolated marginal phenomena and to assert themselves as real alternatives, they need to confront existing relations of domination that block them at the local, national and international level. These practices of resistance and the relations of domination in play must be analyzed in detail, most of all, looking at the power resources of the propertied classes as well as the mechanisms of internalization stabilizing and legitimizing the existing economic model.

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*From NIMBY to transformation?
Lessons from four case studies in the
Maule Region in Chile*

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Research on local environmental struggles as politicization processes opens a space for reflections on the contributions of socio-ecological resistance and proactive movements to build a transformative transition. This article seeks to empirically test Lea Sebastien's theoretical and methodological framework on "enlightening resistance" through four case studies from Chile, while additionally exploring the capacity of politically proactive movements to push socioecological change beyond "lifeworld sustainability" towards "systemic sustainability" (Hausknost). The objective of this study is to inquire into the usefulness of the "enlightened resistance" framework as a contribution to a larger theoretical effort to shed light on the blockers and enablers of political action towards transformative, systemic sustainability models. We use primary (interviews) and secondary (press releases, regional planning documents, environmental impact studies, and websites) data and apply interpretive content-based analysis on the variables of the "enlightened resistance" framework for each case. Our study finds a dulled transition from resistance to proactive-type movements disputing some aspects of Sebastien's thesis. While the movements are partially successful in reframing discourses about the territory, they do not translate into clear proposals capable of outcompeting the projects being resisted, nor into any change in decision-making processes. We introduce a hypothesis considering the application of the framework in socio-political and socio-economic peripheral contexts characterized by, on one side, a disempowered

civil society, and, on the other side, a type of sustainability governance characterized as "neoliberal" that intertwines economic rationalism/market-centered governance and administrative rationalism, favoring market actors as well as technocratic experts, while sidelining local actors. The capacity of proactive-type movements to transcend the boundaries of "lifeworld sustainability" has shown to be limited as a result of a structural decoupling of the latter from "system sustainability".

Stream 2

Democracy and Power

Panel ID 200 | Virtual

Deliberating the climate crisis: deliberative democracy and intergovernmental

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Do deliberative mini-publics foster intergenerational justice? An analysis of the 2020-2021 Scottish Climate Assembly

Nicky van Dijk

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Climate change poses young people and future generations with an incredibly uncertain future. While children and future generations will suffer most of its impacts, they have no voice in the policy-making that shapes their future. To include a more long-term perspective in climate law-making, proposals like commissioners for future generations and sustainability related constitutional provisions aim to better protect the interests of future people.

However, most of these proposals for institutions for future generations use

traditional (environmental) law and policy designs as a vehicle for change. Earth System Governance scholars and others question whether traditional legal mechanisms are equipped to deal with the uncertainties of the Anthropocene, such as the need for a longer-term focus.

One proposal that is growing in popularity is using mini-publics to transform the law-making process. At a mini-public dozens or even hundreds of citizens are selected through lottery—representative of the general public and therefore very diverse. They come together, often several times over the span of months, to have a dialogue about e.g. their country's climate change mitigation or adaptation plans. Together they aim to reach a consensus about complex social problems that will provide input to governmental decision-makers.

This paper critically analyses the usefulness of mini-publics to improve intergenerationally just law-making, taking the recent Scottish citizens' assembly about climate change as a case study. By considering its effectiveness, feasibility, institutional sustainability and moral legitimacy, the analysis discusses possible improvements, and highlights lessons we can learn from this democratic innovation to adopt in other institutional reforms.

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How Citizen Assemblies Demonstrate the Need to Strengthen Democracies in the Face of the Climate Crisis

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During the next decades, states have the responsibility to facilitate and guide sustainability transitions across all sectors.

Making these transitions just and inclusive requires new democratic practices and thought spaces. Despite the need to address climate change has gained more political attention, many leading politicians assume that the electorate would not accept more far-reaching climate action. To scrutinize this assumption, we explore how democracy and effective climate policies relate to each other. The article combines a perspective of normative democratic theory with the analysis of empirical cases. Doing so, we advance the debate on mini publics as important democratic innovation in the context of the climate crisis. To better understand the relationship between democratic decision-making and climate action, we have studied three cases of citizens' assemblies, which have been held on the topic of climate change, which are the citizen assemblies in France, Belgium and Luxembourg. Our research strongly suggests that the processes and structural conditions of democratic representation need to be rethought, re-imagined and changed. Increasing the ability of all citizens to effectively participate in collective decision-making processes will, in all likelihood, strengthen climate action in a socially acceptable way while deepening democracy at the same time.

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On global systemic deliberative democracy as a condition to planetary justice: a Planetary Original Position perspective

Johnny Marques de Jesus

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The demands for a conception of a planetary justice that can underpin an ecological global governance are given by the need for global coordination in the face of transnational socio-ecological problems. Such global coordination can only be processed in the context of

multiple, national and transnational agent's values, needs, interests and perspectives. On the other hand, the democratic ethos is by definition determined by the pluralism of values and conceptions in a given diversified group. Such pluralism in deliberative contexts is dynamically structured by a diversity of conflicting/collaborative argumentative and discursive patterns, which operate in the dynamics of reasonable disagreements towards shared meanings and collective decisions. Given these dimensions of planetary justice and deliberative democratic ethos, how can we define the conditions of possibility for the terms of adaptively generative global fair cooperation of a law of peoples, that embodies, in transnational political-economic institutional basic structures, universal and holistic principles of planetary justice, or a realistic utopia of a planetary and egalitarian eco-social well-being, in the face of the anthropocene? Such principles of planetary justice need to include our obligations to nature and non-human animals as well as our equally satisfied capabilities conceived as properties of a socio-ecologically integrated being. In this work, I will evaluate the procedural conditions of planetary justice in terms of a global systemic deliberative democracy, understood as a complex dynamical system of discursive mechanisms of cooperative networks, which generate dialogic sequence organization in interactions based on reasonable disagreements. Such interinstitutional and institutional sequence organization in interaction expresses itself in patterns of intersubjective argumentation and discourses of global deliberation. The pluralistic, multidimensional (socioeconomic-cultural--ecological) and adaptive conception of planetary justice emerges from, and is continually reconstituted from, what I'll call the Planetary Original Position of individuals, organizations and peoples (as argumentative, discursive agents). The argumentative procedures (the global patterns of sequence organization in interactions) developed in such Planetary Original Position take place in a dynamic global and systemic deliberative democracy, generating far from reflective equilibrium' points in dialogic sequences

fueled by reasonable disagreements. Dissipative, relatively stable and self-organized global institutional basic structures of planetary justice continually emerge from or are reproduced from such idealized decentered Planetary Original Position.

Panel ID 201 | Virtual

Politics and expertise in global environmental negotiations

Panel Day and Time: TBD

Panel Room: TBD

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Stockholm + 50: Political accountability for five decades of insufficient environmental action

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Humans are dramatically accelerating global environmental change. Several planetary boundaries have been overstepped including climate change. This article deals with challenges and opportunities to hold power wielders accountable for five decades of insufficient environmental action since the 1972 UN Conference on the Human Environment in Stockholm. Based on a theoretical framework that differentiates between public, private and voluntary logics of accountability, the article assesses accountability mechanism with respect to the UN 2030 Agenda for Sustainable Development. This allows us to discuss and conclude on the untapped potential for holding power wielders accountable. There is a need to establish norms demanding stringent respect of environmental protection in global development. Besides greater 'peer

review' and exchange of good practices among governments, parliaments should play a larger role in formal mechanism of monitoring and surveillance. Finally, we should use SDG indicators not only for ranking nation-states, but make them mandatory for corporate reporting and establish rankings of global business players.

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Expert Review as a Site of Political Contestation within the International Climate Change Regime

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University of Eastern Finland, Finland

Under the international climate change regime established by the United Nations Framework Convention on Climate Change (UNFCCC), independent technical experts have long been tasked with reviewing national greenhouse gas inventories and other national reports. Their work includes assessing the transparency, accuracy, comparability, consistency, and completeness of these reports. The independence of these experts is a critical feature of the design of the international review process and deployed as a strategy for depoliticising the process of international verification of national information. However, experts are nominated by Parties and are frequently employed as government officials by their nominating countries. In addition, experts have engaged in the ad hoc facilitation of national implementation and compliance with treaty obligations. In the context of the Kyoto Protocol and the UNFCCC, this has raised questions about the political nature and legitimacy of the review process. Given that expert review continues to be a pivotal component of the Paris Agreement and its enhanced transparency framework, the relationship between experts, depoliticisation and compliance warrants further attention.

In this paper, I seek to examine the role that experts play in promoting state compliance within the international climate regime and to explore whether their facilitation can be deemed as positive, negative or neutral in terms of improving compliance. To do this, UNFCCC reports, including reviews of national inventories and other communications, as well as academic literature will be examined to understand the outcomes of past expert reviews. In addition, interviews with expert reviewers and UNFCCC Secretariat members will be conducted to gain an understanding of perceptions of the review process and its (a)political nature and whether there is a schism between the aspiration of depoliticisation and the working of the experts in practice. The literature review and interviews will also highlight gaps in our current understandings of the review process and how it interacts with compliance. In addition to understanding the specific role that experts play in relation to compliance, I am also interested in exploring more broadly the use of depoliticisation as a governance strategy within the UNFCCC and asking whether it is desirable—or even possible—to insulate expert decision-making from political processes. This will lead to insights for designing better mechanisms of expert involvement in the review process under the climate regime in the future.

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Rights For the Ocean Commons and the Negotiations Towards a Global Treaty on Marine Biodiversity in Areas Beyond National Jurisdiction (BBNJ Treaty)

Georgette Matthews

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The research community has underlined that global ecological governance should be focused on the ways of aligning “human

systems of governance with the fundamental rules of the Earth system of which we are a part” and that an earth system governance perspective should make the biodiversity within national and beyond national jurisdiction one of its main targets.

Based on a post-structuralist framework and discourse analysis, this paper examines the concepts of biodiversity, ecosystem approach and rights of nature as evolving during the negotiations for an international legally binding instrument for the conservation and sustainable use of marine biodiversity beyond national jurisdiction (BBNJ treaty) under the United Nations Convention on the Law of the Sea (UNCLOS). I analyze the competing narratives and discursive power relations of the negotiating parties and consider to what extent they perpetuate a scopic regime of injustices that ignores the intrinsic values of the ocean biodiversity. Building on recent critique of the BBNJ agreement revised draft, I argue that the recognition of the rights of marine biodiversity beyond national jurisdiction or the taking on of a Rights of Nature perspective could provide solutions embedded in creative interpretation and transformative change.

The IPBES Global Assessment calls for “Transformative change towards sustainability” defined as “a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values”. Learning from the transformative change literature on biodiversity, the second part of the paper explores the pathways for how recognition of rights of nature could influence the elements of the BBNJ agreement: marine genetic resources, area-based management tools including marine protected areas, environmental impact assessment and capacity building and technological transfer.

In the last section of the paper, I examine how a Rights of Nature perspective could initiate a re-framing of the concept of knowledge systems under the BBNJ agreement and in what ways are Traditional Knowledge and a Rights of Nature perspective conducive of creative and transformative change.

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Compensating for small delegation size in environmental negotiations: The role of external experts, experience, and coherence at the UNFCCC

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In many multilateral environmental negotiations, Parties are formally equal. In practice, however, states are highly unequal in their capacity to participate in – and influence – multilateral negotiations. A frequently used indicator of negotiation capacity is delegation size. Delegation size clearly matters, with larger delegations better able to cope with highly complex, often very technical, and lengthy negotiations such as those on climate change. Countries with smaller delegations have, however, found ways to compensate their limited capacities. Existing research has highlighted the role of coalition-building and cooperating with like-minded countries.

Yet, we argue that there are additional strategies to compensate for limited negotiation capacity beyond coalition-building that have not yet been studied systematically. We focus on three such compensation strategies: First, states can enlist the support of NGOs, think tanks or other experts to boost their numbers and access relevant scientific, legal or diplomatic expertise. Second, states can send more experienced delegates. Senior negotiators who attend negotiation sessions regularly are more familiar with the negotiation subject and process and are therefore better able to actively engage and make their voice heard. Third, and related to experience, states can also pay attention to delegation coherence by sending the same team over time. Coherence allows members of the delegation to specialize in different thematic sessions and follow them in parallel.

We test these three compensation mechanisms by examining delegation size and delegation composition in the negotiations under the UN Framework Convention on Climate Change (UNFCCC). We make use of new data generated from the list of participants to all Conferences of the Parties (COPs) – the main decision-making body under the UNFCCC – as well as the interim negotiations of its subsidiary bodies from 1995 to 2019, covering all country delegations participating in the UNFCCC negotiations. We examine under what conditions smaller and poorer countries resort to non-state delegates to boost their numbers, send more experienced negotiators, and/or maintain delegation coherence as strategies to compensate for small delegations.

By focusing on parties' ability to participate in – and eventually influence – multilateral environmental negotiations, with this paper we seek to engage with the conference streams on architecture and agency and on democracy and power.

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Creating a Body of Science we need for the Ocean we want: Role and Characteristics of a Scientific and Technical Body for the new BBNJ Agreement

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Negotiations for a new legally binding agreement for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (BBNJ) is currently ongoing. As one part of the agreement, negotiators from over one hundred governments are envisioning a scientific and technical body (STB) for advice on the implementation of the future agreement. However, research is lacking regarding the role and characteristics of such a body, concerning

criteria for choosing experts to ensure an independent, representative, continuous advice and review of measures, assessments of progress and recommendations in the BBNJ process.

This article analyses the institutionalisation of science for the new agreement on marine biodiversity by using ethnographic data, collected at the intergovernmental conferences regarding statements by state and non-state actors on their positions on the future STB, as well as expert interviews with BBNJ stakeholders on their perspectives regarding the role and characteristics of this new subsidiary body.

In the light of the United Nations Decade of Ocean Science (2021-2030), this article reflects on the opportunity of the future STB to create a representative knowledge base for marine biodiversity beyond national jurisdiction through cross-sectoral and cross-generational collaboration.

Panel ID 202 | Virtual

Environmental governance in Latin America

Panel Day and Time: TBD

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Governance dynamics of the sustainable transitions of lobster fisheries in the Sian Ka'an and Banco Chinchorro biosphere reserves, Quintana Roo, México

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The objective of the paper is to present the territorial governance typologies that define

the sustainable transition of spiny lobster fisheries in the Sian Ka'an and Banco Chinchorro biosphere reserves, in Quintana Roo, Mexico. Based on 67 interviews with members of the six fishing cooperatives that operate in the study area, we found that the territories with higher levels of trust develop a dynamic of governance that fosters the equitable participation of local fishers in decision making processes, which enables the construction of strong institutions for the conservation of the lobster resource (*participative and inclusive governance*). In contrast, in the territories where distrust predominates, an *exclusionary governance* emerges expressed in an unequal distribution of the benefits, which translates into precarious income for local fishers and, consequently, prevents the construction of institutions for environmental conservation. Additionally, other territories in the area are experiencing changes in their social and organizational structure which are favorable to the *sustainable transition* of lobster fishing (*governance towards the inclusion*). We conclude that the exercise of typologies helps to overcome the normative analysis of governance, in order to understand the complexity of negotiation processes that result in a great variety of local institutional arrangements.

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How does ideology affect treaty ratification? The case of environmental rights in Latin America

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In 2018, Latin American and Caribbean countries finalized negotiations on the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters. The "Escazu

Agreement”, as it is more commonly known, seeks to instill democratic principles into such matters as natural resource use, biodiversity conservation, climate change mitigation and adaptation, land degradation and natural disasters. It has been celebrated for further institutionalizing the concept of environmental rights, which is particularly important in Latin America given the high number of environmental conflicts and violent attacks on environmental activists. However, the treaty’s potential impact is undermined by the limited number of ratifications. The ratification pattern is puzzling because it does not reflect the patterns of other environmental and human rights treaties in the region. Several countries that proposed the agreement and led the negotiations have failed to ratify, while other countries that took some time to come on board have indeed ratified. In this article, I use crisp-set Qualitative Comparative Analysis (QCA) to identify the conditions that favor ratification and non-ratification. Drawing on insights from existing studies on treaty ratification and regional cooperation, I test the influence of five conditions (cost, democracy, civil society, ideological change and ideological imitation). I show that that left-leaning countries are mostly ratifying the Escazu Agreement, irrespective of other conditions. Right-leaning countries, by contrast, are generally only ratifying when they are non-conflictual, respect civil liberties, and have a more robust civil society.

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Co-constructing integrated climate governance: a territorialized approach for the meta-governance of the Valparaíso Region, Chile

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Climate change is an urgent and highly complex problem demanding new forms of governance. In recent years special attention has been paid to fostering integrated governance approaches that overcome the current fragmentation. However, especially in Latin America, there lack analytical proposals to understand in an empirical and situated manner the complex and heterogeneous challenges, priorities and determinants of integrated territorial governance of climate change at a meso (sub-national ‘regions’) level.

Meanwhile, increasing attention has been put on overcoming the limits of the three traditional models (hierarchy, market, and network) to address climate change. Scholarship has proposed the adoption of meta-governance approaches, understood as reflexive exercises in social learning seeking to develop, evaluate and adapt ‘situationally optimal’ governance arrangements to address complex challenges, such as those associated with climate change, in specific contexts. This exercise often requires mediating in complex ethical dilemmas, and reconciling clashing and/or incomparable systems of values, often crossed by profound power asymmetries of power.

These values, beliefs and power relations are in turn located in a particular ‘territory’, understood as a malleable, dynamic and contested social construct whose definition is co-constitutive of its own regime that seeks to govern it. This proposal advocates for a more complex and territorialized understanding of meta-governance, one specially sensitive to recognize and compare the different ‘territories’ associated with concrete governance proposals, their disputes, and the tensions, overlaps, and spaces of inclusion and exclusion that these mobilize, seeking an articulation that builds on and at the same time transcends these differences.

For that, the paper proposes an analytical framework that combines the concept of meta-governance with Hans Lindahl’s IACA model (‘institutionalized collective action mediated by authority’), seeking to encompass both more broadly and precisely the different ‘territories’ and ‘models’ of possible

governance, and their respective spaces of inclusion and exclusion. To illustrate the framework, we will provide preliminary insights on the challenge to promote just climate action in an integrated manner in the Valparaíso Region, Chile. This is a relevant case study both for the climate-change related hardships it will have to face, and for the specific opportunities it presents in terms of territorial governance.

The proposal may offer relevant contributions to several of the Earth System Governance project streams, particularly “Democracy and Power” and “Adaptiveness and Reflexivity”.

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Dismantling of Environmental Enforcement and the rise on the Amazon deforestation

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The success in reducing deforestation in the Brazilian Amazon in the first decade of 2000 is a combination of public and private policies' achievements, such as the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon and soy and cattle supply chain Zero Deforestation Commitments (ZDC). In 2012, the deforestation achieved the lowest rate of the entire historic series, since then it has been an upward trend and sharply from 2018 onwards. The deforestation rate in 2021 is the highest in the last decade. The national background scene is marked by democratic setbacks and political events, such as the president's impeachment in 2016, argued as parliamentary coup, and, more recently, the election of the extreme right government in 2018. Brazil has performed the worst

Democracy Index since of the entire measurement time, from 2006 to 2021, reducing the index by 4% between 2013-2021. Given this, the study aims to discuss the relationship between the weakening of environmental governance and the increase in deforestation I. As focus of this paper we analyze the decoupling of deforestation alerts (monitoring mechanism) and the enforcement actions (fines notifications) from 2011 to 2021. The data source for land cover change information is the Deforestation Detection in Real Time (DETER), a system featured by National Institute for Space Research (INPE) ; for enforcement action information, data source is the federal agency Brazilian Institute of Environment and Renewable Natural Resources (IBAMA). Database is organized by municipality level with the following attributes: the count number of deforestation alerts, the extended area of forest cleared, the average area of forest cleared, the standard deviation of forest cleared, number of infractions notices, number of deforestation embargoes. As a result, we present a descriptive analysis focusing on how pattern changes considering data distributions across the 772 municipalities. The longitudinal analysis over the dismantling of enforcement mechanisms discusses the relationship between current political narrative and acts to weaker environmental policies.

Panel ID 203 | Onsite

Environmental activism and countermovements

Panel Day and Time: TBD

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Does 'Clicktivism' Change Corporate Environmental Practices?

Hamish van der Ven

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A growing amount of environmental activism now occurs on social media platforms like Instagram, Facebook and Twitter. Much of this activism targets businesses. Notwithstanding the rise of ‘clicktivism’ as a medium of protest, very little research empirically evaluates whether it has any meaningful impact on business behaviour. This paper addresses this gap in research by posing two questions: first, what, if any, impact has clicktivism had on corporate environmental practices? Second, under what conditions has clicktivism led to an observable change in corporate environmental practices? I answer these questions through comparative case studies of three recent instances of clicktivism targeted at companies and industry associations in Canada: #BoycottNestle, #BankSwitch, and #ButterGate. These cases transcend commercial sectors and environmental issue-areas and therefore provide some basis for understanding the potential and limitations of clicktivism to shape business behaviour more broadly. Drawing on both quantitative analysis of Twitter data as well as qualitative process tracing of each case study, I uncover the conditions that are associated with observable changes to corporate environmental practices. In doing so, this study yields practical insights for environmental activists into what kinds of strategies are mostly likely to yield environmental results. Theoretically, this research contributes to social movement literature by identifying enabling conditions for successful movements in the under-explored realm of online activism.

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Uncovering the Hidden Cocoa Trade in Ghana: Policy Advocacy to Improve Farmer Livelihoods

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The cocoa/chocolate value chain exemplifies the inequality of global food systems at multiple scales. Colonial structures of power and wealth concentration continue to be embedded in the geographies of chocolate consumption, cocoa trade, processing, and all the way to cocoa production sites, where historical legacies of sociopolitical marginalization and labor exploitation persist. In Ghana, the objective to increase state revenues through cocoa exports is hampered by growing awareness of the deforestation caused by cocoa farming, and resulting impacts in terms of land degradation, climate change, and biodiversity loss. In response, the Government of Ghana announced its intention to end deforestation and restore forest areas, through no further conversion of forest land for cocoa production under the Cocoa and Forest Initiative (CFI) by 2030. Depending on the design and implementation of the CFI, the most vulnerable cocoa smallholders operating in forest frontiers could have their life and livelihoods significantly affected. We study the case of Krokosua Hills Forest Reserve (KHFR), where a complex mix of local laws and national policy renders the majority of cocoa stemming from KHFR as technically ‘illegal.’ Through qualitative data collection, including interviews, focus groups, and participation observation, we aim to tell the story of ‘illegal’ cocoa farmers to reveal the socio-cultural complexities of overlapping boundaries of forest and land tenure. We expand extant theory related to global value chain governance by bringing in the role of contracts, which include oral and informal contracts. This broad interpretation of legal theory through contracts helps to interpret the relationship between cocoa farmers and their first point of contact with the supply chain to better understand how unequal power relationships are institutionalized already at the ‘first mile’ in global value chains. We contribute to the literature on politics, power, and inequality in forest-agriculture frontiers, as well as represent the extent to which actors have cultural, status, and material advantages in resource-distributing relationships. This research has engaged roughly 50 stakeholders

from various levels (international policy experts, cocoa sector stakeholders in Ghana, and cocoa farmers) to systematically unearth and compare perspectives from upstream (i.e. farmgate) to downstream (i.e. global commodity exchange) supply chain actors. The novelty of this approach lies in the fact that these diverse perspectives are not often compared. By including cocoa farmers in this study, we analyze the sustainability of cocoa production not only from a global commodity perspective but also from a local perspective of rights and livelihoods.

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Only the Young: The Role of Youth Movements in International Climate Governance

Devon Cantwell

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At the 68th United Nations Civil Society Conference in 2019, there was an unprecedented Youth Climate Compact drafted by the UN youth organization (YOUNGO). This input was initially collected in a survey administered in English (n=286) by YOUNGO organizers from March 2019-August 2019. Of the total respondents (aged 35 and younger), nearly half were from the Global South. In addition to the survey, an informal, in-person feedback session with approximately 100 youth was held in-person at the 2019 UN Civil Society Conference in Salt Lake City, Utah. In this paper, I conduct a thematic analysis of the survey responses and the in-person feedback session at the conference to highlight narratives and themes that are important to global youth regarding climate change policy. Additionally, I analyze the progression of the Youth Climate Compact documents and compare the document changes to the

feedback received by survey and during the in-person session to understand how feedback from youth was integrated into the document. I use both a topic modeling approach as well as a textual narrative and patterning in my analysis of these texts. This paper offers three main contributions to existing literature. First, I enhance existing research on youth in climate change governance, which is mostly focused on digital or mass mobilization. Second, I consider how youth employ agency at an international scale through the organizing of the Youth Climate Compact and also how youth report enacting agency on climate action at local levels through their civil society organizations. Third, I consider how the intersections of gender and regional context influence the perception of youth agency and voice in international climate policy action.

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Defending Nature: Transformation of Spatial and Social Relations Through Environmental Activism in Turkey

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In the last decade, the number of environmental movements that emerged in opposition to the mining projects increased dramatically following the rising pressure of the government, the amendments regarding the mining laws and legislation, and the designation of the new mining areas throughout Turkey. Many of these movements have been organized through similar mobilization strategies like the vigil protests to defend the area. Yet, these strategies have substantially changed the ways in which the local actors communicate and ally with each other to sustain the movement. To analyze the

organization and mobilization strategies of environmental movements in Turkey, through one-month field works in both regions, I made a comparison between the Cerattepe (Artvin) anti-mining movement and the Kirazlı (Çanakkale) anti-mining environmental movement with the questions of how a local community sustains grassroots activism and how the geographical and historical qualities of a place impact the alliances among diverse actors and organization and mobilization of environmental movements.. In this vein, I mainly focused on different understandings of environmentalism, its effects on the organization of environmental movements, and the ways in which the local inhabitants are able to forge alliances or not. I argued that when the local actors create a place-based struggle as a part of the organization of an environmental movement it is more likely to sustain grassroots activism through a common ground and diverse alliance like the Cerattepe case. In contrast, the geographical position of the Çanakkale is conducive for the emergence of a new environmentalist group in the province leading to a conflict among different groups of inhabitants. This is why, they could not create a collective identity for a sustainable environmental movement. So, I showed that the geographical characteristics of the city lead to the emergence of new kinds of environmentalism, namely “environmentalism of the urbanite,” which can sometimes adversely affect collectivity and grassroots movement. Also, I emphasized that the history of the place contributes to maintaining environmental movement through democratic and participatory decision-making processes. Lastly, this research revealed that knowledge production as a form of mobilization was an important strategy to create social movement space in the city and strongly ally diverse actors of the movement under an umbrella organization to maintain grassroots environmental movement.

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Environmental security, peace and conflict

Panel Day and Time: TBD

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

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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.

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. 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 with land conversion, illegal land grabbing, new forms of natural resources exploitation and the growing of illicit crops. We ask to what extent certain lessons for environmental justice, positive and

negative, can be learnt from Uganda for the Colombian case.

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 an unintended protection for forests, wetlands and other ecosystems.

Notwithstanding increasing scholarly acknowledgement of this interlinkage, we lack theory-guided comparative empirical analyses for the nexus between post-conflict peacebuilding, justice and the natural environment. Our inter-disciplinary research project provides such an analysis for the Colombian and Ugandan cases, guided by the following research questions:

1. *Taking stock:* To which extent are environmental concerns integrated or neglected in the post-conflict peacebuilding process, especially through environmental institutions and legislation?
2. *Causes:* What are major drivers and conditions underlying this integration or neglect?
3. *Environmental Consequences:* How does the post-conflict peacebuilding process impact each country's natural environment?
4. *Social Consequences:* Which consequences do peacebuilding activities, and their environmental implications and omissions, have for local communities that depend on certain ecosystem services or natural resources?
5. *Political Consequences:* How do these various developments feed back into the peacebuilding process and affect its objective of sustainable and equitable peace?
6. *Responses:* Which lessons can we learn from these causes and consequences to

safeguard environmental justice in peacebuilding processes?

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Conservation-development conflicts: a comparative study of drivers and barriers to the acceptance of nature protection measures in inhabited areas across contexts

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The accelerating rate of biodiversity loss has led to a growing call for action. Consequently, conservation strategies have been widely used as a means to preserve biodiversity. However, in inhabited areas, these strategies often drive conservation-development conflicts. Therefore, there is a growing interest in developing effective means to integrate the needs of nature and people within the nature protection, and address the different interests of local and non-local communities.

Through the application of a social-ecological lens, this comparative multi-case study focuses on the social and developmental drivers and barriers to nature conservation in inhabited localities, as well as perceived injustices among the local stakeholders, further determining their involvement or withdrawal.

We focus on two conservation efforts related to flagship species – *Dendrolagus matschiei* (Matschie's tree kangaroo) and *Canis Lupus* (grey wolf) – in two contrasting contexts; The tree kangaroo conservation program (Papua New Guinea), and the Wolf care program (Czechia). Upon their implementation, both of the programs created a range of opportunities

but also barriers for local communities. We applied a combination of evaluation and participatory ethnographic methods. Multiple stakeholders from the expert and farmer's sector were surveyed via face-to-face semi-structured interviews (n=80), with the incorporation of series of field stays (2018 in Papua New Guinea, and 2021-22 in Czechia), and participant- and structured observation. In addition, the data collection was supplemented by a content analysis of the projects' annual reports.

The results show that several key elements need to be acknowledged if local communities are to successfully cooperate with conservationist on biodiversity protection: 1) the implementation of social science pilot research before the start of program; 2) a regular evaluation of program activities from the perspective of locals, insuring that their perspectives, expectations, and interpretations of conservation are fully understood, and addressed, as well as expectations, and perspectives of researchers; 3) making sure that locals and conservationists perceive the program implementation process as just; 4) treating conservation as development opportunity for the involved communities; and 5) addressing issues of power properly.

The study demonstrates the mismatch between interests of various stakeholders, their expectations and different interpretations of conservation across contexts, as well as power relationships create stark barriers towards the community support of implementation and promotion of biodiversity protection programs. Finally, it discusses how the research findings can provide a tool for better community biodiversity protection support further promoting its effectivity.

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Violent Friction: The Consolidation of Industrial Mining in Ecuador and Peru

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This paper examines the expansion of the mining frontier in Latin America and the emergent relationships between indigenous communities, industry, and states. Drawing upon Rob Nixon's understanding of "slow violence" (2011) and Anna Tsing's concept of friction in globalization (2005), we argue that the consolidation of industrial mining can be usefully understood as a form of slow violence that destabilizes local communities while at the same time builds and normalizes the role of corporate mining interests in social and economic life. While states play a key role in establishing the terms on which firms are able to secure access, extraction and accumulation within the extractive sector, we find that corporate efforts to consolidate industrial mining engender a "violent friction" that has repurposed local (and often exploitative) traditions of reciprocity, Indigenous labour and mutual aid. For example, to manufacture consent, mining companies offer gifts or *regalitos* to local communities strategically replicating the patronage relations that were used to create and legitimize the prevailing colonial order. However, in the absence of any real material benefits, this does little to build community consent. Mining companies also create communal divisions and construct different interest groups in relation to mining projects. New community networks emerge which reinforce various political framings, perspectives, and ideologies. These networks increase political tensions within communities, where some groups claim to defend a traditional agrarian model, while others promote the continued expansion of mining

changing pre-existing institutions and communal governance values

Our cases in Ecuador and Peru explore how mining has disrupted customary forms of political organization and sources of livelihoods forcing communities to reconstitute themselves around evolving relationships with industry and the state. In Ecuador, limestone mining and water extraction for cement processing have displaced Indigenous communities, leading to environmental degradation and local mobilization over land and water. In Peru the expansion of copper mining operations has undermined the direct democratic participation of Indigenous people. In both cases indigenous communities have deployed mechanisms to resist and accommodate this impact. We unpack these dynamics between exogenous shocks from mining incursions and endogenous communities' responses; ultimately explaining the friction that emerges from indigenous experiences with slow violence in the extractive frontier.

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Environmental Security: Counter-narratives from the Perspective of Struggle

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Environmental security has evolved into a provocative concept that, on the one hand, attempts to capture the gravity and urgency of our current planetary crisis, and on the other, carries significant political implications for the structure and practice of earth system governance. Securitization processes, for example, rely on discursive mechanisms that legitimize or delegitimize certain forms of political action, shaping the way environmental and security problems are dealt with globally. While research on the construction and implications of pernicious,

top-down security narratives has recently expanded, much less attention has been given to the emergence of bottom-up securitization efforts. This paper, therefore, investigates how securitization functions within sites of environmental resistance. Specifically, I look to the Our Water Our Right campaign— a transnational resistance movement against water privatization— as a case in which counter-hegemonic narratives inform the theoretical and practical meaning of environmental security. I find that this movement invokes securitization as discursive tool to delegitimize neoliberal environmentalism as a threatening source of socio-ecological risk. On a broader conceptual level, the Our Water Our Right campaign introduces new ways of understanding securitization as an intersubjective political process capable of stimulating emancipatory visions of how to achieve intersectional security amid environmental crises.

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Politics and power in biodiversity conservation

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Nature-based solutions: Do power relations matter?

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Many are touting nature-based solutions [NbS] as “the” answer to climate change issues ranging from nature-based carbon sequestration to nature-based flood

adaptation. In response, some voices from the environmental justice movement and Indigenous movements are questioning whether these NbS really are different from current, business-as-usual approaches. They are wondering whether all these NbS respect justice, equity, diversity and inclusion principles or are simply a different manner to control nature. This article addresses the apparent tension between these two positions within the coastal and riverine flood and erosion adaptation context.

By using a synthesis of nature-based coastal and riverine flood climate solutions literature and literature examining power and power relations within society, this article proposes that nature-based climate solutions within the coastal and riverine context fall on two continuums – (1) how the solution relates to nature (control to enabling natural processes) and (2) what power relationships permeate the adaptation context (power over to co-production).

These findings enable a more nuanced examination of nature-based solutions. In particular, based on where a NbS sits on these two continuums climate adaptation practitioners could guide their NbS choices toward more just and equitable options, and environmental justice and Indigenous adaptation practitioners would have a manner to examine the myriad NbS currently being proposed and promoted on all scales from local to global. Differentiating among the available nature-based solutions is one key step for moving the global system away from a business-as-usual climate change world toward a more just and equitable system.

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Governance and Impacts on Livelihoods in Atewa Range Forest Reserve (ARFR) - An Iconic Forest Landscape in Ghana

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Center for Environmental Governance (CEGO), Ghana

The Atewa Range Forest Reserve (ARFR) is a unique and exclusive ecosystem reserve and an Upland Evergreen forest which is noted for its unusual flora and have various biodiversity curiosities. It is recognized as a Special Biological Protection area and a Globally Significant Biodiversity resource area. Protected areas constitute one of the viable tools that countries like Ghana can count on for securing and conserving environmental, social and economic capital. It is imperative that the establishment and effective governance of ARFR merit considerable attention. The issues of deforestation and forest degradation continue to be the bane of communities living on the fringes of reserved forest and other protected areas. Hardins (1968) asserts the use of force alone will not deter people from contravening the forest laws and the management of commons as this landscape. The government is recognized as the sole authority of the resource and other non- state actors are made part of the monitoring group to secure the reserve. Hardin (1968) and others argue that degradation of forests has to be controlled through the use of force and coercion, mostly provided by the state apparatus and institutions. Furthermore, the use of command and control approach fail to consider the tenure rights of the citizenry and may resist and usurp the functions of the government by accessing the commons albeit the state control. The objectives is to determine the human activities that confront the management of the ARFR. The study relied on both primary and secondary data. The multi

- stage sampling procedure consisting of stratified, purposive, systematic and simple random sampling methods were used to select the sample units for the study. The rural poor have a unique and special relationship with ecosystems that revolves around the importance of these natural systems to rural livelihoods. Livelihood is used to express the whole complex of factors that allow people to sustain themselves materially, emotionally, spiritually, and socially. The motivating factors that induce or drive people to deforest and degrade the forest and the environment are pushed by factors as poverty, agriculture, population increase and climate change. The managers face a number of problems in managing the landscape and not well - equipped and remain inefficient to confront illegal logging and illegal artisanal mining which are proscribed activities in the country.

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Supernatural Institutions and Ostrom's Design Principles: A Gendered Analysis of Sacred Grove Conservation in Maharashtra, India

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Ostrom's design principles (DPs) are considered to explain cases of successful common-pool resource (CPR) governance. However, the application of design principles to empirically examine sacred natural sites primarily protected through supernatural beliefs has been limited. We address this gap by examining how are supernatural beliefs represented in the design principles for managing sacred forests? Sacred forests are a type of sacred natural site, protected by local communities, where patches of forests are revered due to their association with a deity, spirits or ancestors. Apart from their cultural significance, sacred forests are also important

from an ecological perspective as they harbour rare and endemic flora and fauna and provide ecosystem services such as recharging aquifers and soil conservation. This study is situated in the Bhimashankar Wildlife Sanctuary region in the Western Ghats of India and known for villages with sacred forests. Eighty-six semi-structured interviews were conducted with villagers from four villages in 2015-2017, to understand the supernatural beliefs governing the management and protection of these sacred forests. Our analysis shows that many of the belief systems comprising taboos, rituals, and traditional activities for protecting the sacred forest were well-defined institutions. These institutions primarily correspond to Design Principles 1, 2, 3, 4, and 5 i.e. well-defined boundaries, congruence between benefits and costs, collective-choice arrangements, monitoring, and graduated sanctions. Three of the four villages had strong institutions that are followed even today with intact forests that harbour a range of biodiversity and water bodies that the village uses for farming and drinking. In the village with weak institutions, supernatural beliefs are eroding because of the presence of multiple, degrading sacred forests belonging to separate clans, the construction of a temple in the village diverting attention from sacred forests, and the village's proximity to the main road. Thus, the design principles can help in identifying features of supernatural beliefs linked to well-defined institutions that maintain and support the integrity of the sacred natural sites. This study will help elucidate the mechanisms through which sacred institutions of Indigenous community regimes may foster sustainable forest governance and its challenges.

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Knowledge and power in earth system governance

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Knowledge Governance for the Anthropocene: Pluralism, Populism, and Decision-making

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Many new models of governance are presented as radical alternatives to traditional models, with the idea that they can more effectively confront environmental challenges in the Anthropocene by transforming the underlying logic of decision making. A common feature of these models is the imperative to integrate multiple forms of knowledge, disciplinary perspectives, and diverse networks of actors both within and outside the academy. These calls for pluralism are not just about it as a democratic principle, but part of improved ‘knowledge governance’ more equipped to address the multi-faceted causes and consequences of environmental degradation. Yet the principles behind these improved practices can be lost in translation. Whilst pluralism is elevated as ideal, when decision-makers are faced with political and social realities of bringing in more voices, the result is often more populist than pluralist, and conflicts difficult to manage. This presentation examines how these issues play out with respect to Australian wildfires to explore how governments might pay more concerted attention to reforming knowledge governance. It also contributes to debates about modern tendencies towards populism, and how this affects efforts to integrate evidence from

diverse sources effectively into environmental policy.

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‘Like children doing a rain dance’: Indigenous knowledge, sovereignty and the politics of geoengineering

Duncan McLaren

Lancaster Environment Centre, United Kingdom

In response to proposals to test geoengineering technology over their territories, the Saami council called on Harvard University to shut down the project involved (the Stratospheric Controlled Perturbation Experiment or ScoPEX), writing that: “as representatives of Indigenous Peoples, we do not approve legitimizing development towards solar geoengineering technology, nor for it to be conducted in or above our lands, territories and skies, nor in any ecosystems anywhere.” This paper examines the conflicting scientific and indigenous epistemologies and associated conceptions of governance and sovereignty that are illustrated in such conflicts. It briefly elaborates the history of the ScoPEX proposal and sets it in the context of the role of scientific knowledge in climate and geoengineering debate. It then draws on indigenous expertise and scholarship, particularly that of Tyson Yunkaporta, to work through a series of questions about how such knowledge generation activities might be appropriately evaluated, interrogated and decided upon with due respect for indigenous sovereignty, understood not only as territorial sovereignty but also as epistemic sovereignty. In doing so it contrasts these with the processes used to govern research, development and deployment of potentially risky technologies in sovereign nation states and multilateral institutions, noting parallels with challenges to such securitised governance raised by plurinationalism, deliberative participation processes and feminist ethics of care, amongst

others. In conclusion it suggests that in engaging with technologies designed to directly manipulate environments and earth systems at a planetary scale, humanity will face a far-reaching clash of sovereignties. Learning from indigenous epistemologies may help us to resolve that clash in line with justice and sustainability.

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Governance of Carbon Dioxide Removal – Building a shared knowledge base to coordinate informed actions

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Limiting global warming to “well-below 2°C” compared to pre-industrial levels requires at least some carbon dioxide to be removed from the atmosphere. While the scientific discussion on policy and governance aspects of Carbon Dioxide Removal (CDR) are slowly emerging, there is already a pressing need for regulation to accelerate technology development for CDR, embed removals more comprehensively in carbon markets, and above all, manage risks and side effects. Given the immense challenge to advance CDR options in time and at scale, there is little scope for error in CDR policies. A comprehensive and rigorous scientific evidence base is needed to understand what policies and governance mechanisms work for CDR, under what conditions, and why. Here, we propose an AI-assisted living map of the scientific evidence on CDR policies and governance to fulfil this need.

‘Living evidence’ is a new concept that has been developed in health sciences to continuously track progress in particular research fields. It is particularly important in fields where research evidence is emerging

rapidly, current evidence is uncertain, and new information may change policy decisions or practice decisions. Carbon dioxide removal is a prime example, where interest in research and policy is sharply increasing, but developments in the field are still very fluid as many carbon dioxide removal options are still not fully mature.

Here, we apply state-of-the-art machine learning approaches from natural language processing to produce a comprehensive, living, interactive evidence map of the available literature on CDR covering more than 10,000 scientific publications with a particular focus on governance and policies. Methodologically, we implement a scalable, fully-automated machine-learning pipeline to produce a comprehensive systematic evidence map of CDR research. Conceptually, we follow the common step-wise approach of systematic mapping, but move from a traditional, pull model of hand-selecting evidence to a push model deeply rooted in machine learning and data science. We further classify available evidence in a number of different dimensions including, but not limited to, technology type, governance mechanisms, geography, and side effects. We use this data to identify how the research field of CDR has evolved over time and analyse – based on a comparison with the literature cited in key scientific assessments on CDR – to what extent the CDR literature has been adequately represented. Our novel web-based platform will be available to the research and policy community.

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Digitally enhanced Disaster Risk Management by Citizen collective in India

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Presidency University, India

India has witnessed devastating natural disasters in the recent past like droughts, floods, cyclones, earthquakes, landslides, etc.

Floods are the most frequent disaster in India. The most recent flooding caused by prolonged rainfall in Kerala, India in the year 2018 and 2019 had a devastating impact. As floods and landslides have engulfed households and farmland, more than 471 life lost, an estimated 1.2 million people are in temporary shelters, and around 20,000 houses are seriously damaged. However, Kerala is unique in India with its high literacy rate and high digital penetration, High HDI (Human Development Index) and the large number of Nonresident Keralites. One important disruption that happened in the wake of the flood is the formation of a community collective to address disasters. The collectives have arisen from existing democratic powerhouses which could be based on religion, caste, political alignment, and ethnicity. It is formed in different layers and tiers and transitioned to various management styles. The most prominent is Co-Management between state and community collective. Another disruption is the usage of digital platforms such as Facebook, Google maps, and WhatsApp for disaster risk management by the government and community. Latitude, Longitude, Airdrop was the buzz words for the digitally-driven disaster risk co-management of flood risk in Kerala, India. Against this backdrop, the study intends to probe into the evolution of citizen collective in disaster management and how various social media platforms enhanced their ability to form citizen collective. The study uses case study methodology. 30 individual rescue cases are studied in detail using unstructured questionnaires and focus groups. The study uses various machine learning techniques such as decision tree analysis, neural network, PL-SEM to analyze and interpret data. The results point out that the usage of these platforms has helped in effective communication and coordination between citizen collective.

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International relations perspectives on earth system governance: power, culture

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Theorising the Climate Change Accountability of Persian Gulf Petrostates

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For Persian Gulf petrostates – with political economies largely dependent on oil and natural gas rents – there seems to be little scope for accountability practices that answer for, and correct, rent-driven fossil fuel production contributing to anthropogenic climate change. Informed by rentier state theory, I examine the climate change accountability of Persian Gulf petrostates according to state responsibility norms under the United Nations Framework Convention on Climate Change (UNFCCC). In order to protect hydrocarbon rents, these countries have hindered efforts under the Paris Agreement to agree deep cuts in greenhouse gas emissions through short-term reductions in fossil fuel use. Nevertheless, there are differences in these countries' responses that accord with variations in the structure and stability of their political economies. As a fragile petrostate hampered by a dysfunctional system of sectarian governance, Iraq has made negligible climate mitigation commitments. The more stable petrostates have made commitments to reduce greenhouse gas emissions. Interestingly, the 'super-rentier' states of UAE,

Kuwait and Qatar, with more advanced economies and less absolutist political systems than Saudi Arabia and Oman, are the most ambitious. I examine the interplay between petrostate political systems and their international positions on climate change, considering the role of the legitimation challenge posed by the decline of hydrocarbon rents. While the soft compliance of the UNFCCC treaty complex is directed at trust-building rather than sanctioning – suggesting a weak system of state-to-state accountability for climate actions – the reporting and account-giving stipulated by UNFCCC obligations is committing the Persian Gulf petrostates to increased transparency. This may have spillover effects on the possibilities for more open and inclusive communication in the domestic public spheres of these states.

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From incremental climate governance advancements to a European Green Deal: Climate policy negotiations in the European Council and the Council

Jeffrey Rosamond, *Claire Dupont*

Ghent University, Belgium

Despite being confronted with several overlapping crises since the beginning of the 2008 Financial Crisis, the EU has managed to maintain a certain degree of focus on climate policy development with the rollout of increasingly ambitious programmes, such as the 2020 and 2030 Climate and Energy Packages and the European Green Deal, published in 2019. While the European Commission and European Parliament, in particular, are often found to elevate the EU's climate ambition, the European Council and Council have often been seen to limit progress or delay climate action. In this paper, we focus

on negotiating dynamics inside the European Council and the Council to understand how the intergovernmental bodies, with politically diverse members, shaped and allowed for the development and gradual implementation of the European Green Deal. We use elite interview data gathered from officials working at the European Commission, the European Parliament, the Council Secretariat, and the Permanent Representations of Member States to the EU in order to investigate how the intergovernmental actors transitioned from reaching decisions that aligned mostly with the lowest common denominator on climate ambition to supporting the EGD roadmap, which includes a legally-binding mandate of reaching net-zero emissions by 2050, now enshrined in the European Climate Law. Employing liberal intergovernmentalism as a theoretical lens, we highlight the interactions among the domestic preferences of member states as an important explanatory factor, providing for moments of intergovernmental reticence and later, greater policy ambition, in the polycrisis era. We therefore analyse the role played by diplomatic horse-trading and linking multiple dossiers in other policy fields in negotiation processes. This paper argues that understanding the EU's climate policy development process requires an appreciation of the intense negotiations and compromises that occur behind closed doors within the intergovernmental institutions, which aim to bring tepid member states on board with potentially transformative action plans. The paper contributes not only to literature on EU climate governance, but also to research on decision-making and negotiations in the EU, and especially in the opaque intergovernmental organisations: the European Council and Council of the EU.

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Power in Global Governance: Earth systems, technological control and the international relations of planetary order

Duncan McLaren¹, Olaf Corry²

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Climate geoengineering is typically presented as a scientific response to climate change, which would require governance through the exercise of institutional power in the international arena. Here we consider it instead as a critical emanation of a rearticulation of international power as 'geopower'. We describe geopower as 'conditioning' power, expressed in new dimensions of world politics oriented to governing, and responding to, powerful Earth systems, and thus *controlling the conditions for life at a global scale*. We compare and contrast geopower with the four forms of international power: coercive, institutional, structural and productive. We draw particular parallels and contrasts between the emergence of geopower, and previous developments in productive (bio)power, to explore anticipated future developments in geopower and associated planetary governmentalities which acknowledge the persistence and interactions of all five forms of international power. Empirically, we draw on interviews with scientists, diplomats, activists and security specialists. We highlight the emergence of a rationalist, idealised, 'peer-reviewed' 'geofuture', rooted in technocratic modelling, and liberal institutional notions of power. We contrast this with the ways stakeholders present future expectations, and develop or respond to narrative political scenarios which reflect a broader selection of understandings of power. In conclusion consider ways in which considerations of geopower might be reflected in otherwise

unanticipated configurations and implications of planetary geoengineering.

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Cultures of International Relations and the Planetary: Considering Chinese-style IR and moral governance in Earth Systems politics

Jonathan Philip Hui

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This political theory paper argues for a greater attention to scientific cosmology as a site of governance and source of power in contemporary international and earth system politics, using two texts from Chinese theorists as models. The field of International Relations (IR) has traditionally focused on concepts of power, institutions, and ideas within a broadly European understanding of a global system of nation-states as primary actors. Recently, the push for a Global IR has sought to open the field to theories and scholarship beyond Western centers, and seek contributions from non-Western sources as to what constitutes political order and legitimacy. One vibrant area of this area has been discussions around relations between scientific cosmology and cosmopolitics, defined largely as the integration of cosmic knowledge derived through scientific practices into political architectures and policy formats. Numerous theorists have noted that Platonic-Christian understandings of a singular, ordered cosmos underlie European and Western political institutions, one also indebted to a strict divide between religious and secular spheres of responsibility. The Global IR opening to non-Western cosmologies considers plurality, relationships, and morality as core governance matters, drawing from currently peripheral forms of knowledge.

In this context, the paper extends discussions of global cosmopolitics into the realm of

technology through Yuk Hui's concept of "cosmotechnics", which seeks to recognize the entanglement of moral and technical activities as oriented by understandings of the cosmos throughout Chinese history. Within this history, cosmology is both a scientific and moral matter, informing both technological and political action. Concurrent with recent movements in Global IR towards a "Chinese School" of political theory, the works of two scholars are assessed on a cosmotechnical basis. First, Lily HM Ling's work sees world order through Daoist and Buddhist principles of *yin-yang* relations and *interbeing* subjectivities among peoples, while emphasizing the need for designing open and decolonial global governance spaces. Next, Zhao Tingyang's work outlines key components of Confucian political order based on *Tianxia* ("all-under-heaven"), which he forwards as a governance architecture starting from a principle of alignment between heaven, humanity, and earth. Together, their works are analyzed for their respective politics, with both sharing a criticism of the current international state-system's built-in antagonisms and arguing for carefully considering how moral relations will be reflected in the cosmologies of transition. The paper concludes with thoughts on how a moral cosmopolitics and design of a resulting cosmotechnical pluralism could inform earth systems politics.

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Theorising earth system governance: new perspectives (i)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The Temporal Cleavage: The Case of Populist Retrotopia vs. Climate Emergency

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Explaining mobilization and polarization in societies has always been a key objective of the social sciences. In our exploratory study, we aim to integrate this scholarship in research on Earth System Governance by proposing the notion of, and calling for further research on, what we describe as a "temporal cleavage".

Accordingly, we ask: How do time perceptions politicize contestation in the case of climate politics? We argue that across Western Europe and North America, contestation in the climate case and beyond forms along an emerging temporal dividing line. The climate movement's reference to the scientific understanding of climate with its nonnegotiable timescales is at odds with populism's Great Again "retrotopias" referring to a romanticized fossil fuel past in which climate change is nonexistent. We understand these two distinct temporal positions within society as represented by *sometimers* and *anytimers* with each having their very own

social structure, collective identity, and organizational manifestation. If supported by further studies, the generalized characteristics of sometimers and anytimers will allow for the development of a substantial temporal cleavage that might be indicative for the Anthropocene and thus of upmost importance for developing future Earth System Governance.

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The Challenge of a 'Just Transition' and the Prospects for Transnational Democratic Governance: Insights from a Renewed Model of Cosmopolitan Responsibility

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The empirical and normative demands of a 'just transition' raise some urgent questions about the present state of transnational democratic governance in Europe and, more generally, the prospects for meeting the profound challenges brought with the climate emergency. When the global pandemic - COVID-19 - struck, Europe was already in the midst of a constellation of economic, political and social crises. From the deepening of core/periphery tensions reignited by the response to the sovereign debt crisis in the Eurozone, to the prolonged refugee crisis triggered by the Syrian war and widespread instability in the Middle East and North Africa, to the ongoing Brexit debacle and the associated resurgence of populist nationalism across the continent, Europe and the dream of further integration face an uncertain future. The EU thus finds itself at a critical juncture in the post-pandemic world, an inescapable dilemma between the

continuation of the predominant mode of governance that has led up to this point, characterised by a technocratic form of fiscal integration, or a yet unrealized alternative. The present paper seeks to explore and identify what may constitute the latter, specifically in relation to meeting the normative demands of a 'just transition'. Europe, it is argued, must renew, or revive its cosmopolitan cultural model – the very foundation of the entire transnational democratic project. Taking cue from Antje Wiener's conceptual framework for analysing norm(ative) change in combination with James Bohman's theory of transnational democracy, a renewed European integration project based around the cosmopolitan principle of responsibility is proposed as an alternative path to the pre-pandemic trajectory. Although this reflects a counterfactual response to what is a concrete and urgent set of political problems, there is nonetheless a critical need to articulate the normative alternatives that reach beyond the current malaise. This approach, therefore, reconstructs the post-pandemic situation as an opportunity structure, to embrace a politics of hope and rediscover the ambitious principles at the heart of the fragile transnational democratic experiment that is the European Union.

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Beyond the Anthropocene, beyond governance? Rewriting the climate crisis through co-liberation and Global South solidarity

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The ideological landscape within the global climate movement has been undergoing significant changes since the recent blossoming of groups such as Extinction Rebellion (XR), the Sunrise Movement and Fridays for Future. One of the deeply contested fault lines is the question whether addressing the urgency of climate challenge should have absolute priority, or whether other issues such as social justice should be of equal strategic importance.

While the Anthropocene discourse has proven to be a powerful mobilization tool, groups like Extinction Rebellion claim that toxic democracy, toxic economy and toxic media lie at the heart of the climate crisis.

This raises the question, what interpretive frameworks are being mobilized by the climate movement to account for the interconnected and intersectional crises of ecology, democracy, economy and society? What forms of knowledge beyond Western rationalism are being mobilized in these efforts to decolonize the foundations of climate governance?

This paper addresses this question by analysing how two influential groups within XR, the Co-Liberation Project and the Internationalist Solidarity Network are rethinking democracy and power by centering indigenous, pluriversal and relational knowledges and practices. Based on two years of digital and physical ethnography and fifty semi-structured qualitative interviews in the UK, Kenya and Uganda, I analyse how the Co-Liberation group combines ecofeminism, trauma work and the idea of the “plantationocene” to advance a shift from power-over to “power-with”. Going beyond the language of discrimination, they develop embodied practices that aim to lay foundations for transformative adaptation that is based in the irreducible relationality of all human and non-human life. I compare this approach with the work of the Internationalist Solidarity Network, which shares many ideological commitments, yet mainly focuses on building political alliances between what they call “communities of resistance” to extractivism in the Global South and social movements in the Global North.

By critically assessing the potential and limitations of these approaches to reframe the climate crisis as a crisis of coloniality, patriarchy and destruction of indigenous ways of life, the paper contributes to the ESG research agenda at the intersections of *democracy and power*, and *justice and allocation*. It illuminates the under researched entanglements of these themes with the cross-cutting issues of epistemological and cultural *diversity* and the historical ecological *inequalities*, and how they are addressed by one of the most dynamic climate governance actors.

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Theorising earth system governance: new perspectives (ii)

Panel Day and Time: TBD

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Towards a Behavioral Approach to Global Environmental Politics

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In recent years a novel research agenda focused on individual preferences toward global environmental outcomes has begun to emerge. Central to this literature is the contention that a focus on individual decision-making and the tools of psychology, especially experiments, and public opinion research are crucial to improving our understanding of the politics of global environmental protection. This paper uses a systematic analysis of this emerging research to better understand its growing contribution as well as its potential

integration with the broader study of earth system governance.

Behavioral approaches to global environmental issues focus on the ways in which individual decisions vary in ways that are systematically counter to rational or structural models. This research moves beyond cross-national studies of public opinion towards a focus on causal identification and experimental analysis to better understand preferences toward global-scale policies and outcomes. Importantly, this builds on existing work focusing on private environmental behaviors or domestic attitudes common in social psychology or American politics to an emphasis on the global scale aspects of environmental problems, and in particular questions of international cooperation. Undergirding this analysis are important questions of individual responsibility and the connection to democratic accountability.

In order to best assess this growing literature this paper employs a systematic review of existing literature. It first identified articles using experimental or quasi experimental methods to analyze individual beliefs toward global environmental cooperation published in the last twenty years. These studies were then coded on important factors such as sample, outcome of interest, treatment, and effect sizes. Using this data as a base for further discussion this paper endeavors to build a unifying framework for understanding this growing research agenda. It identifies three broad questions of particular importance for scholars of global environmental politics. First, how important is international reciprocity for achieving ambitious global cooperation? Second, what effect to issues of scientific uncertainty and risk have on support for global policies? And third, what is the importance of interests in relation social norms in shaping attitudes? Beyond these core issues the paper identifies methodological best practices and potential pitfalls within behavioral research. It then concludes with a discussion of policy impacts and fertile avenues for future research.

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Foucault, Neoliberalism and Global Climate Governance

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This paper examines the debates about the legitimacy and effectiveness of state and non-state climate action in light of Foucault's surprising yet influential initial embrace of neoliberalism. We argue that Foucault's "neoliberal turn" parallels current interest in transnational climate governance (TCG). Exploring the relationship between Foucault, neoliberalism and TCG is an opportunity to bring debates in global climate governance into dialogue with broader trends in global political economy, where an accumulation of evidence suggests the passing of the neoliberal moment.

We first review contemporary interpretations of Foucault, which have sought to place him in his historical context. Foucault's biting critiques of the modern state and the entwinement of knowledge and power are generally seen as fundamental characteristics of progressive governance. Yet, his Collège de France lectures from the early 1980s complicate this progressive interpretation by pointing to startling parallels with neoliberal economic theory. These include (1) a shared emphasis on dismantling the state as an integral process of personal emancipation, (2) agreement on the need to decenter the state as the primary locus for the exercise of political power, (3) Foucault's interest in identities and social categories rather than material economic outcomes and (4) his failure to appreciate hidden mechanisms of power in governance through markets.

In a second section, we show how TCG dovetails closely with each of the elements of the Foucauldian neoliberal framework above. First, TCG has sought to decenter the state as an essential political actor in global efforts

towards climate change mitigation and adaptation. Second, like Foucault's support for the "Second Left", TCG has often asserted that non-state actors are key catalysts of climate governance and suggested that they are more representative of a global social movement emerging organically from the "bottom-up" to take climate action. Third, most research into TCG has been characterized by descriptive research that is only beginning to consider policy effectiveness in terms of emission reductions. Finally, there has been insufficient attention to the potential for regressive political consequences, particularly in the developing world where there is mounting evidence that the state plays an essential role in development. Indeed, existing evidence suggests that non-state climate action is concentrated in developed countries.

Grappling with current critiques of Foucault opens up new theoretical approaches to global climate governance that resonate with declining enthusiasm for globalization amongst developed countries as well as growing interest in the developmental state model in the developing world.

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PaxClimatica: the Nash equilibrium and the geopolitics of climate change

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Ubiquitous and unfathomable, climate change constitutes an intangible phenomenon, one that is particularly difficult to incorporate into geopolitical analysis. In spite of this challenge, a quasi-global consensus has emerged whereby climate change is now widely identified as an ultimately existential threat to all stakeholders of the international realm. Yet the efforts to tackle the root cause of global warming by transitioning into a low-carbon

global economy remain uneven and are increasingly in peril. One major reason why the pace of decarbonization has been subject to fluctuations is the use of power of control over supply chains of fossil energy resources by states driven by geopolitical agendas. Crucially, the geopolitical gains thus obtained by such an exporting state could – in the long term and with all things considered – be offset by the damage which the state's weakening of climate mitigation efforts would have generated. While this is only one among the plethora of examples of acts or activities which states may deliberately choose to perform to advance their short- to mid-term geopolitical interests to the detriment of their long-term ones, the case of climate change is distinct not least due to the stakes at play.

The first central assumption of the paper is that interstate geopolitical rivalry is unlikely to wind down in foreseeable future even in presence of more noticeable and measurable negative effects of climate change. The second fundamental assumption is an extension of the first one and indicates that in presence of two competing strategic national interests – assuring supply of energy and cutting GHG emissions – states will in all likelihood favor the former. Commencing with a detailed reasoning in support of this assumption, the paper then examines how the game theory and the Nash's equilibrium in particular might serve to create a conceptual framework within which the aforementioned challenges could be addressed. In short, Nash's equilibrium offers a way to address the dichotomy between the preference of states for attaining more immediate goals at the expense of their long-term security concerns stemming from climate change and its threat-multiplying properties. It attempts to structure this argument on the basis of earlier applications of Nash's equilibrium in political analysis, as well as the author's original contributions, mostly with regard to the question of how issues of causation and the cost-benefit analysis need to be re-assessed in order to render climate action more resilient to geopolitical rivalry.

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Power, participation and responsibility in environmental governance

Panel Day and Time: TBD

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Enhancing Stakeholders' Participation in sustainability in Nigeria: Examining the Effectiveness of Partnership for SDG's Capacity building and Knowledge-Sharing Commitments

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The concept of multistakeholder partnership (MSP) is emphasized as an inclusive and participatory mechanism in the implementation of the global sustainability agenda, including the 2030 Agenda for Sustainable Development, the Paris Agreement (PA), and the outcomes of COP 26. Partnerships facilitate capacity building and knowledge-sharing needed for actualizing systemic transition to global sustainability. SDG 17 stresses the importance of partnership in building capacity and mobilizing knowledge-sharing to support the realization of the SDGs, particularly in developing countries. However, MSP experiences the challenge of inadequate participation and representation of stakeholders from sub-Saharan Africa due to inherent obstacles, including capacity and knowledge gaps. Consequently, several partnerships registered on the Partnership for SDGs online platform are committed to providing capacity building and knowledge-sharing. There is an assumption that providing

capacity building and knowledge-sharing would empower stakeholders and enhance their participation in sustainability. Yet little research is focused on assessing the effectiveness of these commitments. Therefore, research needs to understand how stakeholders of the SSA region participate in capacity and knowledge-sharing initiatives and what impact these initiatives have on participation in sustainability. So, do capacity building and knowledge-sharing commitments of partnerships empower stakeholders on sustainability? Against this background, the research seeks to understand the impact of capacity building and knowledge sharing initiatives of partnerships in sub-Saharan Africa using cases of Nigerian stakeholders. Assessing the effectiveness of capacity building and knowledge-sharing initiatives of partnerships registered on the Partnership for SDGs online platform presents a possibility of enhanced learning and participation of SSA stakeholders in sustainability.

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Power/knowledge in socio-ecological systems: A case study on the ecovillage discourse in Senegal

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The governance of socio-ecological systems is often conceived as the quest for the institutional setting most suited to restore and sustain its *resilience* over time. Indeed, resilience thinking has grown into a dominant paradigm to study human-nature interactions, but questions have been raised concerning its lack of concern for power dynamics. However, without power analysis, it takes the risk of remaining apolitical, ahistorical and highly normative, leading to simplified institutional prescriptions to multi-dimensional problems. To answer this gap, this paper explores how

the work of Michel Foucault on power/knowledge and discursive power can contribute to socio-ecological governance and resilience theory.

First, building upon evolutionary governance theory (EGT) and transition theory, a conceptual framework is developed to study discourses and power in socio-ecological systems. The framework is composed of several core analytical units: an epistemic landscape, actor/institution configurations, and the components of natural capital. The agents of the social system are interconnected by discursive flows, while the social-ecological interaction is conceptualized as a bi-directional flow of contributions (nature's contributions to people; and people's contributions to nature). Actors are further situated along a niche-regime continuum depending on the type of power they exercise in the socio-ecological system (innovative, reinforcing or transformative power).

Second, through a case study approach based on an operationalization protocol, the framework is applied to the ecovillage discourse in Senegal. Throughout Sub-Saharan Africa, ecovillages are emerging as new sites of politics, where creative adaptation to climate change and regenerative cultures are being experimented. The ecovillage discourse is structured as a global epistemic community focused on establishing communal and ecological solutions from the 'bottom-up'. These innovative structures are implemented in Senegal through multiple institutions: a governmental agency, environmental NGOs, and religious communities; thereby creating complex forms of agency and governance of ecovillage implementation.

Through ethnographic and qualitative analysis, the framework application to the ecovillage discourse exposes divergent uses of the ecovillage concept and strategies of implementation by diverse actors. Comparing 4 social-ecological practices in 3 different ecovillages (agroecology, reforestation, waste management and renewable energies), the analysis demonstrates how discursive divergence lead to contrasting impacts upon

people's livelihoods. Based on the results, the discussion section explores insights on power/knowledge configurations in socio-ecological systems, such as factors affecting learning and adaptation processes and the governance of (dis)empowerment. Finally, methodological and theoretical recommendations for future research are formulated, based on the framework achievements and drawbacks throughout the research process.

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Environmental degradations in the southwestern coast in Bangladesh: Whose problem and whose solution?

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The southwestern coast of Bangladesh is popularly referred to as a climate change "ground zero" because it is highly susceptible to sea-level rise and increased salinity. In an editorial in Science in 2001, Bangladeshi born leading climate change scholar Saleemul Huq took an "emitters-must-pay" stand to describe these climate change sufferings in Bangladesh, which has been repeatedly echoed in many research articles and governmental documents. In recent years, he and his team had looked into the problem of salinity from a holistic perspective of environmental degradation through upstream water blockage, polderisation, inappropriate internal water management, and promotion of shrimp cultivation . This shift of perspective from

blaming climate change to analysing multiple triggers has attracted very little attention to audiences across the globe, probably due to their uncritical scholarship on the genesis of the problem. Thus Bangladesh remains an iconic lab for understanding climate change lessons. This dominant climate change discourse in that particular region is overly simplistic and political. On such a backdrop, we are drawing from our ethnographic experiences of engaging with different livelihood groups, local elites, development agencies, government bodies from one of the most ‘climate change’ affected areas in Bangladesh. We then brought forward the key summaries of our conclusions from the local level to have the opinions of experts, people from donors, INGOs and several key members of global climate change communities. It was interesting to find a huge mismatch between how IPCC and UNFCCC delimitation of climate change mismatches with elitist discourses and local-level experiences and perceptions. This region is has a history of high susceptibility to different environmental stresses, such as tidal surges, cyclones, floods, waterlogging, increased salinity, and arsenic contamination, and sea-level rise is a new addition to the list. High population growth, reduced arable land, inadequate income-earning opportunities, unequal resource distribution, and changed land use together strengthen the burden of stress to peoples’ mundane life. However, climate change has become the most popular and unifying vocabulary, which not only helps to attract donors but also shields many by sweeping their dirt under the carpet.

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Power failures: Coloniality and Energy Transition Dynamics in Puerto Rico

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During the month of September 2017, Hurricane Maria brought the electric system of “the last colony on earth”, Puerto Rico, to its knees. Against the backdrop of this “power failure” which lasted a record 329 days and capitalizing on the window of opportunity opened by this extreme event, parachuting energy interests from Tesla to The Clinton Foundation converged on the island alongside federal, state, and local governments, and longtime vulnerable communities in what was described at the time as “the blank canvas” of Puerto Rico’s electric system. Despite this significant momentum immediately post-Hurricane, in the wake of the 5th anniversary of the catastrophic impact of a climate-related event on the Caribbean Island, the energy transition towards a renewable energy future for Puerto Rico is paralyzed. While techno-economic variables such as grid resilience, corruption, and transitional use of natural gas have dominated the discussion and analysis, the colonial context in which the recovery and reconstruction of Puerto Rico’s electric system (as a socio-technical system) are occurring has received less attention. This article looks to fill that gap using Frantz Fanon’s and Naomi Klein’s work on decolonization and disaster capitalism to explain the “encounter” of colony and colonizer and the intersectionality of electrical and governance power failures in the United States’ Island territory. The article triangulates between a multi-level analysis of Puerto Rico’s energy transitions timeline, a colonial governance timeline, and interviews

of energy stakeholders' visions of the future of Puerto Rico's electric system. Ultimately, the study looks at the penetration of decentralized renewable energy technologies as "boundary spanning objects of decolonization" in the context of the current U.S. imposition of a Fiscal Control Board on the island and points to the forgotten importance of decolonization governance innovation along with technical innovations in global energy transitions.

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Transformative Governance – Values, Politics and Institutions

Panel Day and Time: TBD

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Assessing the transformative potential of landscape-oriented partnerships for biodiversity: a literature review

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In light of still increasing biodiversity loss, conventional approaches such as area-based conservation appear to be insufficient. The IPBES suggests that transformative change is needed as it addresses the root causes of biodiversity loss. A less conventional but increasingly popular approach in conservation is the landscape-oriented partnership. By combining forces, partnerships are expected to achieve what partners separately could not achieve. Landscape-oriented partnerships are additionally expected to be able to deal with specific local and regional circumstances influencing biodiversity conservation.

However, to what extent landscape-oriented partnerships can contribute to transformative change for biodiversity, is yet to be discovered. To understand their transformative potential, we did a systematic literature review that yielded a corpus of 130 articles. We combined deductive and inductive coding to identify the conditions and barriers that landscape-oriented partnerships face in conserving or restoring biodiversity. Additionally, by analyzing their strategies, we examined to what extent and how these partnerships contribute to transformative change. Our results show that the literature is mainly focused on the internal functioning of partnerships, describing elements such as leadership, shared visions, and process facilitation. When discussing or analyzing conditions explaining the success or failure of partnerships, the articles often put forward general explanations, such as the importance of formal acknowledgment and political and public support. Partnerships strategies appear to be focused on policy implementation. Only a minority of the described partnerships aims to have political influence via strategies such as agenda-setting or policy development. However, it is questionable whether partnerships that do not explicitly engage in landscape politics do not have any political influence, or whether the authors studying the partnerships focused more on their main activities. Examples of outputs of partnership strategies include increased surveillance, community engagement in conservation, the planting of trees, and the eradication of invasive species. Root causes of biodiversity loss are mainly addressed at the local level, for instance through poverty alleviation or increased community awareness. This can be an indication that landscape-oriented partnerships are prone to fall into the 'local trap', which inhibits their transformative potential. Some articles also examine the impact of partnership outputs on biodiversity, such as species recovery, but often fail to describe the mechanism behind their success.

In sum, the challenge for the landscape-oriented partnership literature is to better understand under which conditions they succeed in producing certain outputs, and which outputs can really contribute to (transformative) biodiversity conservation.

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Multi-species justice and biodiversity conservation: explaining governance system relationships and performance

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Despite their shared focus on animals, there are inherent trade-offs between governance systems protecting the interests of individual animals and those of species. The goals of the former tend to focus on health, welfare and rights, whilst biodiversity conservation is prioritised by the latter. Concurrently, global concern for biodiversity protection and animal welfare is becoming all the more salient. However, as emerging concepts such as convivial conservation and the rights of nature gain traction, reflecting on the values and power dynamics underpinning governance processes is still nascent. How do we adapt such structures and institutions to encourage just inter-species co-existence in the Anthropocene era?

The governance performance of each system is inevitably influenced by the relationship between the two; but how and to what extent this occurs remains to be explained in academic literature. This paper maps the animal and biodiversity conservation governance systems using empirical evidence from Europe (the Netherlands and UK) and Africa (Kenya and South Africa). The relationships between the systems and their performance is assessed and is explained using

an Integrative Governance (IG) framework in terms of actors, institutions, discourses and wider structural factors. This is explored through a case study on species ‘management’ and non-subsistence hunting, which includes trophy hunting, as well as the culling of unwanted species.

Hunting of a few individuals is justified from a utilitarian perspective as it is alleged that it benefits wider biodiversity, ecosystems and local communities. However, trophy hunting, in particular, raises questions about power dynamics between the North and the South, for example in relation to legacies of colonialism, and between human and non-human actors. Can hunting be considered sustainable from a moral perspective, even if in certain cases it does not lead to a reduction in biodiversity?

This research is pertinent to the themes of Earth System Governance, in particular to justice, adaptiveness and reflexivity. For example, with regards to hunting, reflecting on the change in values regarding hunting and the greater acceptance of rights of nature. This may necessitate transformative governance; adopting creative, just and inclusive governance solutions for ‘managing’ species without or with restricted lethal methods, as has been seen under the communities conservancy model in Kenya. What this may entail in terms of multi-species justice is a governance question addressed by this paper as we navigate a pathway to sustainable coexistence between humans and non-humans.

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Security in the Anthropocene: The transformative potential of eco-socio-cultural corridors

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Security is an essentially contested concept. Over the last three decades, the notion of security has been systematically broadened, deepened and modified to incorporate new threats to be secured and new referents to be protected. However, most of this literature has adopted an anthropocentric understanding of politics that reifies an artificial divide between nature and culture and conceives the former as merely an instrument to secure the latter. Such human-centered conceptions of world politics have been disrupted by the multiple socioecological challenges of the Anthropocene. This paper sets out to develop a post-anthropocentric view of security based on the notion of eco-socio-cultural corridors, understood as a relational, hybrid and more-than-human ontology grounded on the fragile interdependence between multiple beings, species and forms of knowledge. We start by unpacking the problems resulting from applying existing conceptions of security to the Anthropocene and mapping alternative conceptions of this notion which are already being developed within and outside security studies. We then look at several connectivity projects within the Amazon region to discuss how the spatial, temporal and interspecies framing of security within eco-socio-cultural corridors defy most understandings of the concept, providing alternative grounds for rethinking security beyond anthropocentric ontologies, politics and ethics. We argue that thinking through eco-socio-cultural corridors can help us shift security discourses and practices towards the promotion of

interspecific care and planetary sustainability and unveil possibilities for truly transforming biodiversity governance.

Panel ID 280 | Onsite

Policy stability versus repoliticization in climate politics

Panel Day and Time: TBD

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Global Collaboration on Climate Change and the Mercantilist Turn of Low-Carbon Industrial Policymaking

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Over the past decade, the global resurgence of industrial policymaking has been particularly visible in low-carbon industries required to combat the climate crisis. These sectors—which include renewable energy, battery storage, and electric vehicles, among others—have seen levels of state intervention rarely witnessed outside of late economic development. But because of China’s dominant position in the manufacturing of such products—China commands more than three quarters of global production capacity for lithium-ion batteries, for instance—industrial policies for low-carbon industries have increasingly been accompanied by mercantilist calls for a reshoring of manufacturing from China. This paper reviews industrial policies for low-carbon industries to show that mercantilist calls for reshoring are primarily a political tool to justify state intervention and very rarely entail any

concrete measures to bring back manufacturing from China. While reshoring as a justification for industrial policy may be political expedient, it presents two concrete obstacles to global emissions reductions. First, calls for reshoring likely understate the extent to which the world has to continue to rely on Chinese manufacturing capacity for clean energy technology, at least until alternative supply chains are established elsewhere. Second, and perhaps more importantly, the nationalist and mercantilist justifications of industrial policy put such government measures in explicit tension with the need for global political collaboration to meet transnational decarbonization goals. The politicization of low carbon industrial policies may therefore yield short-term political successes, but at the expense of long-term progress on emissions reductions and decarbonization.

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Climate Risks and Policy Lock-in: The Fight over Insurance of Fossil Fuels

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How can we reconcile the institutionalization of climate policy to make it durable with the political contestation that makes profound change possible? Scholars (Ref removed) argue there is an unexplored tension in climate policy debates between demands for policy stability to lock in desired changes versus calls for political upheaval to open opportunities for change to occur. I explore this tension in debates over climate action by the insurance sector. Insurers evaluate future risk based on past outcomes, which favors policy stability. As their models change, we can expect political contestation over how they respond.

Activists have been pressuring insurers to take climate risks into account since the 1980s. Recently demands have escalated for insurers

to stop insuring fossil fuels entirely. Pressure from activists and shareholders; regulatory changes including mandatory ESG reporting; and losses related to climate change may push insurers to take dramatic steps. Ending insurance for fossil fuels may create a stable policy environment that is difficult to reverse. We are already seeing the political backlash against this by the fossil fuel industry and its political friends as this has renewed one front in the climate wars.

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For better or for worse – a break with Norway’s consensual climate tradition?

Fay Farstad, *Erlend A.T. Hermansen, Bård Lahn*

CICERO, Norway

Norway has long been considered a climate leader and prides itself on its climate policy stability. Consensus has been underpinned by cross-party climate settlements in 2008 and 2012, where all but one party supported the Norwegian climate targets and measures. Yet despite ambitious climate goals and broad political consensus, Norway has only reduced its domestic greenhouse gas emissions by 2,3% between 1990 and 2019. Moreover, the government’s climate white paper published in January 2021, setting out a plan to meet Norway’s mitigation target for 2030, failed to establish a cross-party settlement similar to those in 2008 and 2012. In this paper, we investigate to what extent the strong cross-party consensus characterising the ‘00s and ‘10s contributed to climate policy development or stasis, and why. We also analyse whether the increasing politicisation witnessed in recent years constitutes a break with Norway’s consensual tradition and with what effects. Has Norway’s consensual tradition broken down, and is this good or bad news for climate policy? Our paper feeds into ongoing debates about the dynamic tensions

between policy stability and repoliticisation, and the defining characteristics of climate politics.

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Let's Pretend it's a Big Deal: The Political Dynamics of Obscuring Incremental Change

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The Paris Agreement was lauded by pundits and practitioners, world leaders and civil society as a watershed moment in global climate governance. Not only did countries agree, the story goes, but they agreed to a unique treaty with innovative features. It seemed a clear case of punctuated equilibrium. However, the Paris Agreement shares many features with climate rules that already existed, including many of the rules and norms enshrined in the Kyoto Protocol. Some of the Paris Agreement's text is cut and pasted from the Kyoto Protocol. It also uses the same pledging model of the Kyoto Protocol. But the Protocol was declared "dead on arrival" in the mid 2000s, when it entered into force. Somehow, countries accepted the ideas, and some provisions, of a treaty that had been widely discredited as a model to address climate change. This paper outlines the political processes of de-legitimization that helped construct a false dichotomy between the "failed" Kyoto Protocol and "successful" Paris Agreement. It also shows how these processes ultimately served the interests of the most powerful actors, particularly the United States, and co-opted the climate movement.

Panel ID 318 | Onsite

Analyzing polycentric climate networks

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Legitimacy and accountability of polycentric climate action: Taking stock of the Global Climate Action under the United Nations Framework Convention on Climate Change

Karin Bäckstrand

Stockholm University, Sweden

The Paris Agreement has catalyzed voluntary, experimental, bottom up climate action, which can be theorized in terms of polycentric governance. The Marrakech Partnership for Climate Action (MPGCA) and the Global Climate Action Portal have been established with the goal to bolster individual and cooperative non-state climate commitments on climate change. The aim of the paper is to stock of the legitimacy and accountability of the United Nations Framework Convention on Climate Change (UNFCCC) orchestrated non-state climate action during its second phase 2020-2024. COP25 in Madrid 2019 decided to extend the global climate action agenda to scale up non-state climate action. Non-state climate action (NSA), public-private partnerships, transgovernmental networks, regional and local climate action have grown exponentially since 2015. The online Climate Action Portal hosts almost 27 000 commitments from the companies, investors, cities and regions including cooperative action. The multi-actor, multilevel, multi-scale, multisector and cross-jurisdictional climate action under the umbrella of MPGCA can be

conceptualized as polycentric climate action. Previous research has paid attention to the relationship between the spheres of intergovernmental and transnational non-state climate action, especially how they can complement each other to close the emission gap. Research has predominantly focused on the effectiveness of global climate action and how it can be aligned with Nationally Determined Contribution (NDCs), and orchestrated by the UNFCCC secretariat and the appointed High-Level Champions. First, the paper discusses some general legitimacy and accountability challenges with polycentric climate action, such as skewed participation, weak accountability and low transparency, which can be explained by its non-hierarchical, networked and non-electoral nature. Secondly, 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, as well as submission by non-state and state actors. While accountability mechanisms have been strengthened in the 2nd phase, they are still weak monitoring, review and verification (MRV) coupled with problems of low transparency and imbalanced participation of stakeholders. Finally, the paper proposes how to improve legitimacy and accountability in polycentric climate governance in the context of the UNFCCC' climate action agenda.

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Exploring Scaling Mechanisms of Energy Communities

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Energy communities are taking on a growingly prominent role in future climate governance systems. This is particularly true for how these self-organized and local-scale manifestations

of the energy transition are institutionalized throughout the European Union. The implementation of the Clean Energy for all Europeans package into national contexts creates a peculiar heterogenization of energy community models in the European context arguably creating a polycentric network of initiatives. These community models are embedded in a polycentric setting characterized by a growing number of governance levels, varied decision-making centers and domains of action, as well as the growingly codified set of overarching rules. With-in this framing the question remains as to how small- and local scale action can be aggregated into effective climate mitigation. Against this backdrop, the paper investigates to what extent scaling mechanisms need to be considered when planning for the institutional context of diversifying energy community models. By conducting a Qualitative Comparative Analysis of energy communities across Europe we find a number of scaling mechanisms at play – and in particular diverse combinations, which lead to scaling. Accordingly, we assess the scaling of energy communities at three levels. We explore firstly how communities organize with-in, secondly how they interact between communities, and finally what type of context the communities are embedded in. Our results indicate that diverse energy community models result in a variety of scaling pathways as well as particular combinations of scaling mechanisms in the process. We sketch the relevance of our findings for two bodies of literature which are often invoked in these debates: strategic niche management approach and polycentric governance, and see great potential for enhancing currently existing frameworks there.

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Local climate action obstacles and support for polycentric governance in Municipalities from Wallonia

Loïc Cobut

University Saint-Louis, Belgium

In municipalities of Wallonia (Belgium), local climate stakeholders such as renewable energy cooperatives, wind turbine opposition movements and Transition Town Network local sections have emerged in the period between 2008 and 2021. At the same time, local authorities have started to (re)develop the energy competence in order to meet climate targets. This context offers an interesting framework to look at local climate action obstacles through the lens of polycentric governance. This paper is based on a fieldwork in 18 municipalities covered through 59 semi-direct interviews and on a review of local media content. The data analysis has been conducted through the use of qualitative comparative analysis (QCA) methods.

In those municipalities, the slow development of local climate actions is sustained by obstacles such as weak institutional capacity, lack of knowledge/ideas about how to conduct the energy transition, citizen's distrust towards local public authorities, the importance of daily urgent issues and a lack of money. In this paper, I argue that municipalities that have supported polycentricity are better equipped to face these obstacles. Indeed, local climate stakeholders may speed up local climate actions, enhance energy and social experimentation, increase trust amongst local stakeholders through (non) institutionalized participative mechanisms and reinforce local institutional capacity with both site-specific knowledge and energy expertise. However, in some municipalities, wind turbine opposition movements may reinforce existing local climate obstacles.

Ultimately, this paper sheds light on the role of local authorities and local stakeholders in leading local climate actions. The use of the concept of polycentric governance allows to look at local energy (public) actions from an innovative angle. However, its use throughout this fieldwork allows me to underline its limits, one of them being its weak support to formulate useful operational recommendations for (local) decision makers.

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The effect of actor and forum heterogeneity on perceptions of performance in polycentric governance systems

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A key focus of polycentric governance theory is the existence and performance of interdependent policy forums in which actors participate, deliberate and make collective decisions about a certain policy issue. This depiction is useful but overlooks heterogeneity in actors and forums and its impact on forum and actor performance. Policy actors vary in terms of the organizations they belong to, the issues they care about, and their involvement in the system. Forums have different purposes (some forums focus on knowledge dissemination, others on allocation of resources or implementation) and take place at different geographic scales. This paper analyses the effects of actor and forum heterogeneity on actor perceptions in a polycentric governance system using regression methods. It focuses on the empirical case of the governance of adaptation to sea level rise in the San Francisco Bay Area, using original data from a web-based survey (N=400 actors, 55 forums) carried out in 2018. Our key hypotheses are that actors perceive

between-forum heterogeneity as beneficial, while they perceive within-forum heterogeneity as an obstacle to achieving their own goals. Actors benefit from exposure to different kinds of information when they attend different types of forums, but struggle in forums where actor heterogeneity is high because achieving consensus is harder. Our results show that actors associate forum heterogeneity with better outcomes. They also show a rift between governmental and non-governmental actors more than a concern with within-forum heterogeneity per se.

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Between Global Goals, Domestic Actions, and Polycentric Networks: Explaining the Ambition of International Climate Change Mitigation Commitments and their Alignment with National Policies

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Under the Paris Agreement, 194 governments have submitted Nationally Determined Contributions (NDCs) detailing their pledged climate change mitigation targets and actions. This centrally orchestrated but nationally driven system underpins the increasingly polycentric nature of global climate governance. Achieving the Paris Agreements' overarching temperature goal requires both that the NDCs are ambitious enough, and that they are implemented domestically through appropriate laws, policies, and regulations. In this paper, we investigate the drivers of both the NDCs' ambition and their alignment with those national policies and laws. We argue that ambition and alignment may not only depend on countries' structural, political, and macroeconomic characteristics such as their income, their governments' quality, their vulnerability, or their dependence on fossil

fuels, but also by their level of involvement in the polycentric climate governance system. We assess this dimension by looking at the level of experience and leadership displayed by government delegates participating in the Paris Agreement negotiation meetings, as these characteristics may enable delegates to influence domestic policymaking in a way that makes it more aligned with international commitments, and by their degree of involvement in other climate-related IGOs and transnational climate governance initiatives, as these connections may provide them with information and tools to design and implement their NDCs. We apply regression analysis to novel data on the characteristics of countries' negotiation delegations and on the alignment of NDCs and national policies, combined with existing data on level of ambition of NDCs and on transnational networks to test these expectations.

729

The emergence and impacts of 'orchestrators' and 'inhibitors' in polycentric climate networks

Paul Tobin

University of Manchester, United Kingdom

Within polycentric climate networks, different types of actors, such as businesses, NGOs, and faith groups, assume leadership positions that are independent of, but overlapping with, one another. In contrast to more top-down governance models, these nascent polycentric networks are highly complex systems, and are lacking empirical research. As a result, we do not yet understand fully how or why polycentric climate networks are developed, or even whether such networks facilitate more ambitious policy. More specifically, the empirical realities of two crucial types of nodes have been underexplored, namely 'orchestrators' and 'inhibitors'. First, orchestrators govern indirectly to elevate

climate ambition. Working with intermediaries, they employ incentives that are designed to shape the behaviours of policy targets. Second, and in sharp contrast to orchestrators, not every actor in a polycentric network necessarily pursues greater climate ambition. Instead, inhibitors seek to obstruct, decelerate, or redirect others' climate activities. Where do orchestrators and inhibitors come from, why do they assume these roles, and what shapes their impacts? In response, I examine the roles orchestrators and inhibitors play in shaping the levels of trust, the willingness to mutually adjust targets, and the capacity to conduct policy experiments, within local climate networks in Western Europe. This study develops a conceptual framework that is subsequently employed in several European cities as part of a future comparative analysis.

Panel ID 361 | Virtual

Legitimacy challenges across new modes of global climate governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The Case for Democratizing Global Adaptation Governance

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Many scholars argue that democratic governance is crucial for tackling a global social-ecological problem as complex as climate change. This contrasts with the perspective that a top-down approach driven by global, expert-led institutions or

authoritarian leaders is the only way to rapidly mobilize the wide-ranging changes required. Arguments both for and against democratizing global climate governance have tended to focus on mitigation, with many scholars and practitioners in the early decades of climate governance framing adaptation as a primarily local endeavour, devoting far less attention to its governance at the global level. However, global adaptation governance is now emerging as a field of climate governance distinct from global mitigation governance. While significant progress has been made in mapping the architecture of global adaptation governance, the question of how democratic legitimacy should be conceptualised and achieved remains under-explored.

In this paper we ask: does the argument for democratizing climate governance hold equally true for adaptation as for mitigation? Or are different justifications and challenges involved? What might a more inclusive and deliberative approach to global adaptation governance look like? We argue that, while the justifications for democratizing adaptation and mitigation governance share much in common, there are important differences when it comes to the political and institutional challenges. We extend and refine Stevenson and Dryzek's account of the deliberative system for global climate governance by applying it to adaptation governance. Building on a critical analysis of the literature on participatory approaches to local adaptation and civil society participation in global climate negotiations, we present a conceptual framework that offers scope for greater dialogue between these fields. Drawing on selected cases of international financing for local adaptation, we argue that democratic legitimacy in adaptation governance must reach beyond inclusion at discrete levels of governance and pay greater attention to deliberative connections across these levels to ensure the values and interests of affected groups are reflected in collective decisions.

748

Legitimacy of Multistakeholder Partnerships in the Implementation of Climate Policy

Karin Bäckstrand, Faradj Koliev

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Multistakeholder partnerships (MSPs) have been advocated as new modes of collaborative governance that potentially could address democratic deficits and solve implementation gaps of complex global collective action to tackle sustainability, climate and environmental threats. MSPs as cross-sectoral global public-private innovations, are actively promoted and orchestrated by many international organizations to enhance the legitimacy and effectiveness of intergovernmental agreements, such as the 2030 Agenda and the Sustainable Development Goals (SDGs) as well as the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC). Yet, there is limited knowledge and research on public legitimacy, namely how citizens evaluate MSPs, especially considering their expected role in solving implementation gaps. While existing research has focused on the procedural and outcome characteristics of specific international organizations, this study seeks to evaluate citizens' perceptions of MSPs in practice. For instance, do citizens view MSPs more legitimate to implement domestic policies rather than other domestic actors, such as public authorities and private companies?

The aim of this study is thus to assess whether and to what extent there public legitimacy in implementation of domestic policies through MSPs in contrast to other actors such as states, local or sub-regional authorities. We focus specifically citizens' legitimacy beliefs in the implementation of climate policies. Theoretically, we draw on previous studies of public legitimacy of IOs and global governance in general to develop hypotheses of how

specific features – actor type and policy outcome– may affect public legitimacy of new modes of governance such as MSPs. To test our hypotheses, we conduct a conjoint survey experiment fielded to 6000 representative samples in Brazil, the UK and the U.S. The preliminary results indicate that citizens prefer MSPs to implement domestic policies over public authorities and private companies, accounting for the costs and effectiveness of implemented policies. We conclude that models of multi-stakeholder multilateralism are gaining legitimacy among citizens to address global climate and sustainability threats.

749

Competitive Framing and the Popular Legitimacy of Global Climate Governance

Lisa Dellmuth

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In an era of backlash against the liberal international order, global governance is increasingly being debated and competing messages about global climate governance may reach individual citizens. While the growing contestation and related rise of populism have attracted increasing scholarly interest in the past decade, we know little about the effects of competing frames on citizens' perceptions of global climate governance. How do frames about governing climate change across local, national, and global levels shape legitimacy beliefs in the legitimacy of transscalar governance institutions? How do these framing effects on legitimacy beliefs change when citizens are exposed to competing frames?

To answer these questions, a survey-embedded conjoint and a framing experiment are conducted in six countries around the world. In the conjoint experiment, the aim was to establish if framing about the qualities of climate change adaptation by local, national,

and global institutions matters for citizen confidence in these institutions. The respondents are confronted with six randomly allocated qualities of adaptation by these transscalar institutions, pertaining to democracy, effectiveness, and justice. We then asked respondents which of the two institutions with the varying features they would prefer. In the survey-embedded framing experiment, the respondents were randomly allocated to specific treatment groups and a control group. In a factorial design, the treatment groups received vignettes describing the qualities of adaptation by the transscalar institutions at local, national, and global levels, varying the tone and controversy of the frames. The control group received no such information prior to a question about perceptions of legitimacy of the institutions.

The surveys are fielded in six countries which vary in terms of their exposure to international organization activity and vulnerability to climate change, while holding levels of democracy and economic development largely constant: Brazil, Philippines, India, Turkey, Egypt and South Africa. Taken together, the paper's findings have implications for research and politics on legitimacy in global climate governance.

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Distant Problems and the Legitimacy of State Intervention: Evidence from Germany

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Many environmental problems—including climate change—are perceived as distant: They pose risks for others, but their implications for a given observer appear ambiguous, at least in the short term. Distancing is especially prevalent when global

supply chains shift hazards of production to locations that are far from sites of consumption. How do observers in affluent countries make sense of distant problems? Specifically, under what conditions do they perceive it as legitimate for the state to restrict markets to address distant problems?

To answer this question, we conducted a conjoint survey experiment in Germany. We showed respondents a range of problems encountered in the production of food, clothing, and electronics. We also showed them promises of voluntary reform from corporations and mobilizing statements from NGOs. We then asked respondents whether the German government should ban sales of the product—a form of state intervention with renewed relevance in the current era. Previous research in the U.S. and Switzerland finds that corporate promises of reform undermine support for state intervention, while NGOs' advocacy frames have mixed effects (in the U.S.).

The German setting would appear to be different: By standard survey measures, trust in companies is lower in Germany than in the U.S., Switzerland, or most other affluent countries; and trust in environmental NGOs is higher than in the U.S. Nevertheless, we find that corporate promises of voluntary reform have the widespread effect of reducing support for state intervention. Moreover, while toxic emissions and pollution of rivers and oceans generate high levels of interest in state intervention, overuse of natural resources does not, even when described as illegal. Taken together, and supplemented with open-ended responses, these findings show how the legitimacy of national actions to address global problems—such as climate change—is intertwined with presumptions about private authority, spillover, and the bridging of distances.

Panel ID 551 | Onsite

Power shifts and action in Earth System Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The Politics of Tropical Forest Conservation: A Comparison of Brazil, Indonesia, and Peru

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Tropical forest conservation is a crucial component of the effort to limit global warming. Not surprisingly, there is an extensive literature on the causes of deforestation. This body of work shows that public policy matters, but there is relatively little research specifically on the political determinants of the policies that cause deforestation or, alternatively, promote forest conservation. The paper we are proposing addresses this gap through a qualitative, cross-national comparison of three countries with exceptionally large areas of tropical forest: Brazil, Indonesia, and Peru. The paper will examine variance in the extent of forest conservation efforts (including formal adoption and effective implementation) by state actors both across these countries and over time since the global intensification of concern over tropical forest loss in the 1980s. Because this is an initial attempt to derive hypotheses for future research, it will be based on published sources, such as reports produced by state agencies, non-governmental organizations, and multilateral institutions; media coverage; and existing country-specific scholarship. Such sources are relatively rich, especially in the Brazilian case. Based on our preliminary research on the

cases, we plan to explore five main hypotheses: 1) External pressures (from state and non-state actors) play a major role in propelling domestic forest conservation efforts in all three cases but can only partially explain the observed variance in such efforts. In other words, domestic politics is crucial. 2) Political regime type, a key variable in many political science analyses and some studies of deforestation, appears to have little impact on forest conservation efforts once other variables are controlled for. 3) Government ideology only significantly influences variance over time in Brazil because Indonesia and Peru lack programmatic party competition on forest conservation. This reflects both the general character of the respective party systems and the fact that in Brazil both pro- and anti-conservation civil society actors are better organized and have significant influence on parties and politicians. 4) Dramatic events, including violent conflicts and major forest fires, play an important role in shaping conservation efforts by drawing the attention of both international and domestic publics. However, their effects tend to wane over time, as attention shifts to other issues.

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Climate contrarianism on social media: tracking and classifying discourses of climate delay and denial

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The public discourse on climate change is continuously eroded by contrarian claims. These range from rejections of the scientific basis of climate change (climate denial), to claims that climate policies are ineffective, unfair, or costly (climate delay). Research has shown that such claims lead to increasing

public polarization and reduced climate literacy, potentially undermining democratic action to address climate change. In this paper we investigate the propagation of climate contrarianism on social media. Our goals are to identify who is misleading the public, using what strategies, and to discover how these are changing over time.

Identifying and countering climate contrarianism presents several critical challenges. First, the sheer volume of claims made across different media sources precludes anything but strategic and targeted responses by climate communicators. Second, given this volume, it is increasingly challenging to track the content of new arguments as they proliferate. And third, while some climate denial claims can be falsified on the basis of scientific evidence, climate delay presents a more fundamental challenge. Climate delay targets the normative basis of climate policy making: Is it our responsibility? Are transformative changes really necessary? And won't the costs be high? Since these are legitimate questions to deliberate, it is important to distinguish when they are strategically and intentionally used to dampen public motivation for addressing climate change.

Our analysis is based on 30 million tweets that mention climate change. We use the state-of-the-art RoBERTa classification model trained on conservative think tanks and contrarian blogs to identify and classify climate contrarian tweets. We predict tweets across a taxonomy of 5 super-claims (such as “global warming isn't happening” and “climate solutions won't work”) and 17 sub-claims (such as “ice isn't melting” to “policies are ineffective”). With a view to strengthening the public debate on climate change, our analysis explores the following research questions: How prevalent are climate contrarian tweets in the Twitter discourse on climate change? Are climate delay claims now the primary discursive strategy deployed on Twitter? Have authors of climate delay tweets also propagated climate denial, suggesting contrarian intent? And given that conspiratorial movements are known to stack (belief in one theory predicts

belief in another), has there been an increase in climate contrarianism since the start of the COVID-19 pandemic, as new individuals were recruited to anti-vaccine and anti-lockdown movements?

848

Understanding the power of Fridays for Future and differentiated climate action: insights from experimental studies in Germany and the US

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Social movements such as the Fridays for Future international climate movement have been characterized as a new powerful actor significantly influencing the global environmental discourse. However, some scholars argue that the recent movements do not necessarily represent a completely new phenomenon, since such movements existed earlier too, and that it is the strategies and their structure what might be somewhat different than before. Other scholars consider those with strong environmental predisposition “already converted” and that attention should be directed to those who resist environmental (climate) action. This research argues that the diversity within the movement and the movement's power to influence both the legal-institutional processes and practical action on the ground should not be underestimated. Using discourse analysis and experimental empirical evidence from surveys in Germany (n=119) and the US (n=100 in a representative survey, currently ongoing), we will bring forward the importance of understanding and taking into account the heterogeneity in the broader public but also particularly within groups that have stronger than average environmental predisposition. In doing so, we will particularly debate and present our lessons on (i) the continuum of environmental predisposition within the surveyed respondents that combines

information about knowledge and understanding, belief and norms, political orientation, and path dependencies; (ii) experimentally designed information-based interventions drawing from social-behavioral scholarship, including on support or opposition for introduction of a CO2 tax, and (ii) what one can understand by desired outcomes. The overarching debate is on whether and to what extent the international social movements such as Fridays for Future are result and/or sign of soft power mobilization leading to formation of a critical mass of informed citizens, which would have implications of a systemic nature for democratic governance, and can be seen as an additional indicator of dynamic political preferences in the general public. In this sense, we also reflect on whether measuring social change such as implemented in this research could serve as a viable proxy to understanding the state and gaps in differentiated environmental (climate) action.

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Germany's political power in global natural resource politics

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This paper aims at tracing and evaluating five recent trends in German natural resource politics and evaluate them in light of political power discourses in earth system governance. Germany is relatively natural resource-poor and thus dependent on imports. The policy field of German natural resource politics is focused on energy imports on the one hand and securing 'high-tech raw materials' to ensure future technologies 'made in Germany' on the other. Dominant nation states such as Germany are often criticized for facilitating unequal natural resource exchange relationships and 'resource grabs' in poorer countries thus weakening democratic governance and exploiting its dominant position vis-à-vis resource-cursed countries.

Drawing on key government reports, corporate documents and secondary literature, this paper argues that there is a recent paradigm shift in German resource politics. The paper first shows that German resource politics has moved from a more market-oriented to a political steering approach. Second, sustainable resource and transparency are promoted – at least on paper. Third, new forms of resource partnerships are promoted including bilateral resource partnerships and multi-level governance initiatives. Fourth, the data revolution has created new possibilities of sighting and exploiting natural resources around the globe. Fifth, connecting to the first trend, there is a new emphasis on sovereignty that is in tension with Germany's interdependence in the field of trade policy more generally and resource politics in particular.

In a second part of the article, the five trends above are mapped onto different notions of political power in earth system governance. In this context, I suggest to look at the power-knowledge nexus as well as geopolitical notions of power to explain the paradigm shift in German resource politics. New data technologies 'made in Germany' and discourses around sustainability and transparency enable new intangible forms of domination. Geopolitically, Germany in cooperation with the European Union is exploring ways to access critical resources around the globe. These geopolitical exercises of power often create internal conflicts in the resource exporting countries. Finally, the paper will conclude by a critical assessment of Germany's use of political power in global resource politics.

Stream 3

Justice and Allocation

Panel ID 300 | Onsite

Tools for a just transition: Technology and finance for environmental ends

Panel Day and Time: TBD

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Role of Law to Facilitate Climate-Smart Freshwater Aquaculture through Enhanced Deployment of Digital Technologies

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Climate-smart aquaculture (CSA) is a kind of aquaculture practice that aims to support food security through enhanced fish production, and at the same time it considers the necessity of climate change adaptation and mitigation. The CSA practice specially concerns first and second goal of the United Nations Sustainable Development Goals (UNSDG) through assisting in reducing poverty and eliminating food crisis. However, an essential element of the CSA is effectively absorbing the emerging technologies and adapting to market as well as socially driven changes that occur within and around the sector. Accordingly, CSA also requires adoption and deployment of recently invented digital technologies for the purpose of enhancing production efficiency. Examples of deploying digital technologies in freshwater aquaculture include Digital feeding, Artificial

intelligence (AI), Computer vision, Smart-sensing, Underwater drone data collectors, Augmented reality, and Virtual reality etc. Besides, the block chain technology, which has popularly been used on the foreign exchange market in the Bitcoin system, also has a high potential to be employed in aquaculture industry. Application of these digital technologies and big-data approaches have an extensive potential not only to improve sustainability of working conditions for fish farmers but also to assist society to understand better the interrelationships between aquaculture and environment. However, major challenges that prevent wide scale deployment of required digital technologies across all fisheries sectors include- upfront costs and lack of access to capital; failure to employ required data collection standards; farmers' lack of trust to share exact data; and legal and bureaucratic barriers. Besides, since AI technologies decide on the basis of the stored data, concerned technology providers might come up with wrong recommendations if stored data are incorrect or inaccurate. Determining legal liability for any harm caused by wrong recommendation of AI based digital technologies is also a challenge. In addition, an important concern of using AI in climate-smart aquaculture is ownership or control of data. This paper will explore what role law can play to address above-mentioned challenges and to facilitate smooth deployment of digital technologies in freshwater climate-smart aquaculture. The legal analysis part of the research will concern laws relevant with fiscal policy for price settings; legal standards for adopting technology in the sector; tort or criminal laws to address damages caused by erroneous recommendation of the AI based digital technologies; and above all laws concerning data ownership, data privacy, data protection and intellectual property law, where relevant.

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*Global study on Transformations in Environmental Communication*Rosewine Joy, Rashmi D*Presidency University, India*

Communication could shape how we visualise the world. Environmental communication plays an important role in shaping our perceptions about the environment and our relationships with ecology. Many revolutionary writings cautioned man against excess industrialization, climate variability, disease outbreaks, global warming, etc. Timely, well-articulated, and engaging environmental communication lies at the crux of natural resource management. Public awareness about environmental issues through environmental communication is a tremendous possibility. Across time, the channels, modes, and impact of environmental communication are changing. Disruptions in communication are mirrored in the transitions along with environmental communication as well. Against this backdrop, the study tries to understand the major transformations in environmental communication across the world and tries to understand the new pathways emerging in environmental communication. The study uses the environmental communication framework proposed by scholars (Ref. removed). The focus is on three intersections firstly linking knowledge to action, second recognizing disciplinary knowledge, and third, expanding approaches to science communication. Data from social media platforms such as Facebook and Twitter are used to understand the transformations across time and space. The data is pulled from different platforms using the API keys (Application programming interface key) through python programming. The list of keywords used for extraction is climate change, global warming, natural disasters, biodiversity loss, deforestation, resource depletion. Various machine learning techniques are used to analyze the data. The

study tries to point out the transformations in environmental communication across time and space and new pathways which are in transition.

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*Additionality in Adaptation Finance: An analysis of argumentation in successful proposals*Laura Kuhl¹, Alexa DeRosa¹, Laura Bernstein¹, Jihyea Kim², Pradeep Kurukulasuriya²*¹Northeastern University, United States of America; ²United Nations Development Organization*

Additionality has emerged as a key funding principle for climate finance, with the intention of ensuring adaptation funding is not used as a substitute for traditional development finance. What interventions qualify as additional, however, is not always clear and reflects a larger debate about the relationship between adaptation and development. The application of the additionality principle in practice also raises concerns regarding the just allocation of funds, as it may restrict the types of adaptation strategies that receive funding. This study identifies common arguments for additionality used by successful adaptation proposals. We examine how proposals submitted to the UNFCCC financial mechanisms have interpreted the relationship between adaptation and development, and the implications for what kinds of adaptation activities receive funding. Through an analysis of a representative sample of 100 projects funded by the Global Environment Facility (GEF), the Adaptation Fund (AF), and the Green Climate Fund (GCF), we developed a typology of additionality arguments, and then analyzed trends within the funds regarding these arguments. We found that proposals made three primary arguments for why the project required climate finance: they supported 1) mainstreaming (increasing

government planning capacity and/or the incorporation of climate change into existing policies and plans); 2) climate-proofing (incorporation of adaptation into existing development projects); 3) demonstration (implementation of concrete adaptation measures with a goal of demonstrating their effectiveness). Many proposals utilized multiple arguments, but AF proposals were more likely to include all three (73% compared to 49% in the GEF and 59% in the GCF). Climate-proofing arguments were the most common, appearing in 94% of projects, while demonstration arguments appeared in only two-thirds of projects. GEF proposals were less likely (57%) to make demonstration arguments than proposals submitted to the other two funds (77% and 82% respectively). Although ambiguity remains on the appropriate application of additionality, given the lack of an operationalized definition of adaptation, this paper sheds light on the preferences of three of the largest multilateral adaptation funds. The findings provide guidance for entities applying for future funding and address concerns regarding the lack of clarity in interpreting funding criteria, which directly affect the allocation of international funds to developing countries. Without proper proposal guidance and continued discussions on the appropriateness of additionality criteria for adaptation finance, inequities in adaptation finance are likely to remain.

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Does Carbon Pricing makes a serious case for Climate Justice?

Lookman Issa

BTU, Cottbus-Senftenberg, Germany

Is carbon pricing a just policy response in addressing the climate crisis? In providing an answer to this question, I state the essential conditions for a supposedly "just carbon pricing policy". They are; it should abate emissions at the least cost and to also ensure

that the burdens of climate change mitigation are distributed fairly.

A careful look at the Canadian federal carbon pricing policy which is a "patchwork" of various pricing policies, one would see that it has not fulfilled the above-mentioned conditions in its entirety. The Canadian Output-Based Pricing System (OBPS) which regulates the country's large emitters. The system in its design has not been able to incentivize the needed emissions abatement at the industrial level and in fact, it has allowed the country's biggest emitters to pay a tiny fraction of the carbon price that is being paid by the households which are subjected to carbon levy.

The OBPS at the federal level and various benchmark policies in the provinces grant massive exemptions to a number of big carbon emitters. While the household keeps facing a rising carbon price under the carbon tax that is set to increase up to C\$170/tCO₂e in 2030.

This article tends to highlight the disparity in the treatment of both large emitters and households under carbon pricing and the inherent equity concerns. In the latter part of this article, I opened a serious discussion on just energy transition in Canada as I questioned the role of carbon pricing in achieving this objective.

Panel ID 301 | Onsite

No one left behind: Equity within and beyond humanity

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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

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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.

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Is there something different about justice? How to integrate justice claims into environmental governance

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In many subfields of environmental governance, there is increasing attention for justice concerns (e.g. debates on energy, water and climate justice) and a felt need to translate this into practice (e.g. debate on 'just transitions'). This paper aims, first, to demonstrate – based on an earlier systematic review of the water justice literature (142 articles) – that some common assumptions may hinder the integration of justice concerns into policy-making. Second, building on that analysis, we discuss three ways how this debate could move forward.

The systematic review revealed two important but opposing strands of theoretical justice approaches. One group of papers discusses what water justice should look like and tries to construct rational principles of justice applicable to a particular context (cf. idealist type of political theory). Another group of papers aims to show how power and justice are interwoven in local and historical constellations and is critical about current hegemonic practices and discourses (cf. realist type of political theory). Both approaches are highly critical of each other, but may also share a core assumption, namely that justice is something of a separate, special sphere, one that either requires non-biased deliberation or one in which social contestation is central. While they provide good arguments, these positions also risk pushing justice out of the

sphere of actual policy-making, exactly because it is understood as a separate domain. This creates a double problem: it may hinder both incorporating justice into policy-making and knowledge accumulation in justice studies.

Based on this analysis, we discuss three ways to move forward: analysis, integration and assessment of justice claims. (i) Analysis. Allowing for knowledge accumulation requires being analytical about the normative, namely using an open conceptual framework – now shared by many environmental justice scholars – that distinguishes dimensions of justice (minimal, distributive, procedural, recognitive, ecological), scales of justice and aspects of claim-making (descriptive, normative, explanatory). (ii) Integration. Giving justice a place in the policy cycle requires integrating justice into existing governance frameworks (e.g. adaptive governance, resilience) and explaining justice's role and place in these. (iii) Assessment. In order to give content to the normative claims itself, one need to move beyond the bottom-up (e.g. surveys) versus top-down (e.g. principle-based) dilemma. Both top-down and bottom-up approaches need to be combined in a so-called reflective equilibrium, allowing for a normative multicriteria assessment to map justice claims, thereby providing insights in the normative aspects of ideal-type governance options for specific environmental challenges.

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What are the social outcomes of climate policies? A systematic map and review of the ex-post literature

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It is critical to ensure climate and energy policies are just, equitable and beneficial for communities, both to sustain public support for decarbonisation and address multifaceted societal challenges. Our objective in this article is to examine the diverse social outcomes that have resulted from climate policies, in varying contexts worldwide, over the past few decades. We review 203 ex-post climate policy assessments that analyse social outcomes in the literature. We systematically and comprehensively map out this work, identifying articles on carbon, energy and transport taxes, feed-in-tariffs, subsidies, direct procurement policies, large renewable deployment projects, and other regulatory and market-based interventions. We code each article in terms of their studied social outcomes and effects, with a focus on electricity access, energy affordability, community cohesion, employment,

distributional and equity issues, livelihoods and poverty, procedural justice, subjective well-being and drudgery. Our analysis finds that climate and energy policies often fall short of delivering positive social outcomes. This is particularly the case for large scale renewable deployments, where emerging studies on large wind and solar installations in the global South show striking similarities to prior policy failures in hydropower installations, with evidence of involuntary resettlements, enclosures, and violations of procedural justice. Many studies also highlight the negative distributional outcomes of feed-in-tariffs, and certain types of energy taxes. On the other hand, fuel taxes, subsidies and direct procurement policies yielded largely positive outcomes in terms of progressivity, energy affordability and employment. In addition, we find specific policy case studies across all instrument types, and country contexts, that deliver on both social and climate goals. This requires attending to distributive and procedural justice in policy design, and making use of appropriate mechanisms to ensure that policy costs and benefits are fairly shared. We emphasize the need to further advance ex-post policy assessments and learn about what policies work for a just transition.

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Transformative Planetary Justice

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This paper examines the integration of justice concerns into the conceptual debate on planetary boundaries and the transformations necessary for a safe and just planet for living things. We review the scholarship on planetary justice to go beyond that to make a proposal on transformative planetary justice. We suggest that planetary justice takes epistemic and recognition justice as a starting point and incorporates intragenerational, intergenerational, international/intercommunity, intersectional and interspecies justice. Our notion of planetary justice encompasses a mix of procedural and distributive justice. Procedural justice includes access to information, decision making, civic space and courts. Substantive justice includes a focus on just ends and just means. We propose an approach to planetary justice that builds on biophysical targets that reduce the risks of earth system change and reduce significant harm to vulnerable people, communities and countries while ensuring social access to material resources for wellbeing and an escape from poverty (*just ends*). Because improving access without transformation can increase pressures on the earth system, we consider elements of transformative justice that provide for minimum social-ecological rights/sufficiency, maximum consumption ceilings and limits, redistribution and reallocation, and liability or compensation for harm caused using corrective or restorative justice (*just means*).

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Planetary Justice within Earth System Boundaries: Studying the prospects of justice through an analysis of ecological thought since the early Anthropocene

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This paper employs a historical-conceptual analysis to reflect on evolving conceptions of ‘justice’ in the environmental governance domain from the dawn of the Anthropocene in 1945 until today. The aim of this analysis is to understand how ecological thinking around e.g. limits and boundaries, resource exhaustion, and technological revolution, developed alongside justice concerns for other human beings and the non-human world. Given that many scholars nowadays speak of ‘planetary justice’, such a historical analysis allows us to get a better sense of what is new in our current predicament and what we can learn from the past. A key debate that we trace throughout our analysis is the distinction between approaches that assume that we are all equally responsible for our current condition and those approaches that assume a differential responsibility both for the challenges we are facing and their solutions. We find that this debate - embedded within contestations over the broader political economy and nested with worldviews about what is just and unjust - is constitutive of the entire field of environmental politics. We argue, in turn, that the way this debate takes place today, i.e. whether the planetary is considered to be subject to the uneven and relational positionality within humanity and between humanity and nature across space and time, will have fundamental consequences

for the articulation of practical governance arrangements for the Earth system.

The paper is based on the systematic review of the literature that framed our environmental predicament as a world structural challenge from the years immediately after WWII to the present. This uncovers a series of recurring concerns, differentiated framings and additions of new concepts, shaped by discoveries in Earth System science and the evolving world political and ideological landscape. One point of particular interest in the context of this paper is how the emphasis on justice and just relations have changed over time in the ecological thought that feeds into the environmental governance domain, to reach the relatively nuanced position that is presently taking shape under the heading of ‘planetary justice’. A second point of particular interest is to highlight the potentially worthwhile considerations that have been lost along the way, which might further enhance the ongoing debate if they are now reconsidered in light of recent knowledge and societal preoccupations.

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Framing transport justice through the eyes of fare-free public transport activism

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In the transformation to sustainable energy systems, cities must develop conditions to support environmentally friendly transport modes. A key challenge is to develop attractive public transport and promote a modal shift away from private cars, while ensuring citizens’ access to, e.g., job opportunities, education, and health services. As a result, there is growing research interest in issues of

transport accessibility and social inclusion under the label of “transport justice” [1]. The majority of this work emphasizes distributional (in)justice – the allocation of benefits (resources and opportunities) and burdens. This narrow focus reflects the predominance of engineering and economics, and of quantitative models in transport research. Importantly, it disregards other dimensions of justice such as the need for fair procedures and recognition of all affected groups, which are well-established notions in the literature on environmental and energy justice.

In this paper, we propose that understanding framings of justice in civil society through bottom-up and qualitative approaches is central for a comprehensive conceptualization of transport justice. We examine activist movements promoting fare-free public transport, another understudied, yet key issue for transport justice debates. Free transportation can facilitate social and political transformation, addressing social exclusion, inequality, and transport poverty [2]. Drawing from environmental and energy justice literature, as well as political framing theories, this study analyzes fare-free movements in six cities across the Global South and Global North. It reveals how these groups frame their role, conduct, and goals vis à-vis the different dimensions of transport justice, and whether justice, expressly or implicitly, is an underpinning and constitutive element of fare-free public transport activism.

Panel ID 302 | Onsite

The rights of generations present and future

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Flexibility as guiding principle for thinking about intergenerational justice in the context of climate adaptation

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Most scholars working on climate change nowadays agree that justice requires that we not only take into consideration people currently alive (*intragenerational* justice) but also future generations (*intergenerational* justice).

Where early philosophical discussions on intergenerational justice focused on the question of whether we do indeed have obligations to future generations, current debates focus on what these obligations entail. Strikingly, or maybe misleadingly, the term ‘intergenerational’ is often linked to future generations, suggesting that these questions apply only to people not living today. However, many trade-offs with a temporal dimension manifest themselves already. People born today are more likely to experience climate-induced disasters than people born in the previous century.

While intragenerational justice seems to have developed into a more or less accepted framework comprising distributive justice, procedural justice, and increasingly also justice as recognition, for intergenerational justice it is far from clear what the focus of justice should be. The 2006 Stern review made an economic case for urgent action now to avoid

high costs in the future, but this same review was also criticized for its heavy reliance on the chosen discount rate, which could in principle reduce any future impact to zero. Another weakness is that it reduces the distribution question of climate change to an economic one, thereby ignoring the fact that climate change may also limit people's concrete opportunities to live their life in a way that is valuable to them, due to, for example, land-use change and managed retreat or irreversible changes to the ecosystems.

The focus of this paper is on climate adaptation and the question of how to account for justice considerations with a temporal dimension. The aim is to explore whether the notion of flexibility may provide a good starting point for thinking about this question. The notion of flexibility has a history in decision theory and decision making under conditions of uncertainty and adaptive management, but it has so far not received wide traction in the literature on intergenerational justice. This paper will first map the criteria that an actionable account of intergenerational justice should meet, followed by a discussion about how flexibility can be used to give shape to such an account of intergenerational justice.

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*Rising Tides in Pacific Islands:
Regime Interactions in Transnational
Loss and Damage Governance*

Zoe Mikayla Nay

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Pacific Island countries have an extended history advocating for enhanced climate action to prevent climate change loss and damage – most notably the loss of habitable territory due to sea-level rise. Efforts within the international climate regime to mitigate and adapt to sea-level rise, and provide appropriate remedies for loss and damage, have thus far proven insufficient. The

Intergovernmental Panel on Climate Change Working Group I's contribution to the Sixth Assessment Report provides a central estimate of 40m of shoreline retreat for Pacific Island countries by 2050. Irrespective of reductions in greenhouse gas emissions, sea levels are predicted to rise between 0.1-0.25m by 2050.

Sea level rise threatens more than the loss of land and territory in the Pacific, including loss of life, security, food, freshwater sources, and culture, among many others. To address interconnected forms of loss and damage in the Pacific region, other areas of transnational law become relevant. This paper will map the emerging transnational laws and institutions implicated in governing loss and damage from sea-level rise in the Pacific. In doing so, this paper seeks to highlight the growing need for an adaptive transnational governance system in response to complex and cascading loss and damage.

As a first step, this paper will briefly summarise current findings on the socio-ecological interactions between climate, ocean, and human rights systems in connection with sea-level rise in the Pacific. Subsequently, this paper will address the implications of those socio-ecological interactions for the fragmented nature of international law. Section three of this paper will analyse the role of institutional interactions across transnational law. In particular, this section will consider the role of Pacific institutions in influencing how losses and damages from sea-level rise are perceived, valued, and addressed. This paper will conclude with reflections on the extent to which Pacific Island communities can navigate the fragmented nature of international law to address loss and damage in a manner that aligns with principles of climate justice.

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The Prospects of the Constitutional Right to a Healthy Environment as a Norm for Earth System Governance

Rosemary Mwanza

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The social-ecological consequences of the Anthropocene have continued to exert a demand for effective regulatory modalities at all levels of governance. Emerging scholarship calls attention to the need for norms that can address the limitations of existing environmental and ecological law regimes. Such legal norms would constitute a broad juridical scheme of ‘Earth System Law.’ Despite its global orientation, Earth System Governance envisions reliance on responsive actions by local institutions and actors, drawing on norms from various formal and informal sources. The State’s ability to regulate the conduct of natural and juristic actors in their relationship with the environment is a crucial precondition for staying within the safe operating space prescribed by the Planetary Boundaries framework. At the national level, the reliance on state-backed rights-based governance endures as a modality for regulating the human-environment relationship. This popularity is evidenced most dramatically by the constitutionalisation of the right to a healthy environment in most legal systems worldwide. Could the popularity of the right to a healthy environment indicate its potential to advance Earth System governance as a component of Earth System Law? This is the question I explore in this article. The analysis starts by deconstructing the analytical aspects of Earth System Law, followed by a review of the core attributes of the constitutional right to a healthy environment. In part 3, I examine the prospects of the right to a healthy environment by reasoning through the relevant analytical aspects of Earth System Law. This lays the foundation for the article’s central claim: the constitutional

right to a healthy environment can play the role of legal norms envisioned within the ‘Earth System Law’ scheme, but only if it can provide normative support for grassroots efforts to enhance climate and environmental justice.

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Are legal obligations towards future generations conceivable?

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Combatting climate change is hindered by the common understanding that law is ill-equipped to take long-term effects into account. These are issues where human rights law and normtheoretical problems meet. This mix makes it harder to dispute the commonly held stance that there are no legal obligations towards future generations and that in turn has an effect on the discourse about the best way forward: The focus is on the here and now. Since – according to the commonly held stance – there would be no legal obligation, every inch that we move towards combatting climate change can be framed as a “gift” to future generations; decisions about the allocation of resources are based on structurally lopsided preconceptions. These conditions work as shackles for taking effective measures against climate change.

However, there might be a legal foundation for an obligation towards future generations – even from a positivist stance. The theoretical basis for these legal obligations is the positivist relational theory of human rights. (The theory shares some similarities with the theory of recognition but the angle on which the legal relationship is based is different.) By positing (any) human rights this relationship is legally acknowledged. On this basis it is possible to conceive legal obligations and to distinguish the empirical basis from the epistemic problems that accompany the legal grasp on long-term issues. The talk will address two key problems: (1) The indeterminacy problem

(how can there be an obligation since we don't know what interests future people will have and what the world will look like?) and (2) the non-existence-problem/possible-people-problem (how can there be an obligation if a future person might not come into existence and, assuming that a person will exist, we don't know who that person will be?). The first one will be solved by engaging with the prima-facie-claims that members of the legal relationship have against each other and by explaining how these claims can be conceivable even though the member hasn't yet decided about his/her interests. The second one will be solved to some extent by distinguishing the empirical problem from the epistemic problem and by clarifying the relevance of the empirical basis for the rise of legal obligations. As a result, an obligation towards future generations arises from the acknowledgement of human rights. Insofar, it is not only a state task that we impose on ourselves.

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Unpacking the design and application of rights-based approaches in international conservation practices

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The interaction between human rights and the conservation of nature has received increasing attention in the conservation community and further afield since the beginning of the millennium. Conversations around “just” and “transformational” approaches to biodiversity conservation have become a mainstay of global fora in recent years as evidence of historic and present-day harms affecting Indigenous Peoples and Local Communities (IPLCs) has become widely publicised. “Rights-Based” approaches (RBAs) have been proposed as a way to simultaneously improve conservation outcomes and the situations of people involved in, or impacted by,

conservation initiatives through recognition and respect of the rights of IPLCs.

While rights-based approaches, strive to deliver more equitable outcomes for Indigenous Peoples and Local Communities than exclusionary conservation, it is vital to better understand how rights-based approaches are being implemented, and whose rights and knowledge is considered. Proposals for RBAs from international conservation NGOs, for example, may pledge to recognise a large set of Indigenous rights but fail to guarantee a minimum set of rights and have limited mechanisms for ensuring accountability. If these dynamics are not well understood, rights-based approaches could potentially reinforce the very structural inequalities they are designed to overcome, resulting in unintended consequences for resource access and livelihoods.

This paper asks two research questions to interrogate rights-based approaches from the perspective of international conservation organisations. Firstly, how do international conservation NGOs conceptualise rights-based approaches? Secondly, how, and to what extent, are RBAs operationalised in international conservation practice? The second question pays particular attention to the mechanisms through which local community rights and resource access are understood and incorporated into programme design and delivery. To address these questions, data were collected through an online survey and follow-up interviews, with a wide-ranging sample of international conservation NGOs and their local counterparts.

The analysis of the survey and interview data provides valuable insight into how rights-based approaches are conceptualised and operationalised in international conservation practices, and the perceived barriers and routes to transformation in conservation. In looking at the results through the lens of environmental justice and political ecology, the discussion explores how discourses surrounding RBAs lead to framings and mechanisms that have the power to dictate

who benefits from, and who bears the cost, of a rights-based approach to conservation.

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Exploring the effects of climate transparency on city's climate actions: case study of city of Jakarta, Indonesia

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The shift in the international climate regime from state-centric to polycentric model has propelled cities as one of the prominent actors in tackling climate change. With authority to mobilize resources to implement action on the ground, and to cooperate and network within and beyond the state boundaries, cities can play a significant role in helping achieve the global climate goal to keep temperature rise well below 2 degrees Celsius. Transparency, considered to be one key pillar in the new climate regime, is expected to stimulate climate actions through disclosing information on and tracking progress of actions implementation. However, there is little scrutiny on how climate transparency systems at city level do so, particularly those in the Global South. Taking a case study of the capital city of Jakarta in Indonesia, we approach this question through looking at the literature on climate action transparency, and interviewing both government and non-government actors involved in the city's climate and transparency governance. Combining the results of the literature study and interview enables us to gain insight on the functioning and effects of city-level climate transparency. We found that Jakarta has various schemes of climate actions with each own transparency system, manifests as measurable, reporting, and verification or MRV. Our findings revealed that information generation and disclosure under various transparency processes helped Jakarta city

government to identify constraints and opportunities faced in the implementation of the local mitigation action plan, gain acknowledgment of actions planned and implemented, open more opportunities for cooperation and international support, and build capacity to improve climate change mitigation policy and strategy. Yet, constraints remain in the form of developmental problems, competing policy and regulation between central and local government, lack of human and financial resources, and political pressures on Jakarta's Governor that at times lead to people questioning the accountability and legitimation of the city's climate action policy. This paper concludes with synthesizing implications and lessons learned for other megapolitan cities in the Global South.

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Acting with equity in natural resource management

Panel Day and Time: TBD

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Just Responsible Sourcing of Minerals and Metals for the Energy Transition. How well does the discourse on Responsible Sourcing reflect Natural Resource Justice?

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The Paris Agreement and the United Nations' Sustainable Development Goals clearly demonstrate that the global transition to renewable energy sources is inevitable. Evolving energy generation and the expansion of the renewable energy (RE) capacity, particularly wind and solar energy, and associated infrastructure (e.g., distribution networks, supply hubs, etc.) have contributed to an increase in the demand for minerals and metals. The potential negative environmental, social and economic impacts of increased mineral resource production have been contested and are under increasing scrutiny by both academia and civil society. Responsible Sourcing (RS) has become a management approach for companies and policy makers to identify, monitor and manage eventual negative impacts along their raw materials'

supply chains. Although RS might contribute to sustainability along the supply chain, this paper raises the question whether it also contributes to Natural Resource Justice (NRJ) in the energy transition. Based on a structured, qualitative survey of the current academic discourse we illustrate to which degree core aspects of NRJ (e.g., distribution of benefits and burdens, power asymmetries, property rights) are reflected in the RS debate. Preliminary results show that compared with other sectors (e.g., timber, food, biomass, textiles) debates on RS in RE-related sectors are still scarce and fragmented. The analysis indicates different foci aligning with one or more of the traditional three sustainability dimensions (i.e., environmental, social, economic) and that few address aspects of NRJ; however, they are not explicitly identified as such. Identified aspects of NRJ in mineral and metal supply chains, also for the RE sector, are the detection of burden shifting, the contribution to local development and sharing of financial benefits. This research contributes to the understanding of different RS approaches and extends the RS discussion to NRJ considerations in the energy transition.

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“Don’t Always Blame Climate Change”: The Political Ecology of Uneven Development and Vulnerability to Disasters in the Anthropocene

Danny Marks

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One problem with recent discourses in the Anthropocene is that political leaders have blamed disasters on climate change rather than unsustainable development. In the past decade, we have witnessed deaths, displacement, and high losses due to heavy flooding in Jakarta, Manila, and Bangkok. In response to these disasters, government and urban leaders have tended to blame the

devastation on the external forces of climate change and nature. While it is likely that climate change contributed to the magnitude of these floods, by blaming nature or climate change, government leaders sought to absolve themselves of any responsibility for causing or worsening the extent of the disasters. I argue that disasters in Southeast Asia, have been socially and politically produced. They are outcomes of unsustainable development, particularly political decisions, economic interests, and power relations. Vulnerability to floods, a combination of exposure to and capacity to cope with them, has been uneven across the geographical and social landscape. Those who have been worst affected have primarily been the most marginalized groups. However, by depoliticising these disasters, leaders are denying justice to these groups. This presentation focuses on the historical production of flooding in the region's three largest megacities: Bangkok, Jakarta, and Manila, since a number of similarities between these cities exist.

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Achieving Equitable Cross-Scale Forest Governance: Insight from Malaysia and Indonesia

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As the planet's forests face increasingly grave threats, there is growing recognition and efforts to achieve not only effective forest conservation, but to do so in ways that are fair

and just. The policies that govern forest habitats and resources are often set at national levels, yet are implemented and have direct impacts on people and communities at local levels. This can result in a mismatch of beliefs and objectives between policy and practice, raising questions about who should have a say in forest decision-making and management and with what benefits and costs. A number of countries in South and Southeast Asia have recently explored options to decentralise forest management, which opens the door for more contextualised solutions, but has also historically overlooked the persistent shortcomings in translating policies to reflect local priorities.

Using national household survey data from Malaysia and Indonesia, this study aimed to tease apart differing beliefs about equitable forest management procedures and distribution of benefits, and to better understand social and geographic factors influencing these preferences. In particular, we examined the relationships between forest proximity, experiences, and dependence, and social equity beliefs, highlighting how urban and rural perspectives diverge.

The results of this study illustrate a point of tension that conservationists continue to grapple with around who should manage forests - people in the local community regardless of qualification, or those with existing skills for sustainable management. Respondents who were more knowledgeable about forest management and rules, as well as those living far from cities, preferred that experts lead forest management processes. This could reflect a concern about inclusive management and skepticism about indiscriminately devolving management responsibilities to local people, without ensuring the requisite training and capabilities. At the same time, respondents' perceived vulnerability to forest loss was consistently associated with preferences for active community engagement in decision-making and forest management and equal distribution of forest benefits. This suggests a link between social equity preferences and the need for

collective action and benefit to mitigate risks in forest systems.

Ultimately, there is no one-size-fits-all for equitable forest management. Variations in preferences, between and even within communities, highlight one challenge with prescriptive high-level policy and the need to contend with complexity of multi-level forest governance. Building local skills and capacity in a transparent way may be particularly critical to balancing potential trade-offs between the desire to build resilience and empower local people and priorities around conserving forest ecosystems.

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Extractivism, water spirits and science. Overlapping governmentalities in Mongolian water- and miningscapes

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Since transitioning to a market-based economy in the 1990s, Mongolia has experienced a mining boom that turned extractive activities into a key contributor to the country's GDP and its national budget. However, benefits from mining activities are allocated unevenly, with increasing rural poverty and environmental degradation, in particular of water resources, that threatens the livelihood and health of pastoralists who rely on these resources to water their livestock and for hygienic and drinking purposes. Regulatory efforts have been made to improve the protection of water resources but implementation of legal reforms has been challenging as notions of what constitutes appropriate interpretations and ways of behaving diverge.

We thus argue that different rationalities co-exist and compete for dominance in Mongolian water- and miningscapes. To tease them apart, we apply Foucault's concept of

governmentality, extended to include (intended and unintended) effects on the ground as well as plans, in accordance with the critique brought forward Murray Li. Specifically, we look at how governing through a) state sovereignty, b) uncontested beliefs, c) disciplinary power, and d) a neoliberal rationality plays out in Mongolian water- and miningscapes. We draw on data collected over six rounds of field work from 2017 to 2019, comprising participant observation, interviews with government officials from the water and mining sector at the national and sub-national level, academics, consultants, and villagers and pastoralists. We also include information from a literature review of anthropological texts dealing with water and mining in Mongolia to provide the historical context and an in-depth exploration of, e.g. religious practices. We show that the different rationalities interlink and support each other in promoting extraction as a key driver towards social-economic 'development' and therefore morally right and individually profitable, whose risks can be contained by positivist science and an authoritative state. However, we also find counter-discourses that challenge the moral rightness of mining, contrasting it with a world view that demands an intact nature, either on account of animistic beliefs or to protect cultural heritage.

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Green Curses, Violent Conflicts and the Security Implications of Renewable Energy Development in Africa

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Our ongoing research project examines the conditions under which increased investment in renewable energy could generate a new set of resource- and energy-related violent conflicts in Africa – a so-called “green curse” – and how to prevent and resolve these

conflicts. The number and type of green energy projects (including biofuels, hydro, wind, and solar power projects) are increasing substantially across Africa. Estimates suggest that by 2040, renewable energy sectors will account for over 40% of African power production, and large-scale wind, solar, hydro, and biofuels projects are already underway (OECD/IEA 2014). Countries like Uganda are rapidly building renewable energy sectors. African mining sectors also continue to grow substantially, in part to support the switch to renewable energy sources, as the continent is home to vast metal and mineral reserves required to produce low-carbon technologies. Yet around half of Africa's violent conflicts in the post-Cold War period were related to natural resources and energy, and resource- and energy-related conflicts have been on the rise in recent years .

Africa needs an environmentally-friendly energy revolution to lift people out of poverty and mitigate climate change. But natural resources have in the past triggered armed conflict in Africa, suggesting that “green” is not always “good” (evidenced in increased media and policy reports of violent conflict around renewable energy projects). While growing scholarship recognizes the potential for renewable energy-related conflicts elsewhere in the world , the existing research on green energy transitions has not sufficiently focused on the potential for the emergence of green energy-related conflicts in Africa.

This ambitious project brings together an interdisciplinary, international team of researchers to improve theory and empirical evidence about the pathways and mechanisms underlying the onset and dynamics of green-energy conflicts. We seek to create improved knowledge for action and policy interventions to prevent and mitigate green energy conflicts and their impact on African communities and states. Our research goals:

(1) Provide the first comprehensive mapping of data on violent conflicts and renewable energy projects, sectors, and mineral value chains in Africa.

(2) Provide a systematic understanding of the pathways and mechanisms by which green energy sectors and their value chains may trigger or resolve conflicts.

(3) Map and evaluate existing and proposed cooperative governance arrangements for green energy sectors and for the mineral value chains associated with these sectors on the African continent.

Panel ID 304 | Onsite

Beyond borders: International law for environmental justice

Panel Day and Time: TBD

Panel Room: TBD

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No Longer an International Environmental Law Utopia? Institutional Challenges of the Antarctic Legal Regime for Environmental

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Institutional structures for environmental governance both at global and regional levels seems to have encountered a number of challenges when it comes to the Antarctic legal regime. That is to say, despite the considerable progress made in the last decades towards building governance systems for global environment protection and particularly for Antarctica, there are still challenges that limit positive responses. Issues such as decision-making procedures that serve as key to effective environmental governance play a critical role in finding solutions to the problems. In the scope of the Antarctic, these procedures that are largely triggered by consensus decision making within the ATCM

are increasingly imposing challenges on the Antarctic regime. The application of the principle of substantive consensus in decision-making procedures, particularly in the recent decades as the number of the Consultative Parties noticeably increased, has been a severe challenge as can be seen within CCAMLR in recent proposals to establish large marine protected areas. The growing number of participants in the Antarctic Treaty Area is another rising yet pertinent challenge. Predominantly, the more presence of the new players in the Antarctic domain, the more the need to accommodate external global institutions and instruments is felt. This paper intends to examine such challenges that may complicate the development and application of any agreement pertaining to the preservation and protection of the Antarctic environment and would eventually lead to an impact on the global environment.

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Towards a Political Ecology of Earth System Law

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Earth System Law (ESL) is a novel conceptual framing that seeks to overcome the underpinnings and shortcomings of international environmental law. ESL, therefore, can be broadly defined as a response from law to the socio-ecological crisis situated in the Anthropocene. It is an epistemic dialogue between Earth system science and social science-based governance. Law, in this context, is the normative outcome of the engagement with the spatial and temporal complexities of the Earth system. Despite ESL's necessary effort to reimagine the status quo of international environmental law, the inchoate literature developing its contours and aspirations seems to neglect crucial insights from critical scholars. These insights, resulting from the identification and analysis of fundamental problems with the tenets and

operation of international law, could improve the current conceptualization of ESL. Scholars from the Global South and North, who critically engage with the study of international law, are using a panoply of theoretical and methodological tools to demystify a universalist, egalitarian, and rights-based international legal order. ESL, in this context, could be deemed a critical response to the international environmental regime. However, some of its theoretical building blocks reproduce certain aspects critical scholars of international law are questioning. For instance, ESL heavily relies on the Anthropocene as a metaphor to highlight humanity's role in disturbing global life-support systems. In doing so, ESL obliterates the historical and geo-political dimensions of imperial expansionism and its present continuities in power asymmetries, thus obfuscating differentiated responsibilities for the ecological crisis. Several scholars, mainly those that identify themselves with Third World Approaches to International Law (TWAIL), have extensively articulated the latter critique. However, the ESL's literature does not always reflect their transformative ideas and contributions. Furthermore, arguments from scholars that roam the field of Political Economy and the Law are not visibly spelt out in ESL's literature, a gap that might lead to the concealment of the role of Racial Capitalism in the making and operation of environmental law. Against this backdrop, this article aims to answer the following question: What insights from selected critical perspectives of international law can inform ESL's nascent conceptualization to avoid the reproduction of certain questionable assumptions? This article will answer this question by drawing on a political ecology approach. That means that the focus is on power relations and political economy in the context of nature/society governance. This approach will avail itself of a literature review of TWAIL, Law and Political Economy, and socio-ecology.

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Transboundary Water Resources Allocation in the South Asian Region: Potential for a Multilateral Regulatory and Integrated Management Approach to Ensure Equal Justice under International Law

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The Ganges, Brahmaputra and Meghna (GBM) river system, the second largest water supply system in the world, services a population of approximately 620 million in South Asia. It supplies every-day basic water needs of the GBM co-basin states (China, India, Nepal, Bhutan and Bangladesh), more significantly, sustains flora and fauna, maintains ecological sustainability and prevents salinity encroachment from the Bay of Bengal. However, unilateral utilisation plans have rendered their supply insufficient to satisfy the water requirements of these states, making water allocation a crucial issue of regional conflict. Co-basin states have attempted to solve this problem through unilateral actions and limited bilateral cooperation, but these approaches have not offered even minimum sustainable benefits.

This paper uses academic research to articulate a comprehensive and lasting solution to these problems through a better regulatory and institutional regime to maximise the benefits of the available water. Focusing on factors such as existing management practices and their consequences, hydrological demands placed on the resource, regulatory limitations, climate change impacts, potential future threats to water and regional socioeconomic perspectives, this paper identifies the applicable principles of international watercourses law and the best working practices for adoption and/or replication in a

new model for sustainable GBM watershed governance. It analyses whether and to what extent: (a) a multilateral regulatory and integrated institutional management approach incorporating internationally accepted fundamental principles can address the key constraints and challenges of the GBM watershed, and (b) an integrated transboundary water resources management (ITWRM) approach can be linked to national integrated water resources management (NIWRM) planning. It shows how these frameworks can play a useful role to achieve the sustainable utilisation of the GBM watershed, protect the environment, establish the legal right of access to water and ensure justice through equitable sharing of water. Finally, it reveals that the GBM co-basin states stand to benefit from moving forward together with multilateral regulatory and integrated institutional management planning for the sustainable development, conservation, protection, management and optimal justifiable utilisation of the GBM watershed.

The paper contributes significantly to: (a) the conceptualisation and application of the sustainable management approach as a catalyst for the resolution of problems concerning the allocation of transboundary water resources (TWRs); (b) the resolution of the GBM watershed management problem in particular, and problems with similar river systems more generally; and (c) the progressive development of international law in the area, which is currently inadequate.

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COVID and Accessibility at Sites of Global Environmental Governance

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The ongoing COVID-19 pandemic has impacted the structure and experience of international negotiations. In this paper, we critically analyze how responses to COVID-19 have shaped presence, representation, influence, and access at sites of global environmental governance. Four researchers attended the United Nations Framework Convention on Climate Change (UNFCCC) COP26 meeting in Glasgow in November 2021. Despite occurring in the midst of a pandemic, COP26 was the largest UNFCCC event on record, drawing some 40,000 participants. Some lauded the event for its inclusivity. However, the experience of participation was highly differentiated depending on official status, country of origin, access to vaccines, disability, and other intersecting factors. While a significant amount of scholarship analyzes the outcomes of such major events, our research examines the processes and embodied experiences that constitute these sites of global governance. Using the rigorous methodology of collaborative event ethnography (CEE), our broader project examines how Indigenous actors influence these meetings. At COP26, our team attended more than 120 events as participant observers, conducting meticulous ethnography of the space as well as several interviews to create an original repository of data which we then hand coded by theme using NVivo. We also compare our analysis with previous collaborative data collected at COP21 and COP25 to show how UNFCCC events have evolved. Inequities and hierarchies have long characterized these events, and we illustrate how the pandemic

illuminates not only the structural injustices but also new forms of engagement and contestation. Methodologically, we make a case for the value of deeply engaged qualitative research in understanding the impact of processual changes on international policy negotiations.

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Whose and which science? Asymmetries in the network of scientific bodies and implications for globally environmentally networked risks

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Environmental risks increasingly interact with one another. Yet, the current system of global environmental governance remains ill-equipped to address globally networked environmental risks. The network of multilateral environmental agreement remains largely fragmented, and scientific knowledge is generated and discussed separately at the myriad of discrete scientific treaty bodies, such as the Subsidiary Body of Scientific and Technological Advice to the United Nations Framework Convention on Climate Change, which form the core of various epistemic communities. Scholars have generated an understanding of the structure and dynamics of epistemic communities in separate issue areas, but far less is known about how scientific bodies within these epistemic communities interact with one another. Here we explore the structure and dynamics of the network of scientific bodies, with a view to understanding its implications for governing globally networked environmental risks. Theoretically, we employ the three body lens, which looks at the body of experts or the constituency of science boards, body of knowledge or the fields that are represented and the institutional body or rules

and norms that govern the science board. This perspective allows us to analyze the role of power and politics in separate treaties as well as across the entire landscape of the environmental treaty system. Empirically, we map and explore the evolving network of scientists participating at scientific bodies to multilateral environmental agreements. We used relational data derived from web scraping and natural language processing to create a network with its nodes and links corresponding to the three lenses perspective. The network analysis of the network of scientists shines light on the underlying power structures and imbalances of it, which helps to reveal asymmetries in the connections within the network and problem solving and shifting that might arise from these fragmented relations and blind spots arising as a result of it. We conclude with a reflection on the relationship between the asymmetries in the existing network of scientists and the increasing complexity of globally networked environmental risks.

Panel ID 305 | Onsite

Colonialism, race, and Indigenous identity in environmental justice

Panel Day and Time: TBD

Panel Room: TBD

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Indigenous Women's Experiences of Environmental Issues in the Arctic: the Perspectives of Greenlandic Women

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The Arctic is increasingly gaining attention both because of drastic environmental issues and because of the opportunities they bring for economic development. Environmental justice scholars have explored how environmental issues affect people in the region and found that indigenous peoples are facing the direst consequences. Similarly, feminist scholars have viewed environmental issues and demonstrated that consequences of environmental challenges differ between genders and that women are often worse off than their men counterparts. Furthermore, native feminist theories have demonstrated that gender relations in the indigenous setting differ from “mainstream” feminism due to settler-colonial aspects which must be considered. This paper applies these schools of thought with indigenous frameworks at the centre to examine how environmental issues are perceived in Greenland and makes use of interviews and discourse analysis for that purpose. In doing so it contributes to the decolonization of academic research.

Greenland is mainly indigenous and is central to Arctic discussion when it comes to environmental issues. The research focuses on indigenous women in Greenland and their

perspectives on their experiences of environmental issues. The findings suggest that men and women face different consequences due to environmental issues. Unlike what “mainstream” feminist research often demonstrates, Greenlandic women cannot be seen as worse off than their men counterparts when it comes to environmental issues. Men lose their opportunity to practice traditional trades such as hunting which highly affects their status in society and can be linked with suicide rates. At the same time, Greenlandic women are affected indirectly and face gender-based violence which increases when socioeconomic conditions change, and environmental issues increase that risk. Furthermore, women face added pressure as they act both as primary caregiver and main source of income. The findings also demonstrate that other characteristics such as indigeneity and generational differences matter and that overall Greenlandic ways of life have been jeopardized because of the changing environment. Furthermore, the findings also indicate that women and youth are more active in discussions and environmental activism in Greenland although overall participation is low. This is partly due to Greenland’s relationship and history with Denmark. Moreover, despite women and youth being at the forefront of the debate and environmental activism, they are not represented to the same extent as men in policymaking processes and gender aspects are lacking in policy documents.

Key words: environmental justice, feminism, native feminist theories, indigenous people, settler-colonialism, gender, indigeneity, generational gaps, Greenland, Inuit

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Carbon colonialism: How forest-related carbon removal projects in the Global South reproduce colonial power structures

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Current efforts to limit global warming are falling short and forest-related carbon dioxide removal (CDR) projects are increasingly relied upon by states to reduce greenhouse gases in the atmosphere. CDR in the forest sector encompasses reforestation, reduced deforestation, afforestation, as well as silvicultural investment and sustainable forest management. The term carbon colonialism was introduced to describe CDR-projects as a new variation of colonialism by using climate policies to reproduce power structures that allow for the exploitation of the Global South. Under this term, CDR-projects have been criticized for promoting continued overconsumption, placing the burden of the resulting negative environmental impacts on the Global South and reproducing historically oppressive systems with colonial dynamics. As forestry is mentioned as a priority in terms of adaptation and mitigation in achieving the Paris goals in around 50% of the Nationally Determined Contributions as updated in 2021, the number of CDR-projects on an international level will increase in the coming years and it is therefore crucial to consider these justice-related problems.

This paper will unveil and criticize power structures that are present in the discourse on CDR-projects and spaces for action by conducting a Postcolonial Critical Discourse Analysis (PCDA) of the UNFCCC annual reports, COP session documents, as well as related COP sessions from the UNFCCC platforms REDD+ and Climate Action, retrieved from the UNFCCC website in the period of 2015 to 2021. Postcolonial theory is aimed at uncovering issues of oppression, inequality and fighting

for equal access to resources and power internationally. This is combined with Critical Discourse Analysis (CDA), a research strategy focused on highlighting power imbalances and injustices in textual discourse and how these are reproduced and perpetuated. Postcolonial theory offers a more theoretically grounded framing to contextualize CDA in research that is focused on post-colonial phenomena. The insights from this research reveal to what extent carbon colonialism is present in the discourse on CDR-projects in the Global South. This can be related to broader debates within postcolonialism as well as defining points of consideration for the planned large-scale implementation of CDR-projects. There is currently still limited political liberation of formerly colonized countries and addressing this in international climate discourse is a first step in challenging these power inequalities and advancing the cause of environmental and social justice.

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Fight for rights of land of aboriginal people, resisting the opening of huge Coal Reserve at Deucha Pachami block of Birbhum District, West Bengal, India: A case study in terms of Justice and Allocation of Natural Resources in terms of Environmental Sustainability

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A huge Coal Reserve has been explored during the recent time in the Deucha Pachami block of Birbhum District, West Bengal India. This would be the largest coal deposit of India (an estimated 1,198 million tonnes of coal and 1400 million tonnes of basalt are present in the block) Government of West Bengal has started negotiating with the aboriginal people to hand over the land in their possession to the Government in lieu of cash and certain other

benefits including job of a Constable (one person per donor family) in the police department. The Government with all its power is actually set to acquire the land, though the propaganda is that the aboriginal people are very much willing to give land to the Government. On the other hand, it is found that a strong resistance has been initiated by the aboriginal people in the name of West Bengal Social Justice Platform. Whenever, the people, who are supporting their movements and intend to form forum for protesting the Government's intention to open the coal mine, when the world is heading for no or even zero carbon emission after the Glasgow Summit, their protests and agitations are subjected to administrative interventions, defying their democratic rights to protest if anything unjust is happening. Above all about five thousand families of aboriginal people including people from the minorities and Dalits would lose their land, where they are dwelling for ages essentially depending upon agriculture. Prominent leaders like have emerged out of them. As per newspaper reporting, condemning police atrocities in the Mohammad Bazar area of Birbhum District an anti-acquisition rally was organized by the tribal women and it was said to be a fierce mobilisation for the cause. This coal mine would be an open cast mine and it is supposed to be occupying an area 11,222 acres (of these 9100 acres belong to the tribal people). It is estimated that it would displace a population of 10,000 people from 11 villages. In the area, there are stone mines, crushing basaltic rocks and most of them earn their livelihood from these. Though, out of 400 crushing units, only 100 are registered. These people want justice and their rights for their land and not exploiting the Mother Nature to enhance pollution. Their age long association with forest and land helped them developing a symbolic relationship with nature and a true concept of Environmental Sustainability.

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Indigenous Sovereignty and Biodiversity amidst Changing Climates and Refugee Regimes

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My ethnographic research traces the sensory and political dimensions of Indigenous Karen refugees from Myanmar's co-movements with their seeds, plants, and agricultural practices in exile. It also explores understandings of sovereignty beyond the frame of the Westphalian nation-state through engagements with seed and food sovereignty in three geographic locations that complicate understandings of territorial sovereignty. In this paper, I explore what I call "agricultural forgetting" and how it occurs for Karen refugees in the context of refugeehood and encampment. Agricultural forgetting, I suggest, is the process by which linkages between people and plants are broken generationally. Such forgetting occurs in especially sudden and forceful ways in the refugee camp. This is in part because the camp, as a space of exception, ushers in new more-than-human social arrangements. Agricultural forgetting is deeply connected with Indigenous sovereignty, which is rooted in food and seed sovereignty as well as relational ontologies. Considering relationships between people and plants in the context of forced migration and exile provides a unique vantage from which to understand Indigenous sovereignty across borders. It also contributes to provincializing and ultimately moving beyond the static concept of Westphalian, or territorial, sovereignty that has historically helped to produce and sustain understandings of humanity as overdetermined by (European middleclass) "Man". This overdetermination, as manifested in the nation-state, has resulted in the exclusion of vast swaths of people from the category of the human. Therefore, a turn to Indigenous conceptualizations of intertwined

food, seed and political sovereignty opens up vital possibilities for enacting transformative forms of sovereignty in the here and now, amidst changing climates and increased forced migration globally.

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Water Security, Race, and Ethnicity: Towards an Intersectional Approach

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This paper begins from a finding that less than one percent of water security articles focus explicitly on race or ethnicity. The lack of attention to race and ethnicity within water security studies contrasts sharply with a growing literature that identifies these factors as key vectors of environmental inequality and insecurity. The consequences from the omission of race and ethnicity from studies of water security are significant. Without addressing how racial and ethnic inequality intersect with other dimensions of inequality, race-blind studies of water security intrinsically limit policy responses intended to enhance social wellbeing and may contribute to unjust outcomes. In response, this paper calls for a reframing of water security that is explicitly oriented towards intersectional justice. An intersectional framework for water security recognizes how empirical drivers of social and environmental inequality vary both within groups and across them. It also retains policy focus on the key material concerns of water security regarding access, safety, and the distribution of water-related risks. Finally, it can also incorporate issues of race and ethnicity alongside other vectors of inequality (e.g. gender, poverty) to address key, overlooked concerns of water security.

Panel ID 306 | Virtual

The value of diverse voices and perspectives in climate justice

Panel Day and Time: TBD

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Pluralizing efforts in Earth System Governance: critical perspectives from three Global South Early Career researchers to the ESG 2018-2028 Science and Implementation Plan

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The ESG Science Plan 2018-2028 presents an agenda to facilitate high-quality Earth System research and encourage researchers' active engagement and discussion. Its elaboration is based both on the Earth System Governance Project's development in its first decade and on the participation of the ESG research community throughout the world, better represented by the figure of its current 16 research centers spread into the Global North and South. In 2019, the Research Centre Brasília was announced as the first Research Centre based in Latin America. The Plan recognizes that the members of the research community might have different disciplinary backgrounds and may work within different contexts, even claiming that the Project "acknowledges diverse knowledge systems and practices.". However, whereas there are multiple arrays of knowledge-production practices in the Global South, there is arguably a prevailing ontological and epistemological position at the ESG Science Plan's and ESG community's core that engages hesitantly with the specificities of ESG research conducted

outside Europe and North America. We argue that this can be witnessed by way of the research presented in ESG conferences, its Journal, members' diversity, and the reification of previous research through its proposed agenda-setting and research lenses. While we recognize the Project's effort towards pluralization, a critical perspective from the Global South may hint that a dominant approach exists within the network. This paper's objective is to present the experiences of three Early Career researchers based in the Research Centre Brasília, discussing some challenges and hardships of applying ESG's research lenses and contextual conditions to their objects of study and research realities. We share the experiences faced through the conduction of three graduate-level research efforts related to ESG: Brazilian subnational federated units' climate commitment in a multiscale governance, the steering (in)effects of the SDGs in institutional integration and policy coherence at Brazilian subnational levels, and the applicability of the governance architecture's framework to the study of climate migration governance. We aim to foster a dialogue between early-career scholars from the Global South within the ESG community and contribute to a critical debate about the Science Plan implementation to earth system governance research conducted outside of major centers in the Global North, or with non-prevailing ontological, epistemological, and methodological traditions.

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Climate Justice Frames and the Power of Small NGOs at UNFCCC

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Nongovernmental organizations (NGOs) have become an indispensable part of global climate governance. Since its founding in 1992, the Conferences of the Parties (COPs) of the

United Nations Framework Convention on Climate Change (UNFCCC) has been a central venue for NGOs to exercise their influence over global environmental politics. Over the past 30 years, the number of NGO participants at COPs increased significantly, and so did the diversity of NGOs beyond environmental groups. In the early years of the UNFCCC, climate change discourse focused primarily on scientific frames, such as greenhouse gas emissions and technical solutions to reduce them. In recent years, however, social justice and developmental NGOs brought new issues to the COPs and established linkage with climate change through their framing efforts. In this paper, we examine climate change discourse during COP21 (Paris) and ask, what frames were presented by NGO participants? Which frames enjoyed a wider spread on social media platforms such as Twitter? Who were the major actors driving climate change frames at the COP?

We use Twitter data to test the implications of our arguments. We locate NGO participants at COP21 on Twitter and examine their climate change-related messages during COP21. To start, we use computational text analysis to survey the tweets among NGOs and create a comprehensive mapping of climate frames throughout COP21. We then investigate the “spread” of each frame and correlate the popularity of frames with organizational attributes of NGOs who support the frames.

Our contribution is three-fold. First, we evaluate climate change discourse as a whole instead of focusing on particular types of organizations. By adopting computational text analysis, we present the first systematic effort to capture the variations in both NGO participants and their frames. Second, we examine the effects of discursive tactics relative to the effects of organizational attributes. By locating NGOs within climate change discourse at COP21, we systematically evaluate the relationship between framing tactics, organizational attributes, and the spread of justice frames among NGOs. Finally, while COP21 has been hailed as a landmark in the international climate negotiation process as it produced the Paris Agreement, little attention is given to the role of the NGOs in

this process. We demonstrate that COP21 is not only a singular story of successful treaty-making among nation states, but also an intricate landscape where multiple stakeholders seek to develop and spread their causes.

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Decision-making around the water-energy-food nexus at household, community and municipal levels: findings from two case studies in South Africa.

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Water-energy-food nexus research focuses on identifying the different processes existing between water, energy and food sectors at different scales. Most of the studies adopt global, national, transboundary, and regional scales. Fewer studies explore the nexus from a local perspective, and very limited research has been conducted on intra-household factors and decision-making.

In recent years, there has been an increase in research calling for a better understanding of how the WEF nexus contributes to securing the access to resources for all and well-being of the poorest and most vulnerable populations. In order to do so, effective stakeholder participation in nexus governance is often mentioned as a key factor to guarantee equitable allocation of resources and to ensure that the interests and values of local communities are taken into account.

Therefore, local and micro scale analysis become necessary to understand how the nexus unfolds at the household scale, how decisions are made, who makes those decisions, and how these relate to other levels of governance (i.e. community, municipal, regional and national).

In this paper we draw on data from household surveys conducted in 2 local communities in South Africa (Vaalharts in Northern Cape and Matatiele in Eastern Cape), focus groups and

interviews with community representatives and local government officials to explore the decision-making processes around the water-energy-food nexus. Particular attention is given to the poorest and most vulnerable groups, their role in the local WEF nexus governance and their challenges to participate in the decision-making process.

With this study, we contribute to filling the knowledge gap regarding WEF dynamics at micro scales, and we aim to inform the development of just and equitable solutions and policies regarding water, energy and food at the local level.

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Amazon Indigenous People's climate justice claim: A translation analyses of Shandia mechanism

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The role of Indigenous Peoples (IP) as key actors in tackling climate change has been mentioned in international environmental conferences and agreements. Nevertheless, despite the UNFCCC's efforts to include their voices, there is still very little participation of IP directly in climate change negotiations, even when climate policies interfere in their territory and their way of living. Projects involving forest peoples usually have a top-down design, and traditional and indigenous communities need to adapt to technical-managerial rules and norms. Indigenous Peoples' groups have been claiming direct access to financing for climate-mitigation measures, as these projects impact their cultures, traditions, and territories as less than one percent of financial support is destined for indigenous and local community land tenure and forest management. But, mainly and foremost, they demand the recognition of

their knowledge in tackling climate change, of the rights to their traditional lands and ultimately of their existential rights. The self-recognition mechanism named "Shandia Alliance for People, Nature and Climate" was launched at COP-26, in 2021, by the Global Alliance of Territorial Communities among other Indigenous and local communities. It is a mechanism for climate finance developed by indigenous peoples, designed to guarantee their autonomy over the decisions for implementing the financial instrument, and it is presented as a way of compensating indigenous communities for the service of ecosystems preservation.

Based on exploratory research and interviews, the paper describes the mechanism considering the institutional and epistemic processes of translation involved in the Shandia Vision. The organizations involved take the lead on proposing the terms of negotiations and inviting potential funders without the mediation of the national State. The financial mechanism, on one hand, may be a self-recognition mechanism, as indigenous organizations revendicate their place at the negotiation table involving climate-forest policies in their territory. On the other hand, the translation process that makes the project interesting and comprehensive for western financial actors by framing their project into palatable terms – forest as "carbon" stock and their relationship with the forest as "environmental services". We reflect on these contradictions through a decolonial lens and consider how our findings may contribute to the Environmental Justice and climate justice literature by understanding the concept of recognition as (also) a form of resistance. Shandia Vision may open a breach to creatively introducing elements of different worlds, ways of knowing and being, and the interactions (and conflicts) among them.

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Responsibility for Justice in Governing Carbon Removal

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Climate change mitigation actions operate within social structures and may contribute to or create new structural injustices. For example, carbon removal efforts like afforestation contribute to existing structural injustices like land-grabbing and forced displacement of vulnerable groups in society. Similar problems arise for the implementation of land-based carbon dioxide removal (CDR) technologies like BECCS (bioenergy with carbon capture and storage). Further, risks and negative side-effects of such measures are likely to be distributed in ways that reflect unjust social structures. This has unclear implications for the governance of climate change mitigation actions and the implementation of CDR technologies. To what extent do these factors need to be considered when designing policies of climate change mitigation? Is this overbearing for the governance of carbon removal efforts?

In this paper, I provide an argument why these challenges must be considered when governing climate change mitigation actions. I address the challenge of including justice considerations in climate politics by providing an account of the responsibilities of individuals in the context of climate change, the *Emission Connection Model* (ECM). Defining the responsibilities of individuals also helps define how climate mitigation action and CDR technologies should be governed. The ECM combines two climate responsibilities of the individual: The first responsibility falls directly on the individual due to their emissions contributing to harmful climate change and is motivated by a no-harm principle. This may for example imply that to account for her emissions the individual has to fund the employment of CDR technologies. The second

responsibility is shared *political* responsibility and captures the importance of addressing injustices caused or strengthened by climate change by transforming societal processes to make their outcomes less unjust. Most importantly, this includes addressing structural injustices such as the imposition of risks on vulnerable groups of society. I argue that individuals shared, political responsibility to address injustices extends to a responsibility to implement climate change mitigation action in ways that fulfill the standard of not creating new injustices nor reinforcing existing ones. Hence, this implies a standard of justice that has to be satisfied by actions undertaken to fulfill direct individual responsibility as well (e.g., the employment of CDR technologies). Thereby it implies that when governing climate change mitigation efforts and CDR technologies, this justice standard should serve as a key criterion.

Panel ID 307 | Virtual

Linkages and compromise in sustainable transitions

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Is policy coherence Leaving No One Behind? A framework for analysis and its application on the governance of the Sustainable Development Goals in India

Nikki Theeuwes, Marjanneke Vijge

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The UN Sustainable Development Goals (SDGs) are a set of integrated and indivisible goals with which countries pledge to Leave No One Behind, aiming for one of the biggest transitions of our time. Key in realising such a vision of integrated sustainability and global

justice is pursuing policy coherence, widely believed to encourage mutually reinforcing and thus more effective policy actions that benefit all. Research shows, however, that interactions between and unavoidable prioritisation of (sometimes contradicting) SDGs provide winners and losers with important consequences for Leaving No One Behind. It is therefore crucial to understand the political processes of pursuing policy coherence and the consequences for who wins and who loses, especially in countries with rapid—but often unequal and sometimes unsustainable—economic and social developments such as India. This article focuses on the often overlooked politics of policy coherence by studying the role of institutions, interests and ideas (3Is) in SDG governance in India. For this research, Indian states with a formal and publicly available SDG Vision at the time of the research were selected. As part of the analysis, institutional structures, leading interests and dominant ideas in SDG policy coherence processes and consequences for Leaving No One Behind were comparatively analysed for the different states. The research draws on insights from an initial in-depth case-in-case study of Haryana as well as additional literature analyses and interviews with SDG actors in the other states. Findings show that instead of fostering coherent SDG implementation that is beneficial for all, policy coherence processes are built on historically dominant institutions and power dynamics which engrain the inequalities in need of change to reach Leave No One Behind. Despite the ambition to reach Leaving No One Behind and the alignment with national ownership, existing inequalities therefore risk to be reinforced with historically less prioritized goals such as gender equality hindered from being fully integrated at local levels. We argue that Leaving No One Behind should not be considered as a desired outcome of SDG governance, but as part of the political process. The article contributes theoretical insights into the development of the 3I framework and the relation between policy coherence and Leaving No One Behind. With India often being considered a global example of localising the SDGs, empirical insights are

generated into whether and how SDGs succeed in Leaving No One Behind and in making the global goals meaningful at subnational levels.

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Mainstreaming Animal Welfare in Sustainable Development: A Policy Agenda

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Developments in science and ethics increasingly suggest that animal welfare is an important goal in its own right. Nevertheless, animal welfare remains a marginal issue in sustainable development governance. In 2015, the world's governments adopted a universal development agenda, the 2030 Agenda for Sustainable Development, which expresses a desire for a world "in which humanity lives in harmony with nature and in which wildlife and other living species are protected". Yet, none of the Agenda's 169 targets reference the welfare of individual animals, instead only emphasising the conservation of species, habitats and biodiversity. Fifty years after the adoption of the Stockholm Declaration, we argue that the lack of consideration of animal welfare in sustainable development policy-making is an important oversight. Our treatment of animals affects our ability to achieve the Sustainable Development Goals, and both human-induced environmental challenges, and our interventions to mitigate or adapt to them, often affect animals. We identify three key pathways for mainstreaming animal welfare into sustainable development policy-making: (1) considering animal welfare in international policy and legal instruments; (2) improving national and local policies to more fully promote animal welfare while

ensuring other social, health and economic goals are met; and (3) paving the way for additional action through improved knowledge, capacity building, representation, and international cooperation. Mainstreaming animal welfare concerns into sustainable development policy will require transformative changes to key industries, practices, and values, and may encounter resistance from powerful interest groups. It will require innovative thinking to maximise synergies and minimise trade-offs between different areas of sustainable development policy, including through just transition planning and support. Nevertheless, giving more consideration to animal welfare in sustainable development is an opportunity to implement a wide range of policies that benefit humans and nonhumans alike.

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Conflict of interest: renewable energy vs nature conservation in the city

Neelakshi Joshi

Leibniz Institute of Ecological Urban and Regional Development, Germany

A large scale transition from fossil fuels to renewable sources of energy is key for achieving low carbon goals at national, regional and local levels. Cities will play an important role in this transition as the largest direct and indirect consumers of energy. The last two decades have observed an increase in the number of cities adopting plans and goals to reduce their energy based emissions and switch to 100% renewable sources of energy. However, as plans towards renewable energy begin to materialise, conflicts have also emerged.

These conflicts are often attributed to the spatial dimension of urban energy transitions in bringing the sources of energy production within or close to the city boundaries and the consequent landscape change. They are also attributed to ownership and governance

challenges emerging with new land use and ownership patterns.

Drawing from the social and ecological dimension of urban energy transitions, this paper evaluates the case of a solar farm in Edmonton, Canada. The project promises to achieve greenhouse gas reductions and contribute to the city's attempts to reduce its carbon emissions. However, the location of the project within the city's urban forest, land clearing and blocking of wildlife corridors has raised opposition from environment conservation groups.

Findings indicate how the urban energy transition process attempts to create a balance between economic growth, social equity and environmental protection. However, the inherent contradiction between preservation and growth is fraught with tensions and imbalances, making sustainability transitions rife with trade-offs, negotiations and an attempt to find a state of truce between conflicting interests. The paper cautions that evaluating urban energy transitions based solely on carbon reduction, without consideration towards social-ecological aspects, risks reproducing existing power asymmetries and growth trajectories in cities.

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The interdependence of water and energy systems and the effects on vulnerable populations. Insights from Brazil and South Africa

Michele Dalla Fontana, Marjanneke Vijge

Utrecht University, The Netherlands

Water and energy play a pivotal role in sustainable development and they are fundamentally linked. The energy sector needs water in most of its phases to function properly and vice versa. A poor understanding of the nature of these interactions has often limited society's ability to deal with the challenges arising from the water-energy nexus. Furthermore, vulnerable populations

often suffer most from underestimated trade-offs between water and energy systems.

Some countries have managed to make significant improvements in the universalization of access to water and energy through top-down policies and installation of large scale facilities. However, it is unclear whether these initiatives embody the Leave No One Behind principle of the 2030 Agenda for Sustainable Development or reinforce persistent forms of inequalities.

In this paper, we adopt a political ecology lens to show how top-down mismanagement of water-energy interactions can increase inequalities in access to water and energy in Brazil and South Africa. These are both large and quickly industrializing countries that for decades have relied on centralized and co-dependent water and energy systems, and large infrastructural projects to meet water and energy demand. Whereas this management model has contributed to national economic development, it did not result in fair and inclusive water and energy systems, thus not improving the long-standing inequalities that are rooted in both countries. We discuss the potential for empowering local communities in developing alternative water and energy provision systems, embedding principles of justice and equity. Foreseen barriers and solutions to developing such alternative systems are also discussed drawing from existing bottom-up initiatives in both countries.

While the analysis focused on Brazil and South Africa, our findings can be extended to other countries in the Global South whose transition to more sustainable water and energy systems must deal with issues of decolonization, democracy, equity and justice.

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Water-Energy-Food interlinkages in South Africa: multi-actor nexus governance for social justice?

Marianneke J. Viije, Michele Dalla Fontana

Utrecht University, The Netherlands

The Water-Energy-Food (WEF) nexus is gaining traction internationally as an integrated approach to accelerate transitions towards sustainable development. Despite growing evidence 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. Although international frameworks such as the Sustainable Development Goals (SDGs) portray the nexus approach as an important means of implementation, most countries' governance frameworks have not yet fully integrated (local) knowledge about interlinkages between water, energy and food resources into whole-of-government or whole-of-society approaches. 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 of nexus approaches for social justice, including around gender, have not often been studied. In order to address some of these knowledge gaps, we conduct research on the extent to which and how interlinkages between water, energy and food resources that are experienced at the household level are and could be incorporated into local, regional and national policies and/or policy processes, and with what consequences for social justice. We focus on the opportunities and challenges to transfer local knowledge and experiences around water, energy and food interlinkages to multi-level nexus governance and thereby enhance social justice. We zoom in on South Africa, a country with long-standing inequalities, including around water,

energy and land allocation. Studying WEF nexus governance is particularly pertinent in South Africa, with 14 million people experiencing inadequate access to food, 30 million lacking access to water, and more than 15% having no access to energy. Our research is based on field work conducted in April 2022, which includes household surveys in two locations (Vaalharts in Northern Cape and Matatiele in Eastern Cape); workshops and focus group discussions among the local communities; and interviews with local, regional and national policymakers. 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.

Panel ID 370 | Virtual

Planetary Climate Litigation – Law, politics and justice in the Anthropocene

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Investor-State Dispute Settlement: Law, politics and injustice in the Anthropocene

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While the other papers in this panel address cases of litigation that could further the goals

of climate mitigation and climate justice, it is also important to recognize that there is an area of international law that has the potential to obstruct these goals. Thousands of international investment treaties provide foreign investors with broad protections against regulatory change and access to international arbitration to resolve disputes with states. The process of investor-state dispute settlement (ISDS) has been utilized frequently to challenge environmental regulation over the last 25 years, but only recently have claims arisen that are directly related to climate policy. Coal phase-out plans in Canada and the Netherlands have sparked disputes, as has US President Joe Biden's cancellation of the controversial Keystone XL Pipeline. This paper analyses these cases, but also anticipates the types of claims that may arise as fossil fuel producing states begin to adopt more "supply-side" policies. The launch of the Beyond Oil and Gas Alliance (BOGA) in November 2021, by eleven national and subnational governments committed to Paris-aligned dates for ending oil and gas production, indicates that supply-side policy is coming-of-age. However, efforts to limit production will impact investors and disputes over "appropriate compensation" will ensue. Using a novel dataset of ISDS-protected assets in the upstream oil and gas sector, we quantify the legal and financial risk that states face if they follow the International Energy Agency's Net-Zero by 2050 energy transition roadmap (which sees no new investments in fossil fuel supply as of the end of 2021) or act more aggressively to limit production. We demonstrate that providing investors access to ISDS is likely to obstruct a just and orderly energy transition. First, it raises the public cost of the transition; ISDS tribunals may award "lost future profits" (of hundreds of millions or even billions of dollars) to investors, even if they have not commenced production. This reality also inevitably influences negotiations on compensation between governments and investors. Second, the threat of ISDS could delay the transition, particularly in countries in the Global South with less capacity to defend policies in arbitration. We conclude that the best way for governments to avoid liability is

to: 1) immediately cease providing any further licenses or permits for oil and gas projects; and 2) take steps to prevent existing leaseholders from having access to ISDS (modification/termination of investment treaties).

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Courts as a Transformative Force in Global Climate Governance

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Climate litigation is becoming a popular legal strategy offered by judicial and quasi-judicial fora to adjudicate conflicts emanating from the risks and impacts of climate change. Recent decisions by courts in countries spanning the globe are suggesting that courts are getting increasingly involved in matters of climate governance. Yet, one must also recognise that judicial decisions with a positive outcome are limited, that clear patterns of positive judicial-driven change in global climate change governance are not yet forming, and that the case law is far from settled. Moreover, there is still no empirical evidence to suggest that the decisions of courts have contributed to halting or reversing climate change. Expecting courts to offer a magic cure for climate change may rightly be seen as being unfair and unrealistic; courts after all are only a small part of the burgeoning global climate governance regime which consists, among others, of civil society actors,

city governments, national governments, regional and international governance arrangements, and corporations. Despite these concerns, courts play a unique and critically important role in this regime, especially insofar as they act as impartial and independent guardians of the rule of law and of justice, as mediators of conflicts, as interpreters and appliers of the law, and possibly also, as innovative norm entrepreneurs.

The recent surge in climate litigation worldwide, alongside bold decisions by some courts, raises an important question that we seek to tackle in this paper: what are the prospects of courts becoming a transformative force in global climate governance? We suggest that the transformative contribution of courts could lie at five levels: i) imposing greater public and private sector accountability; ii) redefining power relations between key climate governance actors; iii) highlighting and addressing ever-deepening climate vulnerability and justice concerns; iv) developing international climate law; and v) linking climate science with legal processes. While there may be others, we have identified these issues as key considerations when reflecting on the important role that courts play, and presumably will increasingly play, in global climate governance. More importantly, these are also considerations that shape a vision of how climate litigation can initiate and drive transformations of global climate governance. With reference to recent climate cases from around the globe, we reflect in this paper on each of these five considerations to determine what the prospects are for courts to contribute to the transformation of the global climate governance landscape.

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A Shell Game? Using Science to Establish Accountability in Climate Litigation

Ina Möller¹, Judith Alkema¹, Josephine Chambers², Jasmine Livingston², Chiara Macchi¹, Nadia Bernaz¹, Aarti Gupta¹, Sylvia Karlsson-Vinkhuyzena¹, Esther Turnhout³

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The governance of climate change is entering a new era, in which accountability and justice are taking centre stage and where actors are learning to exert power in new and creative ways. The recent rise of climate litigation is a key indicator of this development. As civil society increasingly draws on the power of national courts to hold public and private actors to account for their climate actions, climate science is starting to play a new role in global environmental governance. Rather than only providing guidance and motivation for states to engage in more stringent climate policy measures, it is now used as a source of evidence to establish whether or not public and private actors can be held accountable for their climate (in)action. In this paper, we study the role of climate science in the 2020 Dutch court case of ‘Milieudefensie vs. Shell’. Using a detailed content analysis of documents submitted to the court by the civil society organisation Milieudefensie and the transnational corporation Shell, as well as the verdict issued by the Dutch national court, we examine how the three parties involved refer to climate science in assessing the climate impact of Shell’s corporate activities. In the content analysis, we focus in particular on the types and sources of science that the parties refer to, and how they integrate them into their argumentation. We find that defining ‘danger’ and ‘responsibility’ are key aspects where science is important for establishing accountability, and identify seven lines of argumentation through which the three parties engaged with these concepts. Our

analysis of these lines of argumentation indicates that the science itself is never questioned, but that parties contest each other’s selection, interpretation and use of scientific findings. The paper shows how certain aspects of globally accepted climate science are so ambiguous that they can be used to argue for opposite positions in a court case, and highlights the importance of argumentative strategy, in addition to the content of the science itself, as key to understanding the role of climate science in climate litigation. This paper will contribute to ongoing debates within the ESG community about the emerging paradigm of earth system law, linking to the work of the new taskforce on climate governance and its working group on climate transparency, accountability and litigation.

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Neubauer et al. versus Germany: Planetary Climate Litigation for the Anthropocene?

Louis J. Kotzé

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Potsdam Germany

The recent decision by the German Constitutional Court in *Neubauer et al. versus Germany* has been attracting considerable attention around the globe. The Court ordered the German legislature to correct and to significantly tighten up existing climate law provisions, to increase the ambition of these provisions, and to strengthen future mitigation pathways. Several commentators have hailed it as an example of what is possible when the judiciary steps in to fill gaps in global climate governance as a result of governments failing to act or acting inadequately. In this paper, I explore the extent to which the Court in Karlsruhe has innovatively managed to embrace a holistic planetary view of climate science, climate change impacts, planetary justice, planetary stewardship, earth system vulnerability, and global climate law, within

the context of a human-dominated geological epoch, to guide its reasoning and findings. My proposal is that courts will have to increasingly follow a planetary perspective that is grounded in the Anthropocene context when adjudicating matters related to global disruptors such as climate change. This decision offers a first, and important, example of a promising new paradigm that I term *planetary climate litigation*.

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Youth Going to Court: Climate Litigation as Political Practice in the Anthropocene

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Climate litigation cases around the world have been increasingly successful in recent years. This is associated, among others, to the binding nature of the Paris agreement of 2015. In these climate litigation cases, it is often marginalized communities suing governments and corporations. Also, young climate activists increasingly turn to legal ways of fighting for effective climate policies. As many young people have become politicized during the Fridays for Future movement, but at the same time do not see much representation of themselves in formal politics and usually have fewer options for formal and informal participation than adults, climate litigation is becoming an attractive form of making claims for younger and future generations. Against the intuition that lawsuits are rather a tool for the wealthy to safeguard the status quo, we can observe that climate litigation is also a political practice of the powerless. Critically investigating the plaintiff position towards climate litigation, this paper focusses on the process of doing climate litigation instead of the actual outcome. With this approach, want to contribute to an emerging interdisciplinary field of study on climate litigation.

In order to investigate how exactly climate litigation is used as a political practice of youth actors, we review the 60 climate litigation cases worldwide between 2011 and 2021 that were led by youth activists or young people. By a mix of quantitative and qualitative content analysis of the individual complaints, we first produce a comprehensive mapping of cases in terms of geographical distribution, types of plaintiffs and defendants, as well as object of litigation. In an in-depth qualitative analysis of six selected cases, we examine the framing of single cases by the plaintiffs. In particular, we analyse how broader normative frameworks are translated for the specific cases, ranging from human rights, rights of nature to planetary justice. Furthermore, we ask how the young plaintiffs claim to represent broader constituencies, such as future generations or the planet Earth, in their complaints. We propose a typology of young people's political practices of climate litigation and with this combine and contribute to the emerging research fields of global youth-led climate action and climate litigation and earth system law.

Panel ID 375 | Virtual

Pluralism in ecosystem governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Pluralistic approaches in research advance farming and freshwater sustainability efforts in the Great Lakes basin

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Healthy Headwaters Lab, Great Lakes Institute for Environmental Research & Dept. of Integrative Biology, University of Windsor, Ontario, Canada, Traditional Territory of the Three Fires Confederacy

The launch of the UN Decade of Restoration (2021-2030) calls for the acceleration of restoration efforts to curb ecosystem degradation through local and global pathways. Freshwater restoration requires coordinated efforts from multiple actors, across land and water, and thus restoration success remain elusive. To overcome barriers of scale, science teams must better integrate social and cultural dimensions as central components of research efforts. Pluralism is one pathway that has potential to overcome challenges and offer transformative solutions. Here we present two case studies from the Laurentian Great Lakes basin where an intentional pluralistic framework was developed to ensure that science-based research was community-responsive and locally relevant while also offering insights that could translate to other contexts. We initiated two parallel efforts – the Farm and Freshwater Ecology Research Network (FERN) and the Indigenous Knowledge Circle (IKC) – whereby individuals from a range of communities engaged with our team in varied ways. The

FERN engages local farmers in southwestern Ontario to focus farm-based restoration research on the local, social, physical, and cultural context while facilitating deeper understanding of social barriers and enablers to implementing farm-based sustainability measures. The IKC facilitates a collaborative space for researchers to be responsive to community input, and engages communities as active drivers of, and participants in, research. The IKC involves Indigenous researchers across the region but also academic researchers, government agencies and representatives from aligned programs, such as the IJC. Here we describe how we conceptualized the framework and context-specific insights to illustrate how our research questions and approach became richer and more impactful when communities are engaged. We discuss short-term versus long-term benefits, co-benefits, and trade-offs in such an approach.

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Participation as a pathway to pluralism: a critical view over diverse disciplines

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Wider participation in ecosystem governance has been called for as a means to reach pluralism in biodiversity conservation research and practice. The logical arguments given are that plurality in worldviews, priorities and values (social plurality) should be brought to the table to be reflected in decision making, via participation. In this paper, we give critical

insight into participation as a pathway to recognizing social plurality in ecosystem governance. We highlight how different disciplines, beyond ecology, have tackled the topic of participation; including development studies and anthropology, governance and policy studies and transformations/transitions research. We look across this diverse literature to understand the ways in which different participatory approaches contribute to ecosystem governance. We outline how governance systems create multiple spaces for participation. We then explore key challenges faced when working within these spaces with the intention of addressing social plurality. We discuss challenges of complexity, inclusion, conflict and power. In doing so, we present an argument for that participation itself must be plural, in order to reflect the positioning within the governance system, and the context of power that it is taking place within. In recognizing that participation as a pathway to plurality cannot be a prescriptive process we provide seven reflexive questions to steer their design and implementation.

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Disrupting rigid governance in social-ecological systems: Can greater pluralism foster sustainability pathways?

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Just and inclusive transitions to sustainability are urgently needed to ensure human well-being and the ability to live within safe biophysical limits. Governance and politics can either foster or hinder successful transitions. Pluralism and democratic debate have been

argued as key ingredients for increasing the likelihood of governance transformation, in this case referring to a transformation of governance regime as well as a transformation of the social-ecological system (SES) itself. Here, we analyse pluralism vis-a-vis ecosystem governance from an SES perspective, considering it in the broad sense – of multiple perspectives on reality and by using methodological pluralism. We aim to (1) understand situations of limited pluralism and how they are perpetuated, and (2) explore how greater pluralism could foster sustainability transformations.

Our particular interest lies in understanding the role of the discursive-institutional dynamics underlying governance. To this end, we synthesize and build on previous case study research in the Doñana region (Guadalquivir estuary, SW Spain), an estuary-delta SES characterized by rigid governance and a command-and-control paradigm for water resource use and wetland conservation. Through an illustrative example of a failed hydraulic megaproject, we use a blend of methodological approaches to understand social and political dynamics by analysing historical discourses. We show how tightly-woven institutional structures and dominant discourses in the region – underpinned by what has come to be known as the “hegemonic hydraulic mission discourse” – has, over time, played a key role in limiting pluralism. We also uncover how latent pluralism exists in the region, and we highlight ideas that might serve to crack existing governance stalemates, include more diverse perspectives, change discourses, and, ultimately, trigger more sustainable pathways.

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Saving the Sonso Lagoon: contesting entrenched local powers and building practical authority in wetland governance in Valle del Cauca, Colombia

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This research focuses on a case of conflict around the most important wetland of the Valle del Cauca region in Colombia called the Sonso Lagoon. At the end of December 2015, the wetland was being destroyed by neighboring wealthy landowners to grow sugarcane with the acquiescence of local authorities, affecting local rural communities of fishermen and community eco-tourism operators who depend on this wetland for their livelihoods. After one year of conflict the wetland was designated a Ramsar site, and restoration of the lagoon was implemented by the environmental authority, this paper analyzes how this situation turned around.

In this paper we reconstruct the steps taken to save the wetland, explaining how wetland activists used resources, defined the problem, and mobilized networks, and we discuss how these strategies connect to particular characteristics of the political context and environmental governance in the region. We demonstrate the importance of taking into account institutional political arrangements to analyze the ways in which the conflicts are expressed, how the policy agenda is defined, as well as the strategies employed by advocacy groups.

We draw upon perspectives on environmental governance that stress the importance of understanding the institutional context in which agencies are embedded and that constrain their responses to public demands. In the same vein, we use the work of scholar (Ref. Removed) to understand how agencies missions, standard operating procedures and

past interactions with client groups constrain day-to day decision-making around wetland management in the region. Finally, we use the concept of “practical authority” developed by scholars (Ref. Removed) to explain the permissive institutional context that allowed extensive damage to the wetland in the first place. We conclude by arguing that pluralism in environmental governance must address social inequities to ensure long –term ecosystem recovery.

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Centering relationships in rights-based approaches: The need to expand conservation’s social worlds

Walker DePuy

Independent Researcher

Berau, East Kalimantan, is a working landscape shaped across centuries by local and Indigenous communities, Hindu and Muslim sultanates, Dutch and Japanese occupiers, extractive resource companies, and, in more recent years, international conservation organizations. Today it is home to a jurisdictional REDD+ program, making it a model of landscape-scale, multi-stakeholder, green development in Indonesia. While this REDD+ program strives to center local communities’ interests and needs, its explicit activities and overarching logic reveal a bias towards formal, state-based planning that can obscure both dominant political economic drivers and less visible more-than-human actors that shape the landscape.

Drawing on 26 months of multi-sited ethnographic research from the international to the village level, in this paper I argue for the need to center relationships and an expanded sense of sociality in rights-based conservation to counter this. By highlighting the fundamentally social and relational nature of rights – that they are not simply socially constructed but socially enacted – this move aligns with increasing emphases in SES and sustainability literatures on human-wildlife

coexistence, well-being, and care-taking. Bringing together songs, stories, and a collaborative mapping project I co-developed with an Indigenous Punan community, this work emphasizes the centrality of patron-client relations in shaping the Indigenous territories there, whether timber and oil palm concessions or REDD+-enacting NGOs. It also showcases an expanded roster of human and non-human – material and immaterial – social actors that populate territories and contribute to their governance.

Centering relationships in rights-based conservation simultaneously widens the aperture of concern and shifts the unit of analysis and metric of success. Such a relational focus offers lessons for considering the co-production of rights-based agendas and environmental governance regimes, the translation of policy concepts across governance levels and actor groups, and how to more fully respect customary tenure regimes for diverse co-benefits such as conflict resolution. It also argues for more clearly considering power differences across humans and non-humans in complex conservation landscapes and the relations of respect and care fundamental to maintaining them. By asking “When is a crocodile more than a crocodile?,” this work shows how attention to political ontological pluralism both clarifies points of friction between rights-based definitions across actor groups and opens opportunities for alternative, more equitable models of environmental governance.

Panel ID 469 | Virtual

A Trans-Atlantic Dialogue on Environmental Justice (I)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Shaping the just transition – Battery mineral conflicts in Finland

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Minerals needed for the sustainable energy transition and batteries are increasingly being sought after. In Finland, the number of permits for exploration of battery minerals has risen a lot. Simultaneously the opposition against mineral exploration have grown from local resistance into nation-wide movements, that question the overall fairness of the transition. Some of the hotspots for opposition are Heinävesi municipality and the Lake Saimaa region, where Pro Heinävesi and No mines to the Lake Saimaa region (NMLSR) - movements were found in 2018 and 2020, respectively. Interestingly, also the Finnish Mining Act is currently under reform and thus can be considered as a space where movements try to shape the preconditions for the transition. This paper will shed a light on how the ongoing conflicts around battery minerals in Finland reveal just transition tensions and shape the ongoing transition. Conflicts are often about competing claims of what is and isn't just. I approach conflicts as transformative, that is, conflicts as natural and inevitable part of human interactions that can have constructive potential. Conflicts are rooted in situations that are perceived as unjust and by making these injustices visible, conflicts become catalysts for social change. The sustainable transition does not happen in a void, but causes tensions between sustainability and justice goals. Recognizing these tensions is crucial to carry out a just and efficient

transition. The concept of just transition is used both in academia and in political arenas (e.g., EU), but less is known about how the ‘just’ is being contested and shaped by conflicts. In my paper, I have studied the Pro Heinävesi and NMLSR movements and the Mining Act reform process through the lens of environmental justice claims. I strive to answer to what type of justice claims are made during the conflicts around battery minerals and also, how the movements use those claims to influence the ongoing reform of the Mining Act in Finland. The research is based on the content analysis of statements and media content by the movements, the material produced during official participation processes of Mining Act reform, and semi-structured interviews with the movement representatives, government officials and the industry. It builds on my previous study on the Heinävesi conflict.

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Decentering authority by creating and maintaining the protest space: Insights from the planning process of Namakhvani hydropower plant in the Republic of Georgia

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This paper explores the environmental conflict around hydropower developments in the Republic of Georgia. As a result of the country’s geopolitically complex location and ongoing political and military tensions with Russia, energy independence has become the pinnacle of Georgian state rhetoric and the major argument behind the massive hydropower developments that have unfolded in the country in the past 15 years. Yet proposed hydropower projects have been met with steady and ongoing resistance from local communities throughout the country. In this study, we focus on the ongoing opposition

against the Namakhvani hydropower plant. We specifically explore how the local activists created and maintained what they refer to as “the protest space” – an area near a construction site where they erected several large and small tents. Gradually this protest space became a multifunctional space for various encounters and discussions, thus acquiring social and political meanings. With the active use of social media, these conversations soon penetrated the public discourse at the national level and concerned not only the Namakhvani powerplant project but also the broader and deeper deficiencies of the country’s energy policy. We suggest that the strategy of creating and maintaining such multifunctional protest space in a rural area near the construction site contributed to decentering decision-making authority (mainly concentrated in the capital city) and thus, challenged the center-periphery divide and existing power asymmetry. The paper underscores the importance of analyzing context-specific realities and local nuances when analyzing the cases of environmental injustice. We draw attention to the place-based innovative strategies of resistance, and local understandings of what constitutes environmental injustice and how it should be opposed. From the geographical perspective, this research will bring insights from a region that is relatively poorly represented in environmental justice scholarship. The study will shed light on the Global East—“those countries and societies that occupy an interstitial position between North and South” and, that after the fall of the communism, have remained in the epistemic gray zone between North and South and “outside the circuits and conduits of Western knowledge architecture”.

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Comparing social movements against mining in Sweden and Brazil: how fringe actors navigate unjust mining encounters?

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Much has been debated about societal concerns when it comes to environmental issues. The general understanding is that social movement actors from the Global North mainly are motivated by concerns with climate adaptation and degrowth, whereas Global South actors find motivation in protecting their own land, livelihoods, and sometimes, their lives. These features from the South are commonly connected to violence and violation of environmental and human rights. However, studies in the North have shown that motivations of degrowth and the needs for climate adaptation are mostly accentuated in urban areas, whereas rural actors also have other motivations to engage in environmental issues. Despite their difference, these social movement actors have in common the fact they are the marginalized and vulnerable ones. Fringe stakeholders are described as poor, adversarial, weak, non-legitimate and divergent groups. This paper aims to compare such fringe actors from Sweden and Brazil to understand their similarities and differences in terms of social and environmental justice drivers; contextual factors; motivations; and strategies and tactics. The study indicates that unjust mining encounters follow structural injustice logics and happen both in the developing and developed worlds. Preliminary results show that similarities are in terms of inherent aspects of the rural context: attachment to land, own values and livelihoods. The main difference concerns fringe actors' trust in their opponents and political systems: in Brazil the lack of trust in the government and companies is one the

main drivers to set actors into motion, while the same is not seen to the same extent in Sweden.

792

Exposing climate (in)justice in Manchester: Insights from symmetrical research with racialized immigrant communities and white policy-makers

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This paper draws on findings of an ongoing research project in Manchester, England that aims to redress the lack of attention within EJ/CJ scholarship to the experiences and knowledge of people who have migrated from low-income, climate challenged countries of the Global South (GS) and settled in relatively affluent cities in the Global North (GN). Our multidisciplinary team is gathering data to analyse how immigrants from Pakistan and Somalia perceive and engage with the official 'green agenda' in Manchester and, conversely, how predominantly white city officials and politicians perceive and engage with (or don't) these minoritized and racialized communities. We will discuss three insights from this research that are of interest to, and have implications for, contemporary environmental justice scholarship. First, insofar as Manchester's green agenda for net zero and 'inclusive growth' is rooted in neoliberal behaviour change ideology, it treats all individual citizens as equally responsible for mitigation, thereby imposing unjust expectations on people who have lived part of their lives on the frontlines of the climate crisis and who are now socio-economically and environmentally underserved in their adopted city. Second, in the UK, immigrants from countries of the GS (in Manchester two of the largest groups are Pakistanis and Somalis) are

regularly positioned as being ‘hard to reach’ or disinterested in environmentalism. Our research finds evidence to refute this myth: for many, intersections of class, culture, religious beliefs and individual ethics result in deep commitment to *dunya* (the world) and the environment they live in. Such evidence thus exposes misrecognition as a form of injustice. Third, although we contend that research centering experiences that have been marginalized is an important step towards the greater diversification (and potential ‘decolonisation’) of climate politics in the GN, we also know (from lessons learned in the research process) that our project risks being perceived as ‘othering’ GS immigrants as well as engaging in colonial forms of knowledge extraction. We will reflect on these risks as being the result of structural racism and white-centrism in environmentalist spaces (academia included). In addition, we will present and illustrate the strategy of symmetry that we have adopted in response, as an approach to EJ research that is consistent with EJ aims.

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Exploring environmental justice in France: Theories, evidence and movements

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Environmental and climate justice scholarship is dominated by liberal justice theories and US-inspired critical theory, traditionally focusing on individual/community-based risk exposure and rights-based solutions. Its explanatory power and the lack of readily available theoretical alternatives have allowed these ideas to overshadow environmental justice scholarship over time, following what has been called a “fast conceptual transfer of environmental justice”. European approaches are largely absent from our understanding of the justice challenges posed by numerous environmental problems, particularly in the

face of climate change. In France, the concept of “environmental inequality” (*inégalités environnementales*) emerged in environmental theory and sociology since the early 2000s. But there has been little to no attention to the French debates and movements in the English-language academic literature, with both bodies of knowledge largely evolving in parallel, conceptually and politically. This paper attends to this gap by exploring the distinctiveness of French approaches to environmental justice. It takes stock of some of the theoretical origins, sets out key areas of exploration, and discusses the convergence and divergence between the environmental and climate justice scholarship and insights from research in France.

Panel ID 473 | Virtual

A Trans-Atlantic Dialogue on Environmental Justice (II)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

794

Decolonizing environmental/planetary justice? An exploratory study of the ILO 169 Convention prior consultation protocols developed by indigenous peoples and traditional communities in Brazil

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Environmental and planetary justice are conceptual frameworks that have been developed within Western academic contexts. In the Global South, many socioenvironmental struggles have been conceptualized as environmental justice conflicts with distributive, procedural, recognition, and capacity dimensions. However, these struggles are also claims for the survival of many worlds in which society and nature are not separate spheres, and humans and non-humans are related to each other in a web of interdependencies. Some scholars have already pointed out that justice frameworks should be reconsidered (decolonized) to encompass these multiple realities (worlds). The ILO 169 Indigenous and Tribal Peoples Convention recognizes indigenous peoples' rights and the "distinctive contributions of indigenous and tribal peoples to the cultural diversity, social and ecological harmony of humankind and to international cooperation and understanding." It establishes prior consultation of concerned peoples, through appropriate procedures and their representative institutions, means of participation in cases that affect them directly, and guarantees their participation in the use, management, and conservation of resources pertaining to their land. In Brazil, indigenous peoples and traditional communities have developed a dozen protocols, and there are many more examples in Latin America, Asia, North America, and Africa. Based on an exploratory study and decoloniality debates, this paper analyzes the creation of consultation protocols in Brazil and how the political struggles around them have been unfolding. It aims to assess to which extent these processes can offer insights to reconfigure the notions of environmental and planetary justice. The analysis relies on primary sources - the protocols' content (definition of appropriate procedures, representative institutions, conceptions of time, space, and agency), and secondary sources about the protocols' elaboration and how they have played out in global and national environmental governance processes, as a means to present their linkage with environmental justice claims. We argue that

consultation protocols (co)created by indigenous peoples, traditional communities, and supporting organizations are possible "solutions of self-recognition", beyond State-based mechanisms, which imply more robust notions of recognition and environmental justice based on decolonial lenses. Moreover, these autonomous consultation protocols evidence existential struggles and contestations to the centrality of the national state as the sole entity that promotes rights and legal protection.

795
*Climate justice movements,
 intersectionality, and politicization
 in the US and France*

Katja Biedenkopf, Coralie Boulard

KULeuven

This paper traces how and explains why climate justice's intersectionality has led to a process of politicization by comparing the climate justice movement in the United States and France. Crowded with technical and managerial tropes such as "emissions reduction targets", "carbon budgets", "economic instruments" and "technological developments", dominant approaches to the climate crisis have stationed the problem and its solutions in the realm of technocracy. The product is an essentially depoliticized account of the climate challenge which fails to "speak" to a society left on the sidelines and proves insufficient to address the stratified nature of the crisis. Framing climate change as an "eco-social crisis", climate justice offers a novel narrative and an alternative lens to apprehend the challenge. It expands the environmental agenda to include matters of class, race, gender, and other social categories of difference and, in so doing, leads society into the climate debate by refusing to dismiss these overlooked, but corollary, social justice issues. Blowing the justice and equity whistle, climate justice movements committed to intersectionality have allowed for a

convergence between environmental and other “kindred justice” struggles. The US climate justice movement has married climate and race concerns whereas, in France, climate justice emerged as a bridge between environmental and class-based struggles. The cases of the US and France, and the inherently intersectional nature of climate justice, showcase what may be grasped as a politicization potential of climate justice, whereby making climate change legible and connected to pre-existing social justice concerns increases awareness and mobilization for more transformative, systemic change. By delving into and comparing the climate justice movements of the US and France from their origins to their current manifestations, we seek to shed light on how the movements in both jurisdictions negotiated their relationship with other social justice concerns, notably bringing about different articulations of climate justice and importantly creating new, broader coalitions for climate action. For both cases, documents from the movements themselves, media coverage and interviews with activists will be analyzed through qualitative content analysis. In so doing, we trace the movements’ evolution, characterize their intersectionality, and trace processes of politicization. The analysis aims to contribute to existing climate justice literature by suggesting an understanding of climate justice’s intersectionality as a process of politicization.

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Co-Opting Co-Optation: Beyond the “Human” in Human Rights in Climate Justice

Tomas Hatala

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The climate justice movement emerged to combat the framing of global climate environmental issues as a collective action problem where the terms were set and defined by the North. Climate justice not only

encompasses the material accountability of states toward environmental concerns, but also what options and tools of justice are available to actors in these negotiations – such as the legal frames employed in environmental agreements. The discourse of human rights is the dominant way such claims to justice are laid in normative documents such as climate justice declarations. However, critical literature suggests ‘climate justice’ is in danger of being coopted and repurposed to serve not as a site of resistance but rather as a tool to reframe dissonance of the post-colonial subject into the fold of the neoliberal paradigm – resistance is justified and acceptable, as long as it operates along certain logics which do not disrupt the ability of the market to function. This paper argues that the types of legal frames that actors have at their disposal is disempowering due to the legal frameworks that are used in international agreement formations privileging the corporate body in opposition to the natural. What avenues the decolonized subjects feel are available as ways to engage in the debate at all, and how the concept of climate justice is wielded as a way to manifest these desires, becomes limited within ‘human rights’ discourses. Climate justice can consequently no longer carry its challenge to the dominant frames of the North within discourses of liberal law employed in environmental negotiations. Therefore, climate justice becomes not only a battleground for the frame of possibilities for the South/decolonized subject, but also for the ability to define what ‘rights’ mean in this context. Following the theoretical limitations to legality as a neutral tool as laid out by Anna Grear, this paper examines climate justice Declarations as sites of resistance and highlights the limitations of liberal subjectivities in ‘human rights’. The biased nature of law towards privileging the corporate form at the cost of nature weakens such appeals. Given that legal frameworks are one form of redress for decolonized states to advocate for their needs and rights, the goal should be to extend these frames to the rights of nature – movements which have broadened the definition of rights to extend legal

protection to a greater plurality of actors such as rivers and forests.

Panel ID 481 | Onsite

A Trans-Atlantic Dialogue on Environmental Justice (III)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Meanings of Environmental Justice in Contemporary Practice

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This paper interrogates the multiple ways the theories and discourses of environmental justice (EJ) are different, and compares such changes both across the academic/activist divide and national/regional contexts. We attempt to identify how changing and differing understandings of EJ can lead to specific designs for more environmentally just public policy in practice. The idea of environmental justice faces two major stresses – one in theory, the other in practice. First, widening practical engagement with environmental justice is expanding its theoretical scope, meanings, and links with a broad range of issues in an expanding array of locations - shifting foundational assumptions in environmental justice scholarship and activism. Second, after thirty years of environmental justice activism, it is clear environmental injustices are intensifying and multiplying. Even in areas where policy processes and public policy were designed to address environmental injustice, deficits in policy reforms are clear. Using a set of 75 Q methodology surveys, we empirically examine

the discourses emerging and circulating about EJ globally, how both scholars and activists involved in EJ work think about its meanings, barriers, and enablers, and what lessons such EJ discourses offer to both scholarship and policy design. The paper reflects on the development of a more far-reaching, contextually-diverse, integrated and flexible environmental justice discourse, and the range of potential strategies to achieve more just policy outcomes.

805

Your green, my bad. Global environmental justice and the EU Green Deal

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Based on several lines of research, this paper addresses global environmental justice in the transition to green energy. It is based on an ongoing empirical research that links the so-called « Lithium Triangle » in Latin America (Argentina, Bolivia, Chile) with the European energy industrial policy around batteries and e-mobility, the « Green Deal ». While developing her « battery policy », aimed at building up its geostrategic independence from China in the batteries commodity chain, 1 and reducing its carbon emissions, the EU has announced the production of the world's greenest batteries as its comparative advantage. These ambitions include standards of social and environmental sustainability to be enforced along the entire supply chain, including the extraction of raw materials. One of the required minerals is precisely lithium, now a « strategic resource », for which the EU aims at securing supplies by concluding investment, technology and trade agreements with Latin American producers. The issue is that lithium extraction, like any mineral, implies huge environmental and social consequences / conflicts on the sites of

extraction, salt flats populated by Indigenous peoples. Thus, the transition to a green economy has drawbacks that question the idea of a just energy transition. We use a political ecology – territorialization and internal colonialism – as well as global environmental justice perspective to expose the tensions between good intentions and their practicalities. We test the theoretical and empirical potential of the four dimensions of energy justice – distributive, procedural, cosmopolitan and recognition.

806

The ‘four Ds’, justice, and support in smart and local energy transitions: Analysis from cross-national online surveys in the UK and Canada

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To address related issues of climate change, energy security, fuel poverty, and local air pollution, the rollout of local energy projects, and Local Smart Grids* (LSGs) in particular, is slowly beginning to happen across the world. LSGs are projects that combine smart technology with renewable energy and storage to cover a complete range of energy vectors, including heating, and transport. Though not yet at the speed or scale that is necessary, these systems are decentralizing the energy sector and are transforming how people engage with it on a daily basis. Yet partly because most projects are in their early stages, we lack an understanding of the public’s expectations and hopes from this much-needed low-carbon transition. Without this understanding, there is a risk that LSGs are built in a way that are not equitable, just, and/or supported over the long-term – by residents living in these new host communities and beyond. To address this gap, we have employed two online, nationally

representative surveys in the UK (n=3,034) and Canada (n=800). The surveys’ focus is on the potential of the ‘four Ds’ (decentralization, decarbonization, democratization, and digitalization) to shape perceptions of energy justice and support for these moves toward smart and local energy development. Our results showcase how a differential set of responses regarding the ‘four Ds’, alongside demographic and contextual factors, help to explain the differences we see between Canada and the UK. At the same time, our analysis shows that there are common elements that are shared including preferences of who is involved and who benefits from LSGs. We argue that this research will help to better understand why people support these emerging projects and how issues of fairness are perceived in Canada and the UK. Our hope is that this will ultimately help governments, industry, and local residents in both countries come together to advance the kind of LSGs that addresses climate change, promotes sustainable economic growth, and represent a just energy transition. *We are using this terminology as a way to combine UK-based Smart Local Energy Systems and Canada-based Smart Grids. This term has also been adopted by the International Community for Local Smart Grids.

Panel ID 504 | Virtual

Just Production, Just Consumption: A Foundation for Just and Inclusive Transitions.

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

827

Repairation for planetary justice: Governing unequal divisions of labor

Manisha Anantharaman

St. Mary's College of California, United States of America

Millions of people around the world make a living revalorizing the discards of global consumer-capitalism. From waste pickers gleanng recyclables in municipal dumps to small-scale recyclers dismantling circuit boards in informal settlements, these grassroots informal economies provide valuable environmental and economic services. For instance, waste pickers reduce the costs of municipal waste management while curtailing marine plastic pollution, and e-waste recyclers keep scarce metals in circulation. Global capital relies upon and appropriates this value, just as sustainable development practice identifies informal waste economies as problematic and requiring formalization.

In the past decade, a global sustainability paradigm called the circular economy has emerged as a parallel, top-down agenda advancing resource conservation, recycling, reuse and remanufacturing. Supply chain volatility and the economic pressures brought about by Covid-19 has led European nations, the United States and China to adopt circularity as a domestic economic strategy. Their objectives are strengthening supply chains and resource security while boosting trade competitiveness.

This paper examines conflict and collaboration between top-down state/corporate capital-led circular economy programs and grassroots informal circular economies to reveal key tensions in production and consumption (in)justice and governance within unequal social and ecological divisions of labor. Through this analysis, it points to the limits of territorial and liberal notions of justice that articulate rights and responsibilities at national-scales. Instead, it demonstrates the need for a planetary justice framework that addresses historic wrongs, and redistributes resources and social power to workers and grassroots social movements. It argues that incorporating the global division of labor and distributions of value into a planetary justice framework can help implement justice frameworks through a more precise understanding of who bears the costs and benefits of transformations towards sustainability and how livelihoods are affected. To this end, it offers a new concept for the repertoire of planetary justice, that of “repairation:” the material enacting of reparative policies through global recycled-value chains. The talk presents case studies from Indian and African cities to illustrate the argument with existing practices and transformational proposals.

828

Towards Relational Intersectional Justice in Production-Consumption

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As climate change gains prominence in global environmental governance, local and regional environmental challenges like air pollution and water scarcity fade in importance. One plausible reason for this shift is that climate change threatens the broader conditions of economic growth and consequently the lives of the economically-privileged, while local and regional environmental challenges tend to

disproportionately affect socio-economically marginalized sections. When climate change and the production/consumption associated with it obscure local issues as well as non-climate environmental issues, there is an added danger that communities impacted by local and regional environmental challenges are further sidelined in global environmental governance. Further, socio-economically privileged groups are often able to protect themselves from worsening local environmental conditions through spatial displacement and consumption. Richer people might not be affected by the poor local air quality by using air purifiers and other technological protection devices inaccessible to groups with less consuming power. Such patterns of protection through spatial displacement or consumption are also likely in the context of a changing climate, where wealthier groups are more likely to leave climate-vulnerable regions or secure resources for their own consumption. Finally, many climate solutions can come with serious local environmental injustices impacting marginalized populations, as evidenced most recently with mining for cobalt in sub-saharan Africa.

In this paper, we argue that a planetary justice framework that fails to acknowledge and integrate the local and regional scales is likely to worsen global inequality in exposure to environmental burdens and access to environmental privilege. Alternatively, we propose a “relational-intersectional” conceptual framework that can anchor a broader conception of environmental justice, better suited to examining varied environmental impacts experienced at diverse spatial and temporal scales. This conceptual framework combines theories of intersectionality emerging from critical race theory and feminist studies with a production-consumption based framework. An intersectional approach emphasizes multiple-overlapping drivers of vulnerability tied to positionality (race, class, gender, geography), while a production-consumption framework offers unders environmental privilege and environmental burden as interlinked. This

“relational-intersectional” framework goes beyond aggregate sustainability goals like greenhouse gas reductions that obscure local differences to integrate a broader conceptualization of sustainability situated in a planetary boundaries framework. Centering an ethical deliberation on the question of the Good Life, it anchors a deliberation on just transitions not only from a resources or ecological point of view, but also from an optimal well-being perspective.

829

Just Transitions in Systems of Production and Consumption and the Nature of Work

Dimitris Stevis

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A just and timely transition to a just green economy is not possible without addressing just transitions in systems of production and consumption. And that is not possible, in turn, without addressing the nature of work. The first part of this paper will offer a political economy/ecology review of the various interfaces between work and nature – including the organization of production, the products we choose to produce and consume, and the consumption of those products. In the second and longer part I will examine the approaches of global and regional union organizations, as an indicator of the debates within the world of work, towards production and consumption. Has the rise of labour environmentalism, just transition, and the Future of Work agenda, challenged the historically productivist tendencies of unions? Is there evidence that, at least some, global union organizations are entertaining alternatives to productivism? In those cases where production and consumption are addressed is it within the parameters of weak sustainability, such as industrial ecology and weak ecological modernization? Are there examples of strong sustainability that

questions growth? These questions are of central importance to initiating and governing accelerated transitions because they explore two linked and central elements of global environmental politics – systems of production and consumption and the work-nature relation- that have not received as much attention in global environmental politics as well as Earth System Governance. The empirical research on which this paper draws is part of the author's long-standing research on labour environmentalism, just transitions and the Future of Work and includes primary documents, interviews and collaboration with a range of labour environmentalists around the world.

Panel ID 533 | Virtual

Empirical and normative perspectives on the allocation of climate finance: What's just?

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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International climate finance: obstructing transformational change on-the-ground?

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International climate finance is an integral part of the global climate policy regime, with its goal increasingly articulated as catalyzing transformational change. Significant barriers related to amount and quality of finance have been identified, but less attention has been

paid to how competition for scarce resources incentivizes countries to design projects that are driven by the priorities of the funds. Because of the outsized role these funds play in shaping climate policy, particularly in LDCs and SIDS, the funds' choices of what to finance enables or obstructs transformational change in these places. This dynamic raises the important questions: how does the funding logic of climate funds, including the investment criteria, shape the types of transformational change that are supported or excluded by international climate finance? And, despite the goal of catalyzing transformational change, are the politics of climate finance obstructing certain types of transformational change that are not amenable to the logic of the funds? In this paper we analyze the deliberative process within the Green Climate Fund (GCF) to better understand how the investment criteria of international finance shape on-the-ground transformation. We use a virtual ethnography of GCF board meetings and content analysis of project proposals and reviews to understand what types of transformational change are supported and which are excluded. We find that the GCF investment criteria and funding logic leads to a prioritization of investments that frame transformation in terms of speed and breadth, rather than depth, resulting in a stronger emphasis on scalable techno-managerial solutions over social and behavioral change. We also find that adaptation projects face more scrutiny regarding their transformational potential compared to mitigation and cross-cutting projects. Overall, our findings suggest that only a limited range of potential transformational changes are receiving investment support and point to gaps in the international climate finance landscape.

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How Germany allocates its bilateral adaptation finance: A qualitative investigation of current procedures and criteria

Clara Gurrese

Kiel University, Germany

Developed country Parties to the UN Framework Convention on Climate Change (UNFCCC) have committed to mobilising financial assistance to address the climate adaptation needs of developing countries. Unfortunately, it is estimated that the costs of climate adaptation will be much higher than the assistance that has been promised, and the finance gap is expected to increase in the future as the need of recipient countries grows faster than the volume of pledged funding. The Paris Agreement reiterates that the financial assistance should prioritise countries that are “particularly vulnerable to the adverse effects of climate change” (Art.9/Para.4). However, there is no internationally agreed definition of what it means to be particularly vulnerable. This raises the question of how donors then make their allocation decisions for the scarce adaptation finance.

The general literature on aid identifies three main explanations in the allocation of aid at the global level; recipient need, donor interests and recipient merit. In the context of climate change, recipient need refers to vulnerability to climate change. Previous quantitative studies find conflicting results regarding the role of vulnerability as a criterion in allocation decisions, partly due to the use of different indicators of vulnerability. To address this, I conduct a qualitative study examining how bilateral donors perceive vulnerability and to what extent they consider it in the allocation process. Using Germany, one of the biggest contributors of bilateral adaptation finance, as a case study, I therefore ask the question: *which (implicit and explicit) criteria and procedures are used by the Federal Ministry of Economic Cooperation and*

Development (BMZ) to allocate bilateral adaptation finance?

Adaptation finance is largely allocated through the same channels as ODA. Data is therefore collected through content analysis of the Ministry’s guidelines on aid allocation as well as in-depth interviews with Ministry staff and other relevant actors working on German aid and adaptation finance. Preliminary results from the content analysis and interviews indicate an emphasis on governance and quality of institutions in the recipient country (recipient merit). Recipient need is only explicitly referred to in the form of economic need. While the latter does play an important role, there are also a range of other factors that determine a country’s vulnerability to climate change. By uncovering the allocation criteria used by the BMZ, this study aims to contribute to the literature on adaptation finance through a better understanding of how bilateral donors make their allocation decisions.

843

The influence of informal political interests on the allocation of coastal protections in the Maldives and the implications for climate finance

Geronimo Gussmann

Global Climate Forum

Protecting all 188 inhabited islands in the Maldives is going to be technically and economically unfeasible under 21st century sea-level rise. Hence, the Maldivian society faces the difficult question which islands should receive further investments for coastal protection infrastructure. In any case, extensive global adaptation funding is necessary to support the Maldives in adapting to sea-level rise. However, climate funds are confronted with a dilemma because the allocation of coastal protection is often captured by informal political interests, undermining the formal and democratically

legitimized practices. Climate funds have to decide whether they want to intervene in the informal allocation practices and risk the acceptance of the adaptation measure or to reproduce the inequitable allocation practices. This dilemma and the influence of informal political interests on adaptation outcomes have found little attention in the literature so far. Addressing this gap, we first describe procedural justice theories and distributive principles derived from Egalitarianism, Utilitarianism and Social Contract theory and apply them to the case of the Maldives, illustrating the respective coastal protection allocation outcomes. We then continue to discuss existing informal allocation practices shaped by political interests and provide practical implications for climate funds. To gather data, we conducted semi-structured interviews with key respondents from Maldivian government, non-governmental organizations and civil society. We find that current coastal protection allocation practices are driven by political interests and largely deviate from formally prescribed allocation rules. While clientelistic patterns and patronage can compensate for a lack of participation of vulnerable groups in the allocation process, the current allocation process can neither be considered fair nor transparent. As a result, islands that are politically opportune receive investments in coastal infrastructure instead of those that are most at risk, causing an inequitable allocation of coastal protection funds. Put together, our results showcase that climate funds cannot rely on formal criteria and terms of reference to ensure successful adaptation outcomes and need to instead develop methods to account for existing informal allocation practices and their influence on adaptation outcomes.

845

Lessons from the prioritization of health care resources for allocating scarce climate change adaptation finance

Nils Wendler

Kiel University, Germany

Regardless of whether the international community will step up their efforts to meet the Copenhagen pledge, which was reinforced by a new pledge at COP26 in Glasgow, it seems safe to assume that adaptation finance counts as a scarce resource in the foreseeable future, thereby posing a central challenge of distributive justice in earth system governance. Therefore, from a climate justice point of view, it is necessary to design the financial allocation as fair as possible. Here, a central issue is which prioritization criteria should guide the allocation. Unfortunately, ethical approaches that explicitly address the normative issues of prioritizing adaptation finance are rare. However, we do not have to start from scratch but can look at other fields where the need to allocate scarce social goods has triggered a broad debate on adequate prioritization criteria. Prominently, in medical ethics, there has been an intense debate about how to allocate scarce resources in the health care system, such as organs or ICU beds, for many years.

At first glance, the health care system and adaptation to climate change differ in many respects. In the former, the relevant agents who demand resources are individuals, while in the adaptation context, recipients are mainly states or governmental players. Also, the respective laws and guidelines for the health care system are usually regulated on the national level. In contrast, the allocation of adaptation finance via multilateral funds occurs on the international level. Furthermore, the significant time horizons of allocation decisions range from ad-hoc decisions in the health care system – for example, during triage

situations – to long-term adaptation plans over decades in the case of climate change.

Despite these evident differences, I will argue that comparing the fields is worthwhile in at least two ways. First, the medical ethics discourse reveals typical lines of normative reasoning and their difficulties, for example, arbitrary demarcations for empirical criteria and operationalizing normative principles. I will show that climate ethics is exposed to these problems in similar ways when considering prioritization criteria for scarce adaptation finance. Second, prioritization criteria from medical ethics turn out to be partially applicable to the adaptation context. I will demonstrate this for four criteria: individual responsibility, age, urgency and efficiency. While they all share problems of operationalizing in the adaptation context, individual responsibility, urgency, and efficiency seem to have some normative importance, even though to different degrees.

Stream 4

Anticipation and Imagination

Panel ID 400 | Onsite

Envisioning the future (I): competing pathways to planetary transformations

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Imagining Extinction in the Anthropocene: Planetary Collapse as Negative Anticipation and its Ambiguous Role in the Politics of Global Sustainability

Manuel Arias-Maldonado

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Ever since the rise of modern environmentalism, ecological catastrophe has been used by the green movement as a way to convey the unsustainability of socionatural relations. In fact, doomsday scenarios led some political thinkers in the 70s to argue in favor of an eco-authoritarian approach to politics: individual freedom had to be traded for ecological security and democracy replaced by a strong state run by scientifically-informed decision-makers. Neither eco-authoritarianism nor the apocalyptic discourse prevailed in the following decades, as the paradigm of sustainability gained public acceptance and environmental political theory labored to reconcile environmentalism and democracy.

However, this may have changed in the last few years. Climate change and other global challenges, defining features of the Anthropocene as a new historical stage of socionatural relations, foster a new sense of urgency associated to the fear of planetary collapse. Theorists and activists alike warn against the danger of human extinction in an uninhabitable planet, a doomsday scenario that is meant to provide extra legitimacy to radical strategies of social change such as degrowth. On the other hand, the distinctive temporalities of the Anthropocene offer a glimpse into a deep past in which a number of extinctions took place, thus suggesting that they may happen again if the global system is not securely stabilized. On top of that, the COVID-19 pandemic has exposed the relative fragility of social systems in the face of global dangers. Yet the rise of this new extinctionism, which so far has not translated into an open support for authoritarian eco-regimes, pose a number of questions regarding the anticipation and imagination of sustainable futures. Is negative anticipation capable of mobilizing political actors and social groups? What kind of futures are elicited by the fear of collapse? Are extinctionism and democracy compatible, or perhaps the latter cannot deliver social change in the absence of a hopeful future? In dealing with these questions, I will argue that extinctionists of all kinds—including collapsitarians who see collapse as inevitable and even desirable as the only pathway towards a rebuilt human social order—play an ambiguous role in the politics of anticipation, as they are always on the verge of instilling despair rather than hope. I will also suggest ways of turning their negative energy into a positive resource for achieving a sustainable future.

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*Panoramic and Peripheral Visions:
making Resilience Future Scenarios
in an Environmental Justice
Community in New York City*

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The anticipation of increased harmful and dangerous impacts of climate change on city dwelling (because of rising temperatures, flooding, storms, etc.) brings together diversely situated actors to jointly plan for the future. In this paper, we discuss the organization of a series of scenario building exercises by an interdisciplinary group of sustainability scientists together with an environmental justice organization with the aim of visioning future resilience and climate justice in a low-income and people of color community in New York City. Despite intentions on the part of the sustainability scientists to support existing efforts and priorities of the environmental justice organization in a meaningful way, some community members eventually denounced the collaboration indicating that the scientists lacked solicitude for neighborhood specifics. Some of the scientists in turn expressed feeling thwarted by individuals unwilling to participate in the creation of a common resilience imaginary, instead pursuing their own agendas. Drawing from participatory observation and 23 in-depth interviews with organizers and participants in the scenario exercises, we untangle the roots of the frictions that emerged, characterizing them as an unresolved tension between eco-modernization imaginaries (which can be thought of as panoramic) and what we call provincialized imaginaries (stemming from peripheral perspectives). We narrate this disaccord as resulting from diverging understandings of the sources and epistemology of insecurity; of the process and participants of collectively generating

knowledge; and of requirements and responsibilities in co-production processes.

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*A call for agile futures practice in
service of transformative change:
Lessons from imagining positive
climate futures emerging from the
pandemic in the Kitchener-Waterloo
region*

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Systemic transformations of the status quo are required to reduce global greenhouse gas emissions to the targets outlined in the Paris Agreement. Amid diverse conceptualizations of transformation, the role of crisis in creating windows of opportunity for change stands out amid the turbulence of the COVID-19 pandemic. Additionally, processes in which actors can envision desirable futures helps build shared commitment and inspiration for change, particularly if conducted in transformative spaces in which people with multiple framings and interests can experiment with novel ideas and strategize a shift toward alternative pathways.

In this study, we aimed to create a transformative space that builds inspiration and shared commitment for climate action while exploring the unique inflection point created by the COVID-19 pandemic. To do so, we constructed a creative participatory futuring process for a group of participants involved in a local climate action initiative to imagine desirable futures emerging from crisis. Because we were committed to ensuring our futures process occurred during the height of the pandemic, we had to act quickly and adapt to everchanging opportunities and constraints. Consequently, our second aim was to reflect

upon considerations for an *agile* futures practice in service of transformative change.

We aligned our study with a recently completed strategic planning process in the Kitchener-Waterloo (KW) region in Ontario, Canada. Through surveys and a 3-hour virtual workshop, two breakout groups, each made up of 5 to 7 individuals including at least 1 local artist, were led through a worldbuilding process in which seeds of positive climate futures emerging during the COVID-19 pandemic (and associated value changes) were mainstream in the future. Participants were then led through a rapid science fiction prototyping process to imagine characters navigating these future worlds. Observing artists later depicted the futures discussed, offering further reflection for participants and the broader community.

The debrief of the study revealed that the process was enjoyable, stimulating, and inspiring for participants. Additionally, our broader reflections generated five considerations for an agile futures practice in service of transformative change, including adapting the “ideal” process to context-specific opportunities and constraints, aligning with strategic partners, while ensuring everyone is in the room, underpinning the process with values, treating everyone’s contributions as knowledge, and contextualizing the role of inspiration as an outcome.

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Varieties of Environmental Constitutionalism: Alternative Imaginary Pathways

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In recent years, a burgeoning field of scholarship has begun to explore the role that constitutions play in environmental governance and regulating earth systems. A field of “environmental constitutionalism” has developed. This paper argues that environmental constitutionalism cannot be

understood without paying attention to the imaginaries embedded in constitutional projects, and the environmental imaginaries in which constitutions are embedded. I argue that there is no single form of “environmental constitutionalism”, but rather three varieties, each of which have implications for earth systems governance. In the first half of the paper I describe these imaginaries in terms of their approach to democratic and rights-based governance.

The first is grounded in a *technocratic* imaginary. The technocratic strand is consequentialist, and draws on the metaphor of constitution “design”. Constitutions are valued as tools that transcend ordinary politics. Many arguments are based on an empirical-positivist model of the world, where one a change in one variable can affect certain outcomes. It is insensitive to systems and the pre-analytic values that drive environmental governance.

The second variety is *liberal-conservative*. This archetype is grounded in the traditional anthropocentric liberal values of traditional constitutionalism, and stresses the coherence of environmental concerns with existing bases for constitutionalism, such as political process or social contract theory. It also maintains faith in traditional institutions of representative democracy, seeking to reform rather than transform them. Its focus is on the experience of individual humans, rather than their systemic integration.

The final strand embraces a *transformative* imaginary. Its sources are eclectic, including environmental ethics, political economy, ecological science, and Indigenous and religious knowledge systems. While usually maintaining a commitment to constitutional rights, the transformative strand places them within a systems-based imaginary, seeking to reconstruct them in a more ecocentric and collectivist fashion. Likewise, while generally maintaining a commitment to democratic ideals, transformative environmental constitutionalism embraces democratic experimentalism and deliberative practices over representative forms of democracy.

The second half of the paper explores why this taxonomy is important. Rather than

wholeheartedly endorsing the broad concept of “environmental constitutionalism”, it is necessary to pay attention to the imaginaries embedded within policies and proposals. Using case studies of constitutional drafting in Chile and Germany, and case studies in judicial interpretation in Colombia, the Philippines and the United States, I illustrate how embedded imaginaries produce real-world consequences. In order to promote a constitutionalism compatible with earth systems governance, we must strive to embed effective systems-based imaginaries.

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‘Eternalization’ of the Anthropocene: The Contested Temporality of Earth System Governance

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Scott Hamilton argues that the advent of the Anthropocene will put an end to the indefinite temporality of Modernity, since in the new epoch a global existential catastrophe is possible. Similarly, in Biermann’s initial formulation, the Earth System Governance (ESG) framework calls for a large-scale transformation of international order to avoid a possible collapse of human civilization. Therefore, ESG – as a political response to the Anthropocene – also challenges the indefinite temporality. However, contrary to Hamilton’s theoretical expectations, multiple discourses have emerged that frame the Anthropocene as compatible with indefinite temporality. To describe and explain this phenomenon, the paper proposes and develops the concept of ‘eternalization’. I argue that the ‘eternalization’ of the Anthropocene is an important obstacle to a more effective ESG.

In the first section, I review the existing literature on the Anthropocene and identify four partially overlapping but largely distinct ‘eternalizing’ discourses: techno-optimist (e.g.,

‘good Anthropocene’), post-humanist (e.g., Haraway’s ‘Chthulucene’), resilience-centered (e.g., ‘planetary realism’ as described by Rothe), and religious apocalyptic. Interestingly, justice-centered narratives often produce an ‘eternalizing’ effect too, since by prioritizing allocative issues they implicitly take the overall perpetuation of humankind for granted.

The second section suggests three groups of factors that might account for the processes of ‘eternalization’: ideational, social, and material. First, ‘eternalizing’ discourses build upon a range of ideas – from the modern belief in technology to traditional visions of the afterlife – that are deeply entrenched in collective human mentality. Second, the two most pervasive social structures of today’s world – capitalist economy and international order of sovereign states – are based on the indefinite temporality and would lose their *raison d’être* should humanity’s finitude be acknowledged. Third, digital technologies create the feeling of ‘eternal present’, while the increased frequency of natural and anthropogenic crises results in their normalization, making a genuinely existential catastrophe less imaginable.

The third section shows that the ‘eternalizing’ discourses lead to policy proposals that are insufficient at best (e.g., Latour’s ‘conference of non-humans’) or, at worst, might exacerbate the global crisis (geo-engineering). The ‘eternalization’ of the Anthropocene not only downplays the magnitude of the threat humanity is facing but also impoverishes our imagination, making us blind to the imperative of human survival. This imperative could become a promising point of departure for negotiating a more substantive consensus on the institutions, practices, and ideas needed to successfully govern the Earth’s transition to the new epoch.

Panel ID 401 | Onsite

Contested (novel) technologies for planetary transformations: Implications for Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Climate Geoengineering and the Military: Constructing Security Imaginations and Re-imagining Anticipatory Climate Governance

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With the security implications of climate change being acknowledged internationally, the role of the military in tackling climate change has assumed greater significance. Through redefined security discourses and practices, the military has found a place in global climate governance. Climate geoengineering as an 'anticipatory' climate change solution presents a new set of opportunities and challenges to the military. On the one hand, the military may become invariably a stakeholder in the development and deployment of geoengineering technologies due to their vast resources (human, logistical, financial, and technological, etc.). On the other, militaries would also have to use their anticipatory, foresight capabilities to prepare for potentially unpredictable and unintended consequences of climate geoengineering. The possibility of geoengineering technologies being used by security actors at the behest of aggressive states to create disasters by modifying climate deliberately, or at least threaten to use them in adversarial situations (example: India-China border dispute/conflict) is also being considered by security actors. Against this

background, the paper will analyse the role of the military – a security actor – in shaping the narratives on climate geoengineering and being shaped by them, through the lens of 'anticipatory climate governance', using a qualitative and reflexive approach, based largely on discourse analysis. Since anticipatory governance is already used in the context of security planning and strategy in general, this paper will attempt to investigate whether and how the climate security discourse(s) interacts with narratives on climate geoengineering, giving rise to certain security imaginaries; and how do security actors (military) may inform anticipatory governance of climate geoengineering through these security imaginaries. It will look into the existing narratives in various contexts (example: the United States, Australia, China, India, etc.) to provide an empirical background to how the military engages or may engage with climate geoengineering discussions. In a nutshell, the paper will explore the possibility of legitimisation of the military as an 'anticipatory' climate governance actor through climate geoengineering – constructed through specific security imaginaries associated with the climate security discourse(s). It will contribute to the fields of both security studies and global environmental governance by exploring the under-researched themes of security-climate geoengineering nexus as well as the role of the military in climate security and governance.

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'Is It Dead Yet?' Blockchain, Sustainability, and Climate Finance

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Enormous amounts of capital will have to be mobilized in the coming decades to drive the transition of our global economy towards climate neutrality. In recent years, the financial system started to move in a more environmentally sustainable direction, inter

alia by offering more 'green' investment opportunities. Speeding up this process is inevitable if humanity wants to meet the Sustainable Development Goals (SDGs) and achieve the targets of the Paris Climate Agreement.

Distributed Ledger Technologies (DLTs), including blockchain, promise to enable climate finance to effectively accelerate this transition toward sustainability. However, the mainstream adoption of DLTs is still constrained by various obstacles, including technological and governance barriers, especially in the highly regulated finance sector. At the same time, it has become evident that DLTs are also highly controversial from a political point of view. Recent debates about energy-intensive cryptocurrency mining and the proliferation of NFTs illustrate this political polarization, while digital divides between developed and developing nations exacerbate existing challenges.

Based on a broad overview of current initiatives in Decentralized Finance (DeFi), asset management, Measurement, Reporting and Verification (MRV), tokenization, and other relevant fields, this paper engages with a number of pressing questions: How will the DLT technology cluster develop in the near future - is blockchain technology dead (yet)? Are there credible DLT use cases with a clear benefit for sustainability? Can the energy problem be solved?

The paper concludes with a critical outlook on the political implications of different digital system models for sustainability and climate finance.

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Emerging technologies in global biodiversity law and governance: the case of synthetic biology

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Marking the latest wave of biotechnological innovation, synthetic biology builds on modern

biotechnology and bioinformatics, and applies engineering principles to biology. The term comprises a variety of technologies that are at different stages in their research and development, such as gene drives, which enhance the ability of a genetic characteristic to pass from a parent to its offspring on the basis of gene editing technologies such as CRISPR/Cas9. Like all emerging technologies, synthetic biology promises vast benefits but also poses grave risks. The field is also unique in terms of the dynamic communities of actors involved, including DIY movements which can be a source of social and institutional advancements. This is a crucial difference with modern biotechnology, which is dominated by large universities and the corporate actors.

In this context, this paper will share preliminary findings of a Marie Curie research project on the global law and governance of synthetic biology. Departing from an international environmental law perspective, it will first present a mapping of the global legal and institutional landscape, involving multilateral environmental agreements and organizations such as the Convention on Biological Diversity and the Convention on International Trade in Endangered Species, but also others such as the World Health Organization, the Biological Weapons Convention, and the UN Conference on Trade and Development. The mapping indicates fragmentation in the governance of synthetic biology, but also potential avenues for collaboration. It also shows gaps in global governance, linked to the fast pace of technological developments, level of uncertainty, and polarized views among member states, among other factors. The paper will then highlight the main regulatory gaps and normative challenges that exist at present, suggesting a framework for assessing synthetic biology applications against the normative objectives of safety and justice. The negotiations for a post-2020 global biodiversity framework under the Convention on Biological Diversity will serve as a case study and further highlight the limitations of an international law analysis.

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Anticipatory governance on the rise of satellite constellations in Space: Insights from a socio-technical configuration analysis

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The Space sector has experienced tremendous growth since the last decade, strongly driven by technological innovation and commercialization. In particular, billionaire companies have proposed to set up Internet satellite constellations in Earth's orbit, which promise to reach populations that previously did not have access to the Internet with traditional infrastructures. Several Internet constellation projects are already under construction in Earth's orbit by companies like SpaceX, Amazon, and OneWeb. These projects, despite bringing opportunities for sustainable development, are in effect causing new environmental challenges such as the increasing congestion of Space objects or debris in the orbit. More specifically, there were about 4,500 operational satellites orbiting the low-earth-orbit as of 2021 but this number is expected to increase to about 50,000 by the end of this decade if all current satellite constellation proposals materialize. The future environmental sustainability of Earth's orbit is therefore highly uncertain, given that these spacefaring companies operate under a weakly governed regime. The critical challenge lies in whether the Internet satellite constellation sector could indeed help bridge the digital divide while maintaining orbital sustainability.

This article aims to address the above challenge by bringing together the fields of sustainability transitions and anticipatory governance. We will do so by analyzing the 'socio-technical regime' that has been shaping the current Internet constellation sector (e.g. actors' motivation or rationales) to identify potential future development trajectories and

subsequently pinpoint possible policy interventions. Methodologically, we will use the recently proposed socio-technical configuration analysis (STCA) which is a discourse-based network analysis that uses text data from newspapers and government documents to identify actors' institutional logics (or rationales) such as their interests, value orientations, and visions. We analyze a total of 196 newspaper articles and 47 government documents over three periods from 1997 to early 2021.

Our early results identify three potential development trajectories of the Internet constellation sector: i) a market-based logic driven by actors that highly center profits and mainly take advantage of the under-regulated sector; ii) an ecology-market logic consists of actors interested in simultaneously strengthening regulations for orbital sustainability and promoting commercialization of the sector; and iii) a community-market logic consists of actors that actively shape discourses about the role of the sector in bringing Internet access to the less privileged. Using these insights, we identify points of policy intervention in terms of anticipatory governance, e.g. which future development trajectories are to be promoted or restricted, and for what purposes.

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2C or not 2C? The legitimizing effect of the Paris temperature target on solar geoengineering

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The 2 degrees Celsius above the pre-industrial level temperature target is well-established as a climate change movement rally cry both in academia and policy. The reason why this target was chosen among other options such as rate of change or the CO₂ concentration in the atmosphere was rooted in the need to calculate economic costs of climate change, despite shortcomings of this target. Thus the 2

degrees Celsius target became an operational panelinterface within which the debates concerning emission targets were primarily held. The prominent role of this target was calcified as the maximum numerical temperature rise target in Article 2 of the Paris Agreement. In this paper we first trace the genealogy of the 2 degrees target in the context of the Paris Agreement negotiations. After deconstructing its origins, we argue that the acceptance of this target, despite its convenience, is not neutral and shifts the debate about mitigation towards riskier options, such as solar radiation management, in place of carbon emissions reduction. The way it does so is by reframing the debate solely within the temperature level, by redirection the attention from the CO2 concentration levels. To trace the origins of the 2 degrees target, we conducted in-depth interviews with the Paris Agreement treaty secretariat as well as core states representatives, then doing a discourse analysis using NVivo. Tracing this line of negotiations can start a discussion on why environmental problem shifting occurs, as looking at how did the debate got shifted at the side of the riskier option which has problem shifting by default, helps outlining a causal mechanism of problem shifting between multilateral environmental agreements.

Panel ID 402 | Onsite

Envisioning the future (II): Competing pathways to planetary transformations

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Avoiding climate catastrophe? How central banks imagine climate futures

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Financial market actors over the past years have come to understand climate change as a source of risk to financial asset values. Therefore, the pre-existing financial governance institutions responsible for financial risk supervision have started to engage with questions of how to govern this new risk – climate risk. With standard backward-looking analytical tools proving insufficient to gauge and manage climate risk given the nonlinearity of climate change, scenario analysis as forward-looking tool to imagine climate futures is emerging as a central approach to climate risk assessment in that context.

While climate scenarios have been used in environmental governance processes for years their deployment for financial governance is not just novel but of potentially far-reaching significance. With central bankers having assumed the role of the ‘masters of the universe’ after the global financial crisis by deploying financial resources dwarfing fiscal policy measures like the Green (New) Deal in the US and the EU, understanding and interrogating how ever more central banks central banks imagine and anticipate climate futures based on climate scenarios (see NGFS 2021) is pivotal for Earth System Governance scholars.

This paper focuses on a set of climate scenarios developed by a network of more than 100 central banks to serve as common reference point and basis for climate-related analysis and supervision. The paper addresses the question of how these reference scenarios have been designed, i.e. how institutions, interests, and practices have shaped the process of central banks imagining climate futures.

Based on 25 interviews with central bankers and modellers involved in the scenario design, the paper argues that the central banks' reference scenarios are systematically limited to capitalist utopias. This limitation is rooted in, first, techno-material path-dependencies with model designs from the past dictating present modelling practices, second, organizational imperatives prioritizing the immediate performance rather than the future fulfilment of organisational tasks, and third, cultural constraints preventing an active engagement with scenario design choices perceived as political. Consequently, the reference scenarios as governance tools structuring finance's engagement with climate change through the imagination of climate futures – unintentionally – further the promissory legitimacy of capitalism and hinder meaningful collective action within finance to avoid a climate catastrophe.

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Transforming anticipatory capacity to accelerate energy transitions

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Energy systems are the largest contributors to climate change, making energy transitions a crucial focus for earth system governance. Accelerating just and inclusive energy transitions requires the many actors that play a role in governing energy systems to act under conditions of uncertainty, created by climate change, competition in deregulated energy markets, policy changes, accelerating technological development, and changes in customer roles and expectations. Old models

of energy supply are breaking down but what exactly will replace them remains unclear. How fast will decarbonisation take place? What mix of technologies will emerge? To what extent will consumers participate in this energy transition?

In such an uncertain environment, with clear drivers to accelerate energy transition, there is a high risk that decisions will have unforeseen consequences that harm some actors. If we are to accelerate energy transitions while minimising harm, I would suggest that we need to develop strong anticipatory capacity to explore future possibilities and the implications of different decisions and pathways. This paper summarises an assessment of the anticipatory capacity of the Australian energy system. The paper distinguishes between three types of future-focused activity: forecasting; exploratory foresighting; and normative foresighting.

The traditional approach to the future of the Australian energy system was to quantitatively forecast ever-increasing energy demand and plan new energy supply capacity to meet that demand. This approach assumed the system under study would remain much as it was. The increasing penetration of distributed energy resources and emergence of 'prosumers' supplying energy back to the grid from rooftop solar has undermined the effectiveness of this approach.

Exploratory foresighting explores multiple possible futures, often through scenarios, usually qualitatively, and seeks decisions that will be robust under those different futures. A handful of Australian projects have taken this approach, but they have often been peripheral to the governance of the energy system. Normative foresighting identifies a preferred or desirable future and seeks actions that will help to navigate towards that future. There are many Australian examples, comprising visions, plans and roadmaps towards zero carbon futures.

Exploratory foresighting emerges as a key gap in Australia's anticipatory capacity to accelerate energy transitions. Powerful actors in the system show a tendency to 'pick winners' and pursue them vigorously, rather than take actions that keep options open for responding

to uncertainty. The paper proposes actions to expand the anticipatory capacity of energy system governance through inclusive, exploratory foresighting.

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The 2021 Hamburg Climate Futures Outlook: Assessing Social Drivers of Decarbonization

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Many reports such as the IPCC SR1.5, the UNEP Emissions Gap Report or those from Climate Action Tracker provide comprehensive assessments of climate futures. Yet, existing reports do not sufficiently account for the plausibility of specific climate futures or to the role of social drivers that might motivate or undermine transformations towards those scenarios. To address those gaps in climate research, we have developed a new way of assessing climate futures, which is guided by the overarching question: “Which climate futures are possible and which are plausible?” We regard possible future scenarios as those that are consistent with the scientific understanding of the climate system and social dynamics. Plausible climate futures, in turn, denote the subset of those possible future states that we expect to unfold with appreciable probability, given the existing evidence from the physical and social worlds. The *Hamburg Climate Futures Outlook* published in 2021 (hereafter *Outlook*) addresses the plausibility of achieving deep decarbonization by 2050 globally, which is considered necessary to meet one of the core objectives of the Paris Agreement. Drawing on systematic literature reviews, secondary data, and original research, it introduces a new methodology to assess the social plausibility of climate futures. In applying the so-called Social

Plausibility Assessment Framework, we assessed the dynamics of ten social drivers of decarbonization, namely: UN climate governance, transnational initiatives, climate-related regulation, climate protests and social movements, climate litigation, corporate responses, fossil fuel divestment, consumption patterns, journalism, and knowledge production.

We concluded that reaching worldwide deep decarbonization by 2050 is not plausible inasmuch as most of the social drivers do not support this scenario. Nevertheless, six of the evaluated social drivers show movement toward decarbonization, and many of them offer resources that could be utilized by societal actors to strengthen the enabling conditions of deep decarbonization. We therefore argue that partial decarbonization by 2050 is plausible, and that for deep decarbonization by 2050 to become plausible, it will mainly depend on public pressure, organized action, and climate litigation, so that governments around the globe are increasingly driven towards policies that support climate-friendly transformations, not only via goals and pledges, but through consistent action. Apart from contributing to climate research, the 2021 *Outlook* and its findings provide decision makers with valuable information on fundamental challenges and opportunities for climate policy.

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Visualizing Carbon Inequity and Climate Responsibility

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Visual presentation of human interventions in the carbon cycle and of human impacts from such intervention can be understood and evaluated discursively; that is, in terms of its narrative about normative and empirical aspects of human relationships with carbon. It can direct our attention toward some causal factors or responsible agents and away from

others, opening or closing remedial options in the process, as well as highlighting or obscuring normative criteria (like equity) that may or may not inform those options. Such discursive presentation can in turn narrow or expand the social imaginary concerning possible responses to decarbonization imperatives, can highlight normative issues of equity and responsibility in carbon access or climate change mitigation and adaptation, and can either illuminate or obscure the main drivers of climate change. It is no exaggeration to hold that fair and effective climate governance now depends (in this all-hands-on-deck moment of climate emergency) upon an expansive social imaginary that is capable of understanding the complex causality of anthropogenic climate change and incorporating a wide variety of possible responses that are both normative defensible and practically efficacious, and that this expansive imaginary depends in turn upon effective visual presentation of the human relationship with carbon (where effectiveness is understood in terms of information that offer an accurate and coherent account of the causes and predicted impacts of climate change, identifies responsible actions and parties, and offers actionable and empowering identification of mitigation options, and where fairness is defined in terms of equity and principles that can also be visualized in such presentations).

In this study, I analyze a variety of visualizations of the human relationship with carbon (from presentations of scientific findings that aim to inform while eschewing advocacy of any policy position to explicitly advocacy-oriented presentations that aim to motivate or justify particular policy responses) in terms of these four dimensions noted above. Following this analysis, I examine contexts in which these visualizations have been developed and advanced (i.e. whether to merely inform or to expressly advocate, and if the latter for what policy outcomes they aim to advocate) and their impact upon deliberations about climate policy and governance. From these findings I hope to develop an analytical framework for assessing the normative and empirical efficacy of such visual presentations, which are key to

incorporating climate justice norms into climate policy deliberations at various scales.

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*Institutions for future generations:
Humanity across time and
contemporary resonances with
humans-to-come*

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This paper reviews the term “future generations” as a political constituency, one which provides moral legitimacy aimed at aligning present humans with humans-to-come. Drawing on Sarinda Singh’s concept of “ritual governance” and the Confucian social concept of *ganqing* (“sentiment”, “resonance”) mediating ancestors and present people, the rise of future generations discourses helps extend state responsibilities and attachments to the unborn and acts as site for innovating new state-led rituals towards a sense of greater social unity. The first section contextualizes future generations in the broader discourse of sustainability, existential risk, and fears of future human extinction. These fears are contextualized within Western cosmologies and eschatologies operating on long-term cultural horizons, particularly narratives of apocalypse and civilizational collapse. I argue that considerations of collapse should be a starting point for cultivating concrete resonances and ritual forms linking past, present, and future generations. How future generations will survive thus depends upon the kinds of knowledge passed on today and whether institutions can recognize and reshape these longer cultural currents.

The second section brings in preliminary case studies, focused on the institutional aims of the Wales Future Generations Commission and Japanese Future Design movement. These are compared with the rhetorical and political legitimating roles for future generations in China and Taiwan. The provisional conclusion is that future generations, in these framings,

constitute a synonym for the late liberal “human” and for life more generally that is threatened by runaway short-termism and institutional malincentives within 21st century governance institutions. Future generations discourses thus point to anxieties around contemporary Western institutional models and their longevity, and are motivating both new positions of office (Wales) and decision-making futures thinking (Japan) to supply a secular moral stance for caring beyond the needs of the current system. In contrast, data from China and Taiwan are at the level of political rhetoric and cultural appeals to familial and ancestral motifs as a bridge between past, present, and future.

Concluding sections reiterate future generations as an active governance concept continuing to be contested among national and civil society actors, as well as in realms of law, politics, and philosophy. This paper argues for future generations to be an explicit topic of political and futures theorizing, one which centers relations and resonances between past, present, and future people, alongside how those resonances can influence notions of a moral earth governance.

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What can the transition literature tell us about building pathways to net zero?

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Over the past two decades transition scholarship has examined historical patterns of change in large socio-technical systems. This growing body of literature has contributed to our understanding of how transitions in systems of social provisioning take place. Because of the current dependence on fossil energy supplies, as well as on industrial processes (cement, steel, chemicals) and agricultural practices (animal agriculture, chemical fertilizers) that are strong GHG emitters, getting to net zero will require the fundamental transformation of

now dominant production/consumption system. This paper will discuss the character of the movement to net zero and asks what can be learned from earlier processes of change in order to orient efforts at full decarbonization.

The paper will start with a review of high level lessons that emerge from earlier transitions (for example the electrification of society, the ascendency of internal combustion engine vehicles, emergence of mechanized and chemical fertilizer dependent agriculture, etc.). It will then consider how these impact the design of policy to achieve net zero GHG emission societies. It will also explore the application of a 'pathway approach' to building coalitions for change. Transition pathways are not just concerned with the trend line for GHG emissions, or with the adoption of particular mitigation technologies. Instead they focus on the sequence of multi-dimensional changes to technologies, business models, social practices, regulations, public attitudes, and so on that can achieve system adjustments that realises desired societal objectives including net zero GHG emissions.

The paper will be primarily based on a survey of academic literature, but it will also bring in material on the analysis of current climate policies in OECD countries.

Panel ID 403 | Onsite

Foresight, facilitation, and implementation: best practices for sustainable transformations

Panel Day and Time: TBD

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Chair: TBD

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The emergence of multidisciplinary knowledge co-creation at university energy research

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This research explores the challenges and opportunities in the emergence of knowledge co-creation in multidisciplinary energy transition research collaboration in 2020 established Greenrenew research platform at the Lappeenranta University of Technology (LUT). LUT university initiated multidisciplinary research platforms to implement its strategy to tackle complex societal problems, promote research collaboration, and seek external funding via internal cooperation between LUT schools. Greenrenew can be seen as a research consortium consisting of the research groups from three schools at LUT: School of Energy Systems, School of Engineering Science, and School of Business and Management (LBM). Greenrenew is focused on facilitating the transition to carbon-neutral industry based on renewable energy. The research platform aims is to create cost-competitive solutions for the key processes needed in the industry renewal and transition.

First author interviewed the key Greenrenew participants to understand their interest in the platform, their views on growth possibilities, the affinity of topics and potential of sharing research agendas in future internal

collaborations, and list main and potential stakeholders for future external collaborations. These interviews are complemented secondary data on Greenrenew research platform documents, as well as interviews and participatory observation of the discussions, strategies and courses of actions taken by the School of Business and Management members to permeate in the renewable energy field.

We ask how multidisciplinary, university-level collaboration for knowledge co-creation emerge, and what are the opportunities and challenges related? Our research approach can be described as action research based on the qualitative data in the form of participatory observation and 5 qualitative interviews. We will, too, conduct additional interviews among school deans, and finally two focus groups among the professors and researchers involved in the Greenrenew.

We find that LBM research group joining the Greenrenew research platform has had a dual role in aiming to understand the discussion of the technologically oriented scholars to co-create new knowledge, research projects, and publications with them; and supporting the platform to organize and co-create knowledge, providing not only opportunities for cross-sectoral knowledge collaboration among stakeholders, but also data for the LBM research group to understand the related knowledge co-creation processes, especially in the digital space prevalent during COVID-19 pandemic.

531

Policy mixes for the implementation of the Paris Agreement and the 2030 Agenda

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The Paris Climate Agreement and the 2030 Agenda on Sustainable Development are two international agreements that require deep socio-economic and ecological

transformations, aiming at guarding planetary boundaries and ensuring inclusive human well-being. Although negotiated and adopted separately, the two agendas are strongly interlinked. Hence, while their implementation can lead to synergies across goals, a lack of coherence risks raising unmanaged trade-offs. Given the ambition and complexity of the required transformations, the literature highlights the need for policy mixes that support deep systemic changes on the one hand, and coherent implementation of multiple goals on the other hand. Integrated assessment models have been historically used to gauge how various global goals (such as mitigation climate action) could be met, while accounting for multi-sectoral interactions. Yet, an understanding of how their scenarios could be implemented nationally and of the needed detailed policy designs have been limited. The aim of our paper is twofold. First, we conduct a literature review on policy mixes to build a better understanding of the required policy design considerations for a coherent implementation of climate and sustainable development goals in the short and long term. Second, through interviews and literature review, we assess how integrated assessment models currently address policy mixes in climate and SDG-aligned socio-economic pathways to elucidate modeled policy measures and interactions within and between sectors. For the second aim, we investigate the integrated assessment models and the socio-economic pathways modeled in the SHAPE project. This project defines three different possible scenarios, and respective governance approaches, to meet both climate and sustainable-development goals by 2100: economy-driven innovation, resilient communities, and managing the global commons. The main research questions that we seek to answer are: i) What are key considerations in the design of policy mixes for the achievement of the Paris Agreement and the 2030 Agenda?; ii) What policy mixes would be likely applied to implement the three socio-economic pathways defined in the SHAPE project?; and iii) How are policy mixes already reflected in the integrated assessment models and what are entry points to increase their

representation? In doing so, our research will support an enhanced interaction of social sciences with integrated assessment models and representation in them and will contribute to a better understanding of the policy applications of integrated assessment models for the joint implementation of climate and sustainable development goals.

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Ambition hits the mark: Costa Rica's foresight driven climate regime shift

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In the midst of a climate emergency, radical reduction of global greenhouse gas emissions has never been as urgent. Despite the state of urgency, the internationally prescribed mechanisms to develop Nationally Determined Contributions and plan for decarbonization are currently untenable. Mainly focused on expert and model based extrapolative projections of past carbon emissions, these methods do not enable countries to deal with the uncertainty of rapidly changing environments and the complex systems that make or break emission reduction measures. As a result, the majority of UNFCCC member countries prefer to play it safe, and maintain their mitigation ambitions low.

Foresight practices are increasingly used to anticipate and imagine how countries will be affected by climate change, how risks can be avoided, and to robust climate strategies. Anticipatory climate governance takes a closer look at the politics of anticipating these climate futures, by analyzing how and why anticipatory practices are used, who is involved, and what mechanisms are used to steer policy choices. Transformative environmental governance literature analyses the governance processes

of systems that are close to surpassing the thresholds of climate change and relates these to regime shifts that enable more sustainable outcomes. Scholars indicate a lack of case studies investigating transformative governance in practice to understand the indicators for regime shift, the governance components, institutional structures, and capacities needed to foster new regimes.

This paper bridges transformative environmental governance with the anticipatory climate governance community in order to critically study a regime shift within the government of Costa Rica. The new regime comes in response to the global call for ambitious climate goals and the lack innovation in international guidelines and national customs to plan for emission reduction.

Through a process of semi-structured interviews and desk research, we analyze the characteristics of the former planning regime and the indicators that motivated a shift. We identify structural changes made to establish a new regime; what capacities were needed; what anticipation practices are used within the new regime, and how; what advantages they have towards former methods; who are involved in these processes; and what steering mechanisms exist to link these practices to policy choices and international agreements to reduce emissions.

The analysis in this paper can be used for future research on the role of anticipatory practices and regime changes in climate change governance and transformation processes. The paper contributes to the Earth System Governance conference stream ‘Anticipation and Imagination’.

628

Opening up the black box of facilitation in transformative change processes

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Process facilitation is seen as a critical component of multi-stakeholder governance

processes, playing an instrumental role in negotiating power asymmetries, opening up space for reflexivity, and ideally, “transform[ing] an arena of struggling individuals into a forum for active social learning towards effective action” (Groot & Maarleveld, 2000, p. 4; Ensor & Harvey, 2015). Despite this recognition, facilitation remains underexamined and undertheorized as a practice in environmental governance and transformative change. Better understanding how, why, and toward what end process facilitation shapes multi-stakeholder environmental governance processes requires engaging with deeper questions about this function. What epistemological and theoretical assumptions underpin facilitators’ practices? And how do the practices themselves open up or close down particular pathways to collective learning and transformation?

This paper engages with these questions through an analysis of eight climate and sustainability initiatives that used process facilitation to support multi-stakeholder governance, collaboration, and knowledge co-production. Through interviews with facilitators and process participants and document analysis we gained insights on both the framing and assumptions around facilitation within these initiatives, as well as the nature of the contributions that facilitation makes to multi-stakeholder learning and governance. Three key themes that emerge from our analysis, to which we bring empirical evidence:

- **Contributions to collective learning and adaptive governance:** Facilitators play critical roles in establishing a common language and connections across contrasting ‘worlds’ within multi-stakeholder processes. They extend the reach of experiential knowledge from individuals to groups and can lead the creation and use of boundary objects to facilitate dialogue, disrupt entrenched norms and challenge hierarchies of power.
- **Influences on cognitive, normative and relational learning outcomes:** While much of the work of facilitation has explored its influence on collective

dynamics, we also find that it yielded a direct influence on collaborators' mindsets and sense of membership and belonging within collaboration and governance processes, and their openness to change.

- **Gaps in theory and practice:** We found high levels of variation in the function that facilitation is expected or perceived to play and the type of actors or organizations engaged to play this role, alternately treating the role as administrative, or as a highly specialized area of practice. Assumptions about power, transformation, or social change were rarely made explicit in facilitators' practice, or in the convening structures they established. We also found little evidence of monitoring or evaluative practices aimed at understanding the contribution of facilitation by the initiatives themselves.

Panel ID 404 | Virtual

Competing narratives on sustainability transformations: implications for design and governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The impact of the circular economy in public imagination: An analysis of the meta-narratives at the circular economy debates at the European Parliament

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We are facing an ongoing crisis of public imagination. This crisis is shaped by the inability of governments and societal actors to address the environmental crisis or to promote social and environmental justice. The emergence of the circular economy (CE) provides a new paradigm that reimagines how resources are used within the economy. Many proponents of the CE claim that the CE reimagines the relation between the economy, the planet, and society, allowing to overcome the environmental crisis through changing public thinking.

In this paper, we propose to include the theoretical lenses of public imaginaries to understand the impact of new ideas in public imagination, and how collective imaginaries evolve after the emergence of new policy ideas. We use the case of the emergence of the CE to observe how the economy and the environment is re-imagined at the EU policy sphere. We analysed the main debates at the European Parliament (EP) had about the adoption of the CE. In total, we collected and

analysed 230 statements from members of the EP from 2012 to 2021.

We identified and classified the main macro-narratives that shape how differently is the relation between the economy and the environment shaped at the EP. We also observed that the most prominent positions within the EP defend to maintain economic growth through an ecomodernist perspective. These macro-narratives become updated by absorbing the concept of the CE as a new mean to promote innovation and growth. The existing critiques to the environmental unfeasibility of green growth and ecomodernism are omitted by most the EP members. The approach allows us to observe that the ongoing crisis of imagination is not just caused by a lack of ideas, but by the action of ideological biases that reshape ideas to preserve the status quo and logic of the current economic system.

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Contestations of „Futures“ in global climate negotiations

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This paper engages with the theoretical literature from different academic fields on how and why actors involved in different forms of environmental governance communicate, debate and use different beliefs and images about the future. While this has been a growing field of research, there is so far little scholarly work on which patterns of future visions, including aspirations of ‘climate neutrality’ or ‘net zero carbon’, are prevalent in negotiations and part of the institutional fiber of the global climate regime and how they become performative if at all.

What is described as “climate imaginaries” consist of different elements, chief among them are ascriptions of responsibility for both having caused actionable challenges, but also for taking current and future action to solve the

challenges at hand. These ascriptions not only shape the actual (environmental) futures, but also have, arguably, a strong impact on interests, decisions and policies today. Therefore awareness about imaginations of possible climate futures, including perceptions, predictions, and scenarios, are important as they define the scope within which action is plausible and within which responsibilities for action are assumed.

This paper in specific assesses comparatively how South African and Indian actors imagine climate futures at the global level. This means to deal with, likely, above all strategic visions for global governance formulated as part of both domestic and foreign policy-making. It will further analyze to whom and how such responsibilities are ascribed, what kind of policies are proposed or rejected and how the respective environmental vision is affected by and affects more general visions of the future. The climate ‘visions’ will be coded by looking at, time, scope, the specific issue that is referred to as part of future climate change and the normative evaluation of this future. The comparison of different domestic and international visions of the future will provide important clues about the plausibility of coherent future climate actions, both by India and South Africa but also as part of the wider multilateral effort.

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Jumping through Structural and Pedagogical Loops: Developing Critical and Creative Anticipatory Competences of Design Students

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Urban Transitions and Futures (UTF) was a course jointly owned by two masters programs: Creative Sustainability Masters Program of Aalto University and Urban Studies and Planning Masters Program of University of Helsinki. UTF was delivered three consecutive

years between 2017-2020. It was designed to provide students with both theoretical understanding (of urban transitions as complex and long-term processes shaped by both top-down and bottom-up dynamics) and practical experience (of planning and running the front-end of a transition project). In each iteration of the course, a different urban context was chosen as the focus of the practical project. The students, who came from a diversity of disciplinary backgrounds, would also reflect on their professional role in processes of urban transitions having worked in groups for the practical component of the course.

During the three iterations, several challenges surfaced in executing the course in alignment with the underlying pedagogical ambitions. Some of these were organisational, stemmed from the structures put in place by the two universities. Other, pedagogically more relevant challenges stemmed from the more general and overarching institutional structures, mindsets and working methods that still predominate how urban contexts are understood and worked with, which, from the perspective of systemic and pressing challenges such as climate change mitigation and adaptation, are counterproductive. In addition, from a pedagogical point of view, it proved difficult for students to acquaint themselves with underlying theories while also learning to tackle with urban transitions projects in practice. Primarily, it was observed that, they were not able to generate transition visions that challenged the status quo.

To address these challenges, the course is redeveloped as part of Aalto University's new curriculum cycle. The initial decisions included changing the status of the course from elective to mandatory and coupling it with another course of the Creative Sustainability program, Values in Design Futures, to divide theoretical and analytical learning objectives and practical learning objectives between the two courses as a means to tackle the limitations of the period-based curriculum system. The first two iterations of the renewed course has taken place and generated insights about the effectiveness of the changes made. The paper presents our reflective accounts of developing a -finally- successful course providing students

with both critical and creative anticipatory skills that are relevant for research and professional contexts dealing with sustainability transitions.

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Emerging tensions in the path towards net-zero: Swiss stakeholders' perspectives on carbon dioxide removal

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Governments around the world are starting to make concrete efforts to deploy carbon dioxide removal (CDR) portfolios, consistent with their commitments to achieve net-zero emissions by mid-century. The UK, Sweden, and Norway, for instance, have proactively addressed geochemical- and ecosystem- based methods in their climate policies. The Swiss federal and local governments are also deciding on the role of geological and natural sinks, as well as building materials to reduce hard-to-abate emissions in its aim to get to net-zero emissions by 2050. Defining the role of CDR within each country's pathway is complex, as it requires selecting options, such as biochar and direct air capture and storage, that are embedded in different knowledge systems, where issues such as the relationship with communities and accounting challenges differ greatly. At the same time, some methods depend on the same energy, infrastructural or natural resources and therefore cannot be looked at independently. Divergent stakeholders' views on how to "best" get to net-zero can lead to competition for resources, conflict between policy proponents and delay in decisions.

Our study analyzes the emerging discourses shaping the role of CDR in the climate policy of Switzerland. It presents a discourse analysis of a set of interviews, reports, and policy texts, exploring the visions around the problem to tackle using CDR and proposed approaches to

do so. Our analysis shows areas where knowledge systems around different methods compete or converge in the CDR governance debate. We find out that there are divergencies in the problem to be tackled, with carbon mitigation being the main goal of technological solutions proponents and a co-benefit for natural-solutions proponents. We also observe a trend from considering methods independently to recognizing the need for portfolios and an increasing focus on shared resources needed by different methods.

Our work sheds light on how the architecture of CDR options has evolved in the last years and how different knowledge systems influence and collide in the CDR governance debate. This study adds to the emerging body of work using discursive structures as a tool for anticipating how CDR governance may develop, by revealing the circumstances and discursive structures that shape the governance purposes and objects that are thinkable and practicable in Switzerland. They give room to reflection on the mitigation potential and socio-environmental consequences of proposed pathways, before political and economic choices have been made on the actual use of solutions.

Panel ID 405 | Virtual

Planetary steering and climate governance in the face of uncertain futures

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Law and Governance in (Climate) Crisis: Confronting the Imperative to Change

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The most recent findings of the IPCC undeniably confirm that the unfolding climate crisis demands urgent and radical processes of change. To date, however, systems of law and governance have been struggling to embrace the imperative to change and formulate adequate policy responses. Building on various lines of transformation thinking, this paper develops the notion of ‘climate transformations’ as an alternative conceptual frame for thinking about law and governance in climate crisis. It argues that rather than conceiving of climate change primarily as a collective action problem, the climate crisis ought to be understood as a transformation challenge, that is, a situation which demands shifting frames of reference as to what is regarded to be possible, plausible and necessary in the next few decades. Based on a cross-disciplinary literature review, the paper describes where climate transformations take place, what it is that undergoes transformative change and how climate transformations unfold. The aim in so doing, is to distil which demands the climate crisis makes on legal and governance systems, specifically regarding their temporal commitments, their ability to support change and their capacity to enrol multiple actors across various scales of governance. Identifying transformative temporality, the urge for change and multi-actor, multi-level engagement as central features of climate transformations, the paper seeks to offer a novel analytical framework to guide thinking on law and governance in climate crisis.

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Designating the Planetary Optimum: Planetary Politics as Pathway to a Planet Polity

Stefan Pedersen

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Achieving what is here conceived of as ‘the planetary optimum’ – where human civilization transforms into a planet polity capable of its

own legitimate self-governance within Earth systemic constraints, with these constraints already nearly fully articulated in the planetary boundaries framework – could become a major collective undertaking sometime this century. Recent work on ‘planet politics’ and the conceptually undifferentiated ‘planetary politics’ is notable for its engagement with novel theoretical answers to institutionalizing forms of global governance that on the face of it would make human civilization better equipped to handle the climate and biodiversity crisis. However, the change from nation-centric to planet-centric forms of global governance that a distinctly planetary politics entails has yet to be theorised with a sustained focus on the fuller depth, scale and quality of change that would be involved in designing and enabling the construction of a durable planet polity. This task is attempted in this paper and the argument is here elaborated on stepwise through 1) a conceptual analysis of the key recent texts, 2) a fundamental critique of the core grounding principles and normative presuppositions that are thereby identified, and finally, 3) through the formulation of a nonderivative theoretical alternative founded on consciously planetarily grounded (as opposed to national-internationally grounded) principles and presuppositions.

A key problem in the present planetary politics literature is that the solutions on offer more often than not employ the customary national-international approach to resolving global challenges. This means that in core respects the solutions advocated are already compromised at their inception, since such an approach foregrounds and prioritizes the socio-legally constructed sovereignty and territorial integrity that are part and parcel of the present state-system. This, problematically, sets promoting the interests of domestic elites over and above the integrity of the Earth System that allows for the existence of a planetwide civilization. If instead what truly counts is the integrity of the Earth System, we will need to institutionalize a completely novel set of universally collective priorities and make these the guiding lights for genuine attempts at global governance. Whether a policy would move us forwards on

the path towards the planetary optimum could here become an important yardstick for assessing if a suggestion would actually be commensurate with ‘planetary politics’ or not. The identities of self-consciously planetary political actors could also be shaped around purposefully acting as if we were all already members of an embryonic planet polity.

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Disruptive seeds: a scenarios approach to explore power shifts in sustainability transformations

Lucas Rutting

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It has become increasingly evident that incremental adaptation to global environmental challenges—particularly climate change—no longer suffices. To make matters worse, systemic problems such as social inequity and unsustainable use of resources prove to be persistent. These challenges call for, such is the rationale, significant and radical systemic changes that challenge incumbent structures. Remarkably, scholarship on sustainability transformations has only engaged with the role of power dynamics and shifts in a limited fashion. This paper responds to a need for methods that support the creation of imaginative transformation pathways while attending to the roles that power shifts play in transformations. To do this, we extended the “Seeds of Good Anthropocenes” approach, incorporating questions derived from scholarship on power into the methodology. Our ‘*Disruptive Seeds*’ approach focuses on niche practices that actively challenge unsustainable incumbent actors and institutions. We tested this novel approach in a series of participatory pilot workshops. Generally, the approach shows great potential as it facilitates explicit discussion about the way power shifts may unfold in transformations. It is a strong example of the value of mixing disciplinary perspectives to

create new forms of scenario thinking—following the call for more integrated work on anticipatory governance that combines futures thinking with social and political science research into governance and power. Specifically, the questions about power shifts in transformations used in this paper to adapt the seeds approach can also be used to adapt other futures methods that similarly lack a focus on power shifts—for instance, explorative scenarios, classic back-casting approaches, and simulation gaming.

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A Scalable Interactive Model to dynamically explore and imagine future pathways

Ben J.H. Matthews

(Independent), Belgium

People learn best by experiment, but we only have one world. Moreover, for slow cumulative effects such as the increase of carbon and heat in the atmosphere and ocean, or changing trends in demography (including migration), response to observations and impacts is too late and inefficient. While experts experiment and learn with complex computer models, many citizens don't trust "black box" models, especially if they calculate inconvenient implications. So interactive web models can help any citizen /"stakeholder" participate in experiments by exploring the relative sensitivity to options and uncertainties, making the effect of assumptions more transparent and contributing to democratisation of science. An interactive climate scenarios model developed since 2000, has recently been rewritten in the new language Scala3, transpiled to javascript for accessibility in modern web browsers. This prototype shows that speed and robustness are not limiting factors, so it can be "scalable" not only in complexity, but also across time and space. You can adjust global climate stabilisation pathways on a 300-year timescale, but also zoom in on short-term socioeconomic projections in any country

(+some sub-regions). Running models with a smooth transition from fitting historical data helps provide confidence and context for future projections.

On multi-century timescales of climate stabilisation, variation in demographic projections becomes important, the model allows experimentation with related factors, more flexibly than published scenarios. It Options to explore potential for larger-scale migration as adaptation to climate are also under development. To imagine future worlds we also need to experiment changing our "rules", interactive models also help illustrate such future changes in context of historical migration.

Interactive tools can also help demonstrate what happens if people / governments ignore model projections, changing policy only responding to observations. Experiments applying such "fuzzy control" to climate mitigation can produce a wave response, indeed reminiscent of the effect of covid-control policies, as there is mathematical similarity, despite the much longer timescale - we should learn from this.

Although "poor governance", such experiments may be closer to reality than "perfect foresight" assumed in many integrated assessment models. Likewise we might try substituting coherent "worldviews" underlying global scenarios with a diverse set of views oscillating in parallel.

So interactive models, by design fast flexible and robust to many parameter combinations, can help explore new types of scenarios, as well as run systematic probabilistic analyses, and illustrate how the dynamic response to a specific policy lever may be consistent despite wider uncertainty.

Panel ID 294| Virtual

Transformation of Water and Ocean Governance: Perception, Contestation, and Power

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Everyday life and knowledge production processes on a German research vessel in the Labrador Sea: Heterotopia par excellence?

Ramona Hägele

German Development Institute (DIE/GDI)

Research vessels are facilitating research on the vast ocean defying weather, time, and space, thus allowing scientific knowledge production that is of crucial importance for understanding marine systems and climate change. But what exactly happens onboard a research vessel? Which role does the vessel play in scientific knowledge production in marine research? Which internal and external factors affect knowledge production? The study explores these questions using the example of a German research vessel on a seven-week geomorphological expedition in the North Atlantic and the Labrador Sea. It empirically assesses everyday life on a research vessel including the scientist's and crewmember's social interactions as well as the technology dependence and spatiality that both influence data collection, processing, and analysis. The research is rooted in Knowledge Sociology and conceptually guided by Science and Technology Studies (STS). Methodologically, the study uses ethnographic methods including participant observation, respective field notes, photo and film documentation of work processes, and semi-structured interviews with representatives of the research vessel's crew and scientists. The

findings shed light on the physical, socio-cultural, and communicative construction of scientific facts and the organization of work at sea.

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Contested estuary ontologies: The conflict over dredging the Elbe river, Germany.

Jonas Hein

Department of Geography at Kiel University

The ongoing fairway adaptation of the Elbe Estuary is one of the most contested infrastructure projects in Germany in recent years. After a 17-year, highly contested planning process, delayed by a number of court proceedings the dredging works started in 2019. The current dredging will establish a depth of at least 17.40 m below mean sea level, permitting the port to handle larger container vessels. NGOs, fishers, and the riverine municipalities claim that the dredging will lead to habitat destruction and end fishery in the estuary. The conflict illustrates that knowledge production, political economy, and power are deeply intertwined, and provides evidence that some planning conflicts go even deeper than this. They are ultimately rooted in different 'estuary ontologies', in the different ways in which nature is enacted, and imagined of possible futures for the estuary and its riverine population. Based on qualitative interviews with the actors who are involved in, observe or fight against the intervention, and on a content analysis of press articles and webpages, we unravel the complex relations between political economy, knowledge production, and the different performances of reality which characterize the ongoing conflict over the fairway adaptation. We relate competing narratives, knowledge claims, and ontologies to actors promoting and challenging the fairway adaptation. Finally, we identify multiple estuary realities which are enacted by specific practices performed by fishers, port authorities, and environmental NGOs.

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Inquiring conservation success: Water for beer, the rest for the people

Jean Carlo Rodriguez

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Companies paying to save nature are criticized from the moral perspective that it is wrong to put a price tag on nature and that this is the preamble of nature privatization. Promoters argue that such strategies are beneficial in that downstream ecosystem service beneficiaries incentivize conservation by upstream land managers while helping to reduce poverty. Drawing upon an empirical case where an international beer company pays for forest conservation in the department of Cundinamarca in Colombia, I analyze the politics of water distribution and the configuration of conservation success by the different actors involved. The concepts used in this paper include politics of scale, power, hydrosocial territories, and environmental justice. The methods used include a literature review and semi-structured interviews. While 1100 hectares of forest and páramos, vital for water provision, are under conservation agreements, water distribution politics allocate most of the water rights to those with economic power while limiting local communities' access (even for human consumption). The paper argues that apolitical conservation characterizes the increase or maintenance in the provision of ecosystem services as a "success" as it is not concerned with understanding how these services are distributed in society through legal mechanisms or hydraulic infrastructure and their ultimate social implications.

Panel ID 364| Onsite

Precision Agriculture and Environmental Governance: Responsible Innovation, Anticipatory Governance, and Institutions in the United States

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Room for inclusion: Responsible Innovation, public engagement, and sustainability research

Edward Prutzer¹, Maaz Gardezi¹, Damilola Adereti², Sumit Vij³

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Emerging innovations (including those in sustainability) often face little regulation and thus have little room for public input in shaping their operations and creating shared investment. Responsible Innovation (RI) is often heralded for embracing more inclusive deliberation practices from the outset rather than waiting for the ill-effects of a given approach to manifest to attempt an all-too-late "fix." While RI is well-positioned to spur innovation in sustainability research, a gap persists in applied work in the area. Specifically, less is known about how RI might better foster platforms of sustained public engagement and prompt transformative research in socio-environmental sustainability. We address this research gap by systematically reviewing RI literature on sustainability to elicit how these studies conceptualize and operationalize "inclusion." The merits of a systematic understanding of RI as its body of literature continues to proliferate include providing a snapshot of how RI is taking shape at this stage and where potential biases and

points of improvement may lie in its promise of inclusion. We examine the definitions and measurements of inclusion and highlight how inclusion is related to anticipation, responsiveness, and reflexivity in the reviewed studies. We find that inclusion binds these principles together. Inclusion enables anticipatory governance to keep up with technological change, encourages reflexivity through knowledge that is situated and local, and can render longer-ranging responsiveness for transformative change. This paper concludes with recommendations to researchers and policymakers to enable lasting sustainability projects that include the public in an equitable manner while fostering modes of anticipatory governance that can allow them to act before an innovation has fully matured or become too embedded to counteract its effects. By considering sustainability within the fold of RI research, we intend to better understand and help shape or imagine improved roles and approaches to urgently needed design technologies that include actors not normally part of the innovation process.

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Trust in precision toward sustainable food systems: Fostering farmer inclusion through speculation and responsible innovation

Edward Prutzer, Megan Schaefer, Maaz Gardezi

Virginia Tech

Precision agriculture (PA) is enmeshed in different social-cyber-environmental systems. It balances between the human, the technological, and the environmental to negotiate between a pursuit of efficiency and profitability for various stakeholder categories and a commitment to curb harmful emissions that can arise from different farming practices. A variety of complex issues factor into this balance; these include concerns over data management and privacy, the roles and

equities of different actors in markets emerging out of PA approaches, and the effect of automation on the agricultural labor force writ large. Exploring these disruptions and the futures that may emerge out of them benefits from an anticipatory governance framework. What is additionally needed in this space is a responsible innovation (RI) approach in which anticipation serves as the starting point. This paper considers how other principles of responsible innovation (inclusion, reflexivity, and responsiveness) can connect to core concepts in co-design and living labs approaches underneath a speculative design framework. It argues that these connections prove particularly salient to the challenge of how to improve farmers' trust in PA. We explore the merits of these interconnections to meeting said challenges based on foresight, interview and survey data gained from a collection of stakeholders in PA between two case studies: one in South Dakota, the other in Vermont. Farmers cite distrust over ensuring that PA's drive for efficiency serves those performing the actual labor on the land itself and avoids corruption in further concentrating power and control within the corporate sector or within government regulatory bodies. We find that a speculative design approach informed by interconnections between co-design, living labs, and RI perspectives gives farmers opportunities to contribute their lived everyday experiences to engage with critical making as a means of co-designing artefacts that sponsor more equitable futures. This paper thus builds from the evolution of co-design, living labs, and RI frameworks over the past few decades, synthesizes their ambitions, and applies them toward participatory scenario building and prototyping exercises that explore a pressing and promising avenue of sustainability research.

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Sustainable transitions in agriculture: Using conjoint analysis to inform anticipatory governance

Benjamin Ryan, *Asim Zia*

University of Vermont

In 2021, the United States federal government announced a new target to achieve by 2030: 50-52 percent reduction from 2005 levels in economy-wide net GHG emissions. Agriculture is a key driver of GHG emissions, and many policies at both the US and international scales are being implemented to induce farmers to adopt nature-and market-based solutions for reducing emissions from agriculture and enhancing carbon sinks. Policy mechanisms such as payments for ecosystem services (PES) seek to correct for the problem of externalities from human use of natural capital by internalizing these values into markets. Anticipatory governance urgently requires the development of tools and methods to assess farmers' willingness-to-accept payment for practices that will transition food and agricultural systems to sustainability. Incentivizing farmer behavior through practice-based monetary payments has been a standard policy in the United States under several of the Natural Resource Conservation Service (NRCS) programs. Facilitating more sustainable practices has been shown to be fraught with challenges, including poor adoption rates among farmers, high transaction costs, lack of flexibility for farmers, and minimal reflexivity back into the socio-ecological system. To improve the role of technology and policy instruments in earth system governance, we use conjoint analysis to investigate farmers' willingness-to-accept payment for conservation practices that can drive transition to climate-smart agriculture. Data for conjoint analysis were collected through survey instruments in both South Dakota and Vermont. We find that Vermont farmers' willingness to accept payments for three sustainable practices is 1.5 - 3 times higher than the amount existing incentive

programs offer, indicating a gap between current policy and farmers' preferences. Our findings help inform and shape the design and implementation of performance-based payment for ecosystem schemes to better reflect the stated preferences of farmers and the need for reflexivity. The diversity of stakeholders in the agricultural landscapes of US states of Vermont and South Dakota offer powerful comparisons and we find substantial differences in the preferences of farmers across the spatial and geographic scales. This gap may limit the effectiveness of current policies and offers opportunity for inclusion and reflexivity of farmers in the design and implementation of the payment for ecosystem service scheme. This paper builds and tests tools that are important for sustainability transition in agriculture. Tools to ascertain farmers' motivations as well as incorporating these dynamic understandings into the process of innovation and policy development are essential for both responsible innovation and anticipatory governance.

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Are performance-based payment for ecosystem services inherently reflexive?

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University of Vermont

Payment for Ecosystem Services (PES) seeks to create incentives for farmers whereby beneficiaries ("buyers") can compensate farmers to maintain the services that bring them utility. PES programs have become pervasive on a global scale, but there is a great degree of diversity among how these programs develop. While there is a long history of paying and/or subsidizing farmers for conservation practices, there have been limitations on monitoring the actual benefits of these practices. Alternative "pay-for-performance" strategies, which rely on innovative sensor and precision agriculture technologies and data modeling, have been promoted as approaches that permit more

cost-effective decision-making and incentivize farmer innovation and behavioral change towards environmental sustainability. Despite innovation in these tools, the established conservation programs associated with payment for ecosystem services are based upon practice, not performance. Reflexivity in the design and implementation of these governance mechanisms is largely absent. The touted advantages of performance-based mechanisms of PES are as numerous as they are onerous (to some a disadvantage). These benefits include the potential in providing flexibility in behavior of the farmer as well as the enhanced ability to target hotspots or concentrations. An underlying challenge in the newer approaches of modelling and near-time monitoring of ecosystem dynamics is completing the loop of knowledge sharing and learning (also understood as reflexivity). In this systematic review of the literature, we investigate the relationships in design and implementation of performance-based or results-based payment for ecosystem services, with evidence of reflexivity and learning (as both resultant and initially included in the design and implementation process). Our findings suggest the lack of reflexivity and feedback loops of learning is an overarching limitation in performance-based PES design, with major implications on the measured success of the projects. We use this review to systematically organize and identify pathways to better designing and implementing PES as well as inform emerging technological approaches to anticipatory governance.

Panel ID 367| Onsite

Climate Smart Agriculture and Techno-Environmental Governance: Situated Knowledge, Sustainable Development, and Responsible Innovation

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Arrays and algorithms: Emerging regimes of dispossession at the frontiers of agrarian technological governance

Ryan Stock¹, Maaz Gardezi²

¹Northern Michigan University; ²Virginia Tech

Technological innovations aiming to address some of the most complex and grand challenges of the 21st century are transforming the political economy of agriculture and agrarian labor geographies. Many new technologies do not have a historical precedent for the equitable distribution of burdens and benefits among differently positioned actors. Ostensibly implemented for the ‘common good’ as sustainable solutions to socioecological crises, technology firms enclose natural and virtual resources for ‘smart’ solutions to climate change and food insecurity, (re)producing social frictions throughout the value chain. For example, the proliferation of AI-assisted farm technologies has dispossessed farmers of data; the development of large-scale renewable energy infrastructures has resulted in land and energy dispossessions for local farmers. Emerging technologies in food and energy systems present unique problems of resource governance. Here, we present distinct case studies to examine two emerging technologies in energy and food systems; solar parks in India

and precision agriculture technologies in the US. We ask the following question: How do existing modes of governance of new and emerging technologies create physical and virtual dispossessory enclosures for rural producers? We argue that emerging technologies for sustainability in energy and food systems present unique problems of resource governance, insofar as the neoliberal state enables energy and agritech firm hegemony at the expense of local producers. Albeit unevenly, such technological interventions have brought some social and environmental benefits to people and the environment. However, we contend that the constellation of institutions, policies and regulatory approaches that govern these technologies in agrarian spaces constitute regimes of dispossession—socially and historically specific political apparatuses for coercively redistributing resources. Foregrounding our study in the modalities of multi-scalar governance and questions of resource sovereignty, we examine the composition and accumulation strategies of both regimes of dispossession.

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Responsible innovation and governance of climate smart irrigation in South Asia: A systematic literature review

Edward Prutzer¹, Anne Patrick¹, Asif Ishtiaque², Sumit Vij³, Ryan Stock⁴, Maaz Gardezi¹

¹Virginia Tech; ²University of Michigan; ³University of Geneva; ⁴Northern Michigan University

South Asia is currently at crossroads with respect to its water resources and food production. On one hand, policy makers continue to grapple with hazards, such as floods and droughts and consequently establish risk management mechanisms and organizations. On the other hand, they have to deal with profounder socioeconomic and political reforms to address the range of

disparities at the source of differential vulnerabilities, especially for more than one billion people living this region, who require reliable access to water for food production and other uses. Climate smart irrigation (CSI) technologies includes both analog and digital irrigation technologies and practices to tackle two main objectives: a) sustainably enhance agricultural productivity and rural farm incomes; and b) enable adaptation, mitigation and build resilience to climate change across different scales. CSI technologies use localized weather and soil moisture data to allow farmers, water managers, and regulators to make improved irrigation management decisions. However, these innovations also pose various social and environmental challenges. For instance, solar irrigation pumps can enable both the mitigation of climate change and adaptation of vulnerable farmers, but may inadvertently exacerbate the over-extraction of groundwater and reinforce existing inequalities and injustice. This paper uses a systematic review of existing literature to trace a brief history and context of CSI in four South Asian countries—Bangladesh, India, Nepal, and Pakistan—from spaces of enormous intellectual authority, to spaces of its adoption, materialization and legitimation. This review extracts key findings from existing literature related to potential societal and environmental benefits and risks associated with CSI and recommends opportunities for responsible innovation to build robust and democratic role of CSI technology and technological change in earth system governance.

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Prioritizing climate-smart agriculture: An organizational and temporal review

Maaz Gardezi¹, Semhar Michael², Ryan Stock³, Sumit Vij⁴, Ayorinde Ogunyiola⁵, Asif Ishtiaque⁶

¹Virginia Tech; ²South Dakota State University; ³Northern Michigan University; ⁴University of Geneva; ⁵Purdue University; ⁶University of Michigan

Extant systematic literature reviews on the topic of climate smart agriculture (CSA) have mainly focused on two issues: reviewing framing of the CSA discourse in the academic and policy literature; and policy initiatives in the Global South that enhance the adoption of climate-smart agricultural practices. Yet, there is little systematic investigation into how international organizations can help smallholder farmers manage agricultural systems to respond to climate change. Analyzing these organization's priorities and highlighting their knowledge gaps are crucial for designing future pathways of CSA. We intend to use this article to identify overarching CSA themes that can guide large international organizations to focus their CSA agenda in the hope of achieving goals associated with food security and sustainable intensification. We specifically ask the following question: How have the key CSA topics and themes emerged in the gray literature of international organizations between 2010 and 2020? We adopted a topic modeling approach to identify how six international organizations engaged with several topics related to CSA. Following the Latent Dirichlet Allocation (LDA) approach, we identified eight topics in the documents, representing four overarching themes: gender research, weather and climate, CSA management and food security. We found that there is insufficient discussion on the issues relating to governance measures and gender mainstreaming, with a larger focus on techno-managerial measures of CSA. We conclude

that research and training related to CSA must offer opportunities for marginalized and disproportionately vulnerable populations to participate and raise their voices and share innovative ideas at different levels of governance.

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Smallholder farmers' engagement with climate smart agriculture in Africa: role of local knowledge and upscaling

Ayorinde Ogunyiola¹, Maaz Gardezi², Sumit Vij³

¹Purdue University; ²Virginia Tech; ³University of Geneva

Climate-smart agriculture (CSA) is an important discourse among national governments in Africa and international policy circles to increase food productivity, build smallholder farmers' resilience to climate change, and mitigate greenhouse gas emissions. Despite presenting several potential economic and environmental benefits to farmers, its adoption among African smallholder farmers is low. Two important aspects that influence the adoption of CSA are inclusion and exclusion of farmers' local knowledge and how CSA is upscaled among smallholder farmers in Africa. This article uses a systematic review methodology to demonstrate that the existing literature (between 2010-2020) on CSA has substantially addressed issues that hinder its upscaling in Africa, such as heterogeneous farming systems, limited finance, high cost of agricultural inputs, and technology. However, only eight of 30 articles included in the systematic review indicate challenges pertaining to inclusion or exclusion of local knowledge in CSA practices and technologies. Policymakers and academics need to rethink how smallholder farmers' local knowledge can enhance opportunities and fulfil the potential to upscale CSA in Africa. Despite these limitations, the paper provides three important lessons for policymakers. First,

implementation of farmer-led technology design initiatives can enhance opportunities for CSA to become a viable adaptation and mitigation strategy among smallholder farmers in Africa. Second, stronger land tenure regulatory frameworks are critical for upscaling of CSA practices and technologies in Africa. Third, governments and development partners need to implement inclusive financial policies and institutional arrangements in consultation with smallholder farmer for improving upscaling of CSA in Africa.

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Anticipating the social and environmental risks and benefits of CSI in South Asia: Lessons for Responsible Innovation

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The overarching goal of this paper is to comprehensively examine the social and environmental risks and benefits of climate smart irrigation technologies (CSI). CSI includes both analog and digital irrigation technologies and practices to tackle two main objectives: a) sustainably enhance agricultural productivity and rural farm incomes; and b) enable adaptation, mitigation and build resilience to climate change across different scales. CSI technologies use localized weather and soil moisture data to allow farmers, water managers, and regulators to make improved irrigation management decisions. This paper reports findings from four focus group discussions and sixty interviews that are being convened to interrogate risks and benefits of climate smart irrigation technologies from several lenses, including technological, social, ethical, economic and environmental dimensions. Focus groups are being conducted with stakeholders from the industry, government, academia, workers and non-profit organizations in South Asia, with the

goal to create understanding and appreciation for an inclusive, equitable and responsible approach to technology development and policy making surrounding CSI. Interviews with farmers in Bangladesh, India, Nepal, and Pakistan will identify the biggest problems related to food production in the region, the role of irrigation technology in solving and/or worsening these problems, and the potential economic and social risks and benefits of adopting climate smart irrigation technologies for farmers. Data from interviews will provide a more rigorous examination of societal impacts of CSI technologies, which may corroborate or contradict narratives provided by stakeholders in the focus groups. The paper employs qualitative interpretive methods to analyze focus group discussions and farmer interviews, allowing the emergence of concepts, such as benefits, risks, and potential strategies for responsible innovation and governance. Implications of these findings for earth system governance in rural areas will include (1) identifying and strategically linking multi-sectoral governance stakeholders to enhance technology development initiatives in South Asia; (2) help evolve new areas of socio-technical CSI research (e.g. participatory technology designs that focus on data privacy, trust, and accessibility), and (3) foster inclusive and deliberative multi-stakeholder approaches to ensure sustainable futures for food, energy, and water (FEW) systems in the Hindu Kush Himalayas (HKH) region.

Panel ID 488| Onsite

Anticipatory practices and politics of carbon removal assessment (Part 1)

Parallel Panel Session X,

DAY X October 2022,

9:00-10:30 CEST

Chair:

815

Assessing the Assessments of ocean-based CDR technologies

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With the signature of the Paris Agreement in 2015 and the rise of solution-oriented global environmental assessments, the question of the feasibility of ‘climate solutions’ has come to the fore. Climate solutions include a wide range of measures and technologies to decarbonise energy systems as well as to remove CO₂ from the atmosphere and store it in land or water – known Carbon Dioxide Removal (CDR). Feasibility assessments are expected to guide policymakers navigate the multi-faceted question of whether a solution is technically viable, whether its deployment has adverse environmental impacts, whether political institutions and processes are in place to effectively govern it and whether it will be acceptable to affected stakeholders. In this paper, we study the rise of feasibility assessments on ocean CDR, which include a range of options, notably iron fertilisation, ocean alkalinity enhancement, blue carbon (i.e. macro-algae production for use in bioenergy with subsequent CCS or to sink directly as biomass, mangrove restoration, seagrass meadow enhancement), etc. We in particular focus on the recent assessments produced by GESAMP (2019), the IPCC (2019 and 2021-2022), Gatusso et al. (2021) and NASEM (2021). Using discourse analysis techniques and interviews, we analyse these

assessments focusing on two aspects: the *process* that underpinned their production (the mandate, the disciplinary background of the experts and the assessment methodology) and the *content* of the assessment (the criteria used to produce the assessment and the recommendations made). The object of the paper is twofold: on the one hand, it shows the *social construction* of feasibility assessments by taking stock of the different processes that underpin their production. On the other hand, it draws lessons for ongoing and future feasibility assessments, in particular how to facilitate more inclusive modes of marine carbon removal assessment.

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(In)justice in modelled climate futures: A review of integrated assessment modelling critiques through a justice lens.

Natalia Rubiano Rivadeneira

Lund University

Integrated Assessment Models (IAMs) have become the main methodological approach for climate policy research. Because of their influential role in policy processes, they have been widely scrutinized over the last few decades, but particularly after the Paris Agreement with the inclusion of large-scale Carbon Dioxide Removal in mitigation scenarios. Critics have shown that modelling choices, parameters and methods conceal a number of values, normativities and disciplinary biases that perpetuate and reproduce hegemonic power relations. While CDR might play an important role in the future, there seems to be a disconnect between the all-encompassing assumptions embedded in the feasibility of carbon removal in models, with the realities on the ground. This can entail important justice repercussions for communities on the ground.

While models and modelling results are not intended to deal with justice per se, their value-laden nature means that they have a range of direct and indirect justice

implications. Though a review of modelling critiques, I interrogate what principles and dimensions of justice are prioritized in and by modelled assumptions, parameters and processes and which dimensions are underrepresented. As calls for climate justice continue to grow, justice considerations in practices of policy relevant climate knowledge production reckon more attention. This examination serves as an entry point and an invitation to reflect upon the hegemonic assumptions and practices in policy-relevant knowledge production that might be contributing indirectly to maintain patterns of injustice.

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Models of Anticipation: Challenging modes of global environmental assessment by expert networks in climate intervention technologies

Sean Low

Aarhus University

Global environmental assessments (GEAs) are expert-driven processes that inform decision-making on complex socio-ecological problems. Deepening challenges confront GEAs: they must anticipate ‘wicked’ issues and impacts, navigate differences and imbalances between kinds of expertise, practices, and communities, and map strategies with an eye to different ‘users’ in government, business, and civil society.

We explore how contestations over anticipatory assessment of novel climate interventions – carbon removal and solar geoengineering – challenge the broader conduct of assessments that feed into influential Intergovernmental Panel for Climate Change (IPCC) reports. We use data from 125 qualitative interviews with foundational experts and technologists, speaking to: the novel demands of anticipating risks and governance, the fit with dominant IPCC-facing assessment processes, and the supplements and reforms called for. Due to the topic of this panel, we focus on carbon

removal, but point out nuancing insights from solar geoengineering.

Our expert data reveals that key efforts at carbon removal and solar geoengineering assessment strongly leverage a mode of systems modeling (earth system and integrated assessment models) that has become dominant in mapping and communicating future climate impacts and mitigation strategies via IPCC reports. Both suites of climate intervention have become stress-tests for the capacity of modeling to assess socio-technical strategies with complex, systemic dimensions. Experts recognize but contest the degree to which modelling makes novel climate interventions appear feasible under simplistic, optimized constraints – entrenching partial depictions of benefit and risk, idealized pathways, and technical expertise.

However, experts also challenge this mode of model-centric expertises and practices. Exploring societal dimensions demand new modes of disciplinary expertise, qualitative and deliberative practices, and stakeholder inclusion that modelling processes struggle to incorporate. We show that these expert contestations reflect and entrench multiple fault-lines: over the evolving functions of the IPCC as a scientific advisory body vis-a-vis policy action and public controversy, between different practices and expert communities of its Working Groups, and between debates targeted at the landscaping reform of global environmental assessments. Our focus is therefore not on carbon removal or solar geoengineering in themselves, nor on how dominant assessments have shaped our understandings of these proposals. Rather, we treat them as case studies that reflect new demands for anticipatory assessment in the climate regime, and for GEAs more broadly.

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Emerging CDR governance: synthesizing comparative case studies to improve future assessment practices

Felix Schenuit

German Institute for International and Security Affairs & Centre for Sustainable Society Research, University Hamburg

Comparative research on carbon dioxide removal (CDR) governance and policymaking has shown that CO₂ removal has recently been added as a new tool to the mitigation policy toolbox in many different countries. Although the idea of enhancing sinks to limit cumulative GHG emissions in the atmosphere is not entirely new in climate policy, the new long-term climate targets agreed in the Paris Agreement (balancing emissions and carbon removals by mid-century and pursuing efforts to limit the temperature increase to 1.5°C) led to a new role for CDR in mitigation strategies. In particular, the operationalization of these targets by the IPCC's 1.5°C Special Report during the implementation phase of the Paris Agreement sparked and accelerated explicit CDR policies in many countries.

As a first step, this article aims to synthesize studies on CDR governance and policymaking in different political and societal contexts. To this end, the article provides a synthesis of 9 case studies from OECD countries and 4 from emerging economies. In addition, a literature review of the broader emerging scientific literature on CDR governance and policymaking is conducted to carve out patterns and varieties of existing governance structures as well as existing knowledge gaps. The synthesis and literature review will be accompanied by comparison of different methodologies applied in the studies.

Secondly, the article provides a discussion of the role and use of empirical case studies in climate science and policy. Methodological shortcomings and potential performative risks of this emerging research field will be critically

discussed. Finally, the authors will reflect on how synthesized knowledge from case studies might inform global environmental assessments and improve assumptions about the plausibility of CDR deployment in different political and societal contexts. As a proposal for a future research agenda, two different strategies for how results from a "bottom-up" perspective on the current state of CDR governance capacity can complement the currently dominant "top-down" modelling results from IAMs in global environmental assessments will be proposed.

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Testing the waters: Towards 'responsible' feasibility assessments for ocean-based NETs

Sara Nawaz, Javier Lezaun

InSIS, University of Oxford

With net zero emissions deadlines rapidly approaching—and evidence building that reductions alone will be insufficient to meet these—interest in negative emissions technologies (NETs) (or carbon dioxide removal) is growing (Minx et al., 2017; National Academies of Sciences Engineering and Medicine, 2021). Ocean-based approaches are emerging as an important category of NETs, given their (theoretical) potential for large-scale carbon dioxide sequestration and storage. These range from nature-based methods to novel engineered approaches. While some novel approaches have undergone small-scale experimentation (not without controversy), others remain at the concept stage (Gattuso et al., 2021). With proposals for marine NETs only beginning to become more concrete, broader assessment of technical, environmental or economic feasibility is only just beginning.

Beyond techno-economic or environmental questions, ocean-based NETs raise a range of challenges for governance. To name a few, these include characterizing conditions of public acceptance, delineating relevant stakeholders and scales of impacts, and

resolving tradeoffs between other land uses (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 RRI offers a set of general principles, insights remain high level, and difficult to translate to the diverse and speculative proposals on marine NETs.

The aim of this paper is to investigate how governance frameworks might deal with imagined or anticipated technoscientific trajectories for ocean-based NETs and what their ‘responsible’ assessment might entail. To do so, we examine early-stage research projects (both academic and private sector) on the feasibility of different marine NETs, drawing upon interviews with experts (natural scientists, engineers, lawyers, social scientists) involved in anticipating the immediate future of these. We ask: how do projects judge readiness for scaling? (How) do environmental or social implications vary depending on ‘technical’ decisions made? Which scales of impact and time scales do assessment methods consider? How are stakeholder priorities incorporated? What questions of ownership and decision-making authority arise? What is the role of perceived urgency in shaping the scope and trajectory of assessment? We offer a preliminary set of considerations for designing more ‘responsible’ project-level assessment of ocean-based NETs. We also reflect upon the ability of RRI to cope with messy or multidirectional technological trajectories such as these.

Panel ID 655 | Virtual

Anticipation and Imagination: reflecting on an emerging research lens in Earth

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Effects and Effectiveness of Climate Imaginaries

Manjana Milkoreit

University of Oslo

Political processes of creating and contesting shared imaginations of climate futures are of growing importance in the ‘decade that matters’ for climate action and biodiversity conservation. Recent scholarship on climate and sustainability imaginaries has distinguished between techniques of futuring – processes that generate shared future visions in specific groups or publics, the content or substance of imaginaries, i.e., the kinds of ideas about future societies that are shared, favored and fostered by different actors, and imagination infrastructures. While the relevance of imagination and futuring as a public good is undisputed in sustainability scholarship, little is known about the causal effects and comparative effectiveness of different attempts to engage in collective futuring. Here, I address the question of imaginary effects: What kinds of causal work do imaginaries do, what are different ways to understand effectiveness, and what renders one imaginary more effective than others? Drawing on a literature review of the concept of effectiveness from international relations, especially international regimes, and public policy, I distinguish five sets of factors that influence the causal potential of climate imaginaries: factors that relate to (1) imaginary content, (2) techniques/processes of futuring, (3) audiences, (4) institutional

infrastructure, and (5) political context. Describing and relating these five dimensions of causality to each other, I propose a framework for studying the effectiveness of political imagination. This framework enables the development of specific measurement approaches related to the effectiveness of imaginaries and could enable future empirical work. I illustrate this potential of the framework with a proposed measuring approach and related empirical guidance.

874

Imagining better futures for people and planet

Laura Pereira

Wits University

This paper engages with the critical need to unpack and break open the diversity of preferable futures that might be imagined when it comes to relationships between humans and nature. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) expert group on scenarios and models undertook work to co-create desirable scenarios of nature that not only reflect the diversity of values that humans have for nature, but are also applicable in different contexts. The Nature Futures Framework (NFF) is a triangle space with each of the corners representing one of the following value perspectives on nature: Nature for Nature, in which nature has value in and of itself; Nature for Society, in which nature is primarily valued for the benefits or uses people derive from it; and Nature as Culture, in which humans are perceived as an integral part of nature. The aim of the NFF is to provide a simple way to illustrate a complex mixture of values for appreciating nature. It is an actionable framework for opening up more perspectives in the creation of nature scenarios whilst ensuring consistency for models and other research. As we navigate the next chapter in global biodiversity governance, the NFF makes a unique contribution towards

improving imagination and anticipation in the science-policy interface.

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Creative practice, sense-making, and the expansion of imaginaries into the unknown

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¹*Utrecht University*; ²*University of Sussex*

Societal transformations are not simply a matter of moving from current inert systems to a more desirable future. In fact, societal transformations are happening continuously and in all directions. This means that humans have to change the ways they think, feel, relate to, and act in a rapidly changing world. The transformation of everything, combined with the desire to create radically different worlds creates a double uncertainty effect that requires extraordinary levels of courage, creativity, openness, curiosity, and humility and reflexivity about fundamental assumptions. Creative practices can help foster explorations of what futures might be possible - both in terms of desirable futures, and in terms of futures that should be avoided or otherwise pose unforeseen challenges. In this paper, we are specifically interested in the role of creative practices as a source of collective meaning making in the face of uncertainty and complexity. We investigate the case of the Kersnikova Institute, an experimental Slovenian studio working on the boundaries of art, science, ethics, controversy, and futures. We discuss Kersnikova's work through the lens of 'sense-making', using Cynefin framework, and the notion of 'unknown unknowns' to understand how Kersnikova's work expands societal imaginaries. Through this boundary-pushing work of art and sense-making, we seek to offer a new contribution to the theme of imagination and anticipation.

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Creative Practices for Transformational Futures (CreaTures): Understanding reflection

Lara Houston, Ann Light

University of Sussex

Imagining alternative futures has long been central to creative praxis. Professionals working in the fields of art, design, and social change are increasingly using these practices to respond to interlinked ecological and social crises (complex and irreducible phenomena that we term 'eco-social'). Lively strands of research across design and sustainability transformations are beginning to explore exactly how imagination — as an individual and collective capacity — can be stimulated in the process of generating more hopeful futures. And indeed in understanding how alternative futures affect our current conditions. Our research seeks to contribute to these debates by exploring how imaginative futures are made meaningful and connected back to current conditions using techniques of reflection. Our contribution we will extend prior work that argues that reflection is a critical component of imaginative practice. We will bring together a range of perspectives on reflective capacity, from psychosocial approaches, and studies of professional praxis. In addition, we will describe practical techniques of reflection developed in design and citizen-led settings (e.g. Light's group provocations: 'making distinctions', 'making mischief,' and 'making media'.

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The anticipatory governance of sustainability transformations: Hybrid approaches and dominant perspectives

Karlijn Muiderman

Utrecht University

Anticipation methods and tools are increasingly used to try to imagine and govern transformations towards more sustainable futures across different policy domains and sectors. But there is a lack of research into the steering effects of anticipation on present-day governance choices, especially in the face of urgently needed sustainability transformations. This paper seeks to understand how different perspectives on anticipatory governance connect to attempts to guide policy and action toward transformative change. We analyze perspectives on anticipatory governance in a global network of food system foresight practitioners (Foresight4Food) - using a workshop, interviews, and a survey as our sources of data. We connect frameworks on anticipatory governance and on transformation to analyse different perspectives on the future and their implications for actions in the present to transform food systems and offer new insights for theory and practice. In the global Foresight4Food network, we find that most foresight practitioners use hybrid approaches to anticipatory governance that combine fundamentally different assumptions about the future. We also find that despite these diverse food futures, anticipation processes predominantly produce recommendations that follow more prediction-oriented forms of strategic planning in order to mitigate future risks. We further demonstrate that much anticipation for transformation uses the language on deep uncertainty and deliberative action without fully taking its consequences on board. Thus, opportunities for transforming future food systems are missed due to these implicit assumptions that dominate the

anticipatory governance of food systems. Our combined framework helps researchers and practitioners to be more reflexive of how assumptions about key human systems such as food system futures shape what is prioritized/marginalized and included/excluded in actions to transform such systems.

Stream 5 Adaptiveness and Reflexivity

Panel ID 500 | Onsite

People and communities in local environmental governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Indigenous Perspectives in Drinking Water and Climate Change Resiliency

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¹Mount Royal University, Canada; ²University of Regina, Canada; ³James Smith Cree First Nation, Canada

Debilitating climate change struck several Indigenous communities across Canada that were costly in terms of human life and infrastructure. Severe drinking water crisis like these are expected to happen more frequently, and be more widespread, under a rapidly changing climate. Indigenous communities are particularly vulnerable to water sovereignty, yet have limited capacity to mitigate them. Strategic community-led and community-engaged decisions need to be made about drinking water crisis management. The problem, however, is that the majority of attention to drinking water crisis management has focused on theoretical solutions – reactive, command and control strategies – versus more strategic approaches to drinking water crisis management that focus on enhancing community resiliency. Further, there are few participatory, strategic tools and frameworks available to support such important and timely policy development initiatives.

METHODOLOGY/PROCESS

Following a relational theoretical framework, we used story sharing as our research methodology. Drawing from a relational framework, our goals were honour, respect, and deep listening to Knowledge-keepers, Elders, and leaders' stories in the story-sharing process. This research focused on the Indigenous understanding of Indigenous philosophies of water, climate change, and water management and sustainability related to the interactions and inter-dependencies with Indigenous environmental and cultural value protection.

RESULTS/OUTCOMES

The research result shows that Indigenous communities are well prepared to guide, lead, collaborate and make significant contributions to develop their sustainable drinking water resilience. With the support of Treaty right Indigenous Elders and Knowledge-keepers, Indigenous leaders and youths are ready to focus on Treaty relationships, building community capacity, community engagement, develop connection among FN's communities band offices, Indigenous natural resource management NGOs; policy dialogue with FN, NGO, industry, government, community, and agricultural representatives regarding consultation practices and industry relations; interviews with decision-makers, workers, entrepreneurs, consultants, traditional land use practitioners, traditional environmental knowledge (TEK) holders, and industries and governments representatives regarding assessments; legal, political/economic, and policy research to fully address the power, profit, and justice dimensions of energy impacts, benefits, approvals, case law, and public engagement; assessment of partners' needs and resources regarding potential future TEK studies and/or Indigenous/public policy studies.

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The Meanings of Community-led Climate Change Resilience: A Case Study with Indigenous and Minority Communities in Bangladesh

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³Chakma Indigenous Community

Climate change poses a growing threat worldwide, particularly it directly threatens Indigenous and minority peoples in Bangladesh, who are uniquely vulnerable to climate-related events that affect their practices, lifeways, self-determination, and physical and cultural health. Following Indigenous and relational theoretical frameworks, we (Indigenous and non-Indigenous scholars, Elders, and leaders) explore the meanings of community-led climate change resilience from and within Indigenous and minority perspectives. We used traditional story sharing, land-based conversation, deep listening, and reflective reflections to achieve our research goals as our research methods. In addition to our reflective learning, we collected 20 in-depth stories from Indigenous and minority Elders, Knowledge-keepers, and leaders in Bangladesh. Our collective research findings show how to rethink, reshape, and reclaim the meanings of climate change resiliency within and from the Indigenous and minority ways of knowing. Indigenous and minority communities see that their ways of knowing and doing are innovative and effective for their climate change adaptations. From this research, we also learned that Indigenous and minority perspectives on climate change resiliency could provide creative and timely solutions, self-determination for the community, and practical community-led actions for developing climate change resilience. We hope our collective learning research from and within Indigenous and minority communities may be helpful to transform the meanings of climate change resilience, governance, policy and

practices in the community, nationally and internationally.

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Co-evaluating a water governance process in the development of locally integrated catchment plans

Morten Graversgaard

Aarhus University, Denmark

The Ryå stream is one of the largest streams in the northern part of Denmark. It runs through two municipalities and is challenged by multiple environmental stressors, which have resulted in poor ecological status and increased flooding of farmland. For these reasons, the inter-municipality organisation, the Limfjordssecretariat, aims to assist the two municipalities in the Ryå catchment to work more holistic and ecosystem oriented with the stream across administrative boundaries and sectors in a project called the Ryå project. The aim of this Ryå project was to develop an integrated catchment plan together with stakeholders. In 2018, the Ryå project was initiated as a collaborative governance pilot case study with the aim of developing an integrated catchment plan for the Ryå. This paper evaluates the process and co-evaluates (researchers evaluate together with stakeholders involved) the process of involving stakeholders in the development of integrated catchment plans. Results from the initial evaluation (first order learning) and the co-evaluation (second order learning) will be presented in this paper and serves as a social-learning process framework for co-developing integrated catchment plans. Results indicate that: 1) When dealing with multiple issues and involving multiple stakeholders at different governance levels, it is important to improve the integration and communication between the different levels, which require a coordinated approach. Working with multi-level governance structures: intermediary organisations and partners are important for hosting and facilitating multi-level projects that cross different administrative boundaries. 2)

Facilitation of complex multi-level processes takes time and close interaction between all stakeholders. Facilitation can be improved by shared preparation and implementation of meetings. 3) Tools in the form of a dynamic stream model and a basic analysis of the catchment is important for developing a common understanding of “facts” about the stream and catchment. These tools serve as basis for the discussions and knowledge generation for the stakeholders. The results from the evaluation were presented to the stakeholders in a co-evaluation process. These second order learnings through the co-evaluation process provides insights on how to improve stakeholder involvement in water governance.

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Salmon at the center: Indigenous laws and liminal governance on the South Coast of British Columbia

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What can the interconnected relationships between humans, fish and floodplains tell us about adapting to climate change?

Watersheds and intertidal areas are good physical representations of the figuratively complex and boundary-spanning work involved in climate adaptation governance. When we zoom in on the exchanges/processes occurring in the spaces between land and ocean, valuable insights into liminal governance processes reveal themselves, as well as good advice from the natural world on how to re-tool our broken relationships with other living things.

On British Columbia’s South Coast, there is a wealth of planning knowledge held in Indigenous communities, who have been stewarding their traditional lands and waters since time immemorial. For the many First Nations living along the province’s vast coastline or in its connected interior waterways, stewarding abundant fisheries and safeguarding fish habitat are not only important measures of community well-being,

they are also expressions of Indigenous laws and sovereignty.

By synthesizing a selection of Indigenous legal literature relating to fisheries governance and watershed management, I will explore how multi-level climate networks can learn from traditional fisheries experts - and the fish themselves - on how to connect with one another in boundary-spanning work. I am interested in the realm of possibilities that arise when we explore the spaces in-between, and I see coastal waterways as unique sources of inspiration for governance innovation.

As climate adaptation planners continue to grapple with the inevitable challenges that emerge when multiple levels of government seek to co-govern shared spaces, fish are there to offer important lessons in cooperation, flexibility, and power-sharing. When we plan for fish and fish habitat from a place that respects legal pluralism, a range of useful trade-offs and co-benefits will reveal themselves in both physical and conceptual environments - strengthening ecosystems of support and mutuality across species, scales, disciplines and worldviews.

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People, rights, and law under environmental change

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Where is Sustainability in the Resource Curse Debate? Rethinking academic framing on resource governance

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The framing of the resource curse in the academic debate has rapidly evolved since Auty (1993) argued in his so-called resource curse hypothesis that abundant natural resources do not produce favourable conditions for long-term economic growth in some countries. This article analyses how the resource curse has been framed in academic debates and how the concept of sustainability is framed therein. We applied discourse analysis to study this by drawing on selected academic articles from the Scopus database through a systematic literature review method. Initially, we found and quantitatively analyzed 1.316 articles related to the resource curse. We narrowed down this selection based on academic influence, representation per publication year and keywords to 258 articles, which we qualitatively and quantitatively analysed. We analysed storylines around how scholars define the resource curse, its causal mechanisms, scope and the steps proposed to address the curse. We found that economic growth is the dominant indicator to define the curse; however, causal mechanisms, the scope, and the steps to address the curse vary. Apart from economic growth, other indicators such as democracy, conflicts, institutional quality, social welfare, gender equality and environmental quality are used to frame the resource curse, though to a much lesser extent. Of these, institutional quality is most frequently mentioned in explaining the causal mechanisms of the resource curse and how to address it. Sustainability is still framed in a limited way by a prime focus on sustainable economic growth and political administration boundary, while other (environment and social) dimensions of sustainable development are much less significant in the resource curse debate. We lay out some broader policy and research implications and argue that policymakers and scholars should look beyond narrow economic analyses of the resource curse to rethink multi-level natural resource governance amid earth system transformation in the Anthropocene epoch.

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Cyber Environmental Law in an Earth System Law perspective: A branch of Law for a future of exponential technological evolution and unpredictable climate change consequences

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A new branch of Law called Cyber Environmental Law.

Cyber Environmental Law is a viable branch of law in the intersection of digital and environmental law, as a systematic legal approach capable of offering a comprehensive legal response to the intertwined phenomena of ecological crisis and technological evolution. It is possible to apply such reasoning in the scale of domestic Law, in theory of law and theory of justice, international law, and Earth System Law.

Why?

A branch of law dedicated to the study of environmental protection and new technologies is necessary because environmental law lacks the tools to understand new technologies. The separation of the fields of digital law and environmental law causes alienation and intensifies cognitive biases.

Environmental law cannot tackle the challenges of transhumanism and bioengineering made using nanotechnology without implementing in it a true study of digital law. Digital law cannot face the environmental consequences of new technologies without a comprehensive study of environmental law.

Cyber Environmental Law includes the interaction of climate change and technological issues, the environmental footprint of artificial intelligence, blockchain, cryptocurrencies, transhumanism, and biotechnologies. It's essential to ensure that environmentalists will not become outsiders in discussions around policy, decision-making, lawmaking, and jurisprudence around new technologies.

How?

Rawls' theory of justice and legal constructivism point to the need for a reflection on a viable Cyber Environmental Law, the intersection of digital law and environmental law, capable of providing legal solutions to complex systems.

Environmental law has developed principles and concepts. Concepts are structures that might figure in legal texts but have their value determined externally, e.g. from science. It's the technique through which environmental law adapts – through outsourcing – and prevents its own obsolescence. They are scalable and can be applied to Cyber Environmental Law.

The core values of environmental law – its concepts and principles – are the axiological foundation for Cyber Environmental Law, with environmental justice at its center and climate justice as its core. Earth System Law is an ideal framework for this.

It must be at the core of Cyber Environmental Law to combat climate injustice, especially when the energy consumption, labor issues and waste problems of new technologies disturb most of all the developing countries, those more affected by climate change.

Conclusion.

Cyber Environmental Law provides the necessary tools for the adequate adaptation of legal science for future challenges in an Earth System Law perspective.

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Human rights in climate change adaptation policies

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Human rights have potential to enhance adaptation efforts because they reflect internationally agreed upon standards of human dignity, aim to advance formal and substantive forms of equality, and can be used to hold public and private actors accountable for breaches of duties owed to rights-holders.

The potential of rights-based approaches to climate adaptation is also tied to the evidence that climate vulnerability is shaped by differences in the adaptive capacity of affected populations. In this study we assess whether, how, and under what conditions key national adaptation policies adopted around the world recognize human rights principles and standards. Using a systematic policy coding protocol, we analyze 214 adaptation policies from 145 countries to examine whether there is substantive recognition of the vulnerability and needs of marginalized groups, and procedural inclusion of marginalized groups in adaptation planning and decision-making. We also develop a series of hurdle models to examine whether hypothesized national predictors of adaptation action are associated with attention to human rights principles and standards. Results indicate that while governments are obliged under the Paris Agreement to respect human rights in their adaptation policies and actions, few countries are abiding by this obligation. Only one-third of countries refer to respect, promotion, or consideration of human rights within their adaptation policies. Furthermore, while most countries included here recognize specific conditions of different vulnerable groups in their policies, there is minimal evidence of their inclusion in the adaptation planning and decision-making process, and half of countries fail to identify specific measures that will be developed to reduce their vulnerability. Finally, none of the strategies that we reviewed pointed to the creation of accountability mechanisms for redressing harms that may arise due to adaptation actions. Our hurdle models indicate that countries with lower adaptive capacity are more likely to include attention to human rights norms in their adaptation strategies, but countries with higher adaptive capacity appear to achieve a more substantive level of consideration for these norms.

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The Interplay of Climate Adaptation and Human Rights across Multiple Levels of Governance: Insights from a Systematic Analysis in India

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Scholars increasingly understand climate vulnerability as ultimately mediated by underlying differences in the adaptive capacity of affected populations. In particular, marginalized groups, such as women, children, the elderly, Indigenous communities, the poor, racialized individuals, and persons with disabilities, face multiple and intersecting barriers to climate adaptation. The challenge of meeting the needs of marginalized groups in the context of the climate crisis is further complicated by the complex distribution of responsibilities for addressing different forms of climate impacts and inequalities across governments, departments and agencies that operate at different levels of governance. Despite the importance of understanding and meeting the needs of marginalized groups in strategies for climate resilience, little is known about whether, to what extent, and why climate adaptation policies are responsive to human rights norms and structural inequalities in society. Our paper addresses this gap in knowledge by systematically assessing whether, how, and under what conditions the adaptation policies adopted by the federal and state governments in India recognize and protect human rights principles and standards. We begin by providing an overview of the complex multi-level system of climate adaptation in the context of Indian federalism. We then set out the key elements of a rights-based approach to adaptation governance under international and Indian law. After describing our research design, we present the findings of a systematic content analysis of the integration of human rights in adaptation

policies enacted by the federal, state, and union territory governments in India. Next, we present and assess several hypotheses relating to the contextual factors that make it more or less likely that state governments will consider and integrate human rights in their adaptation policies. In doing so, we specifically look at the role that pre-existing social, economic, and institutional inequalities may play in a state's decision to address or ignore the rights of marginalized groups in the context of climate adaptation. We conclude with a discussion of what the interplay of human rights and climate adaptation policy-making in India reveals about the nature of climate adaptation as a multi-level process and its relationship to structures of inequality in society.

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Climate adaptation: emerging experiences and insights

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Climate change adaptation and its Local Transformation: A Case of Khyber Pakhtunkhwa, Pakistan

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Climate change adaptation policies are key to effectively tackle climate change. However, there are multiple hurdles and challenges in implementation of climate adaptation policies especially at subnational level. This study contributes to establish a framework to understand the climate adaptation at subnational level by studying the case of the *Khyber Pakhtunkhwa* (KPK) province in Pakistan.

Pakistan is a developing and one of the most vulnerable countries to climate change. The provincial/subnational governments are

responsible for formulation and implementation of climate change and other related policies in the country. The KPK province is one of the most affected provinces due to climate change. The KPK government has taken some promising initiatives to manage the negative consequences of climate change. It is important to understand the implementation of climate adaptation policies and its transformation of adaptation in the province of the KPK.

The study focuses to explore the governance measures related to climate change adaptation & its transformation in the KPK. More specifically, the study investigates the drives and motivations behind the emergence of climate change adaptation in the province. Additionally, it discusses the key challenges and opportunities for implementation of climate adaptation policies in the province.

The government in the province is actively engaged to address climate change. It established provincial climate change policy with proper consultation of related stakeholders. The study finds that government is incorporating local knowledge in action plans by exploration of hidden adaptation at local level. A massive level awareness campaign is launched by engaging local media to educate public about the climate change. Climate related curriculum is being devised at universities level to offer academic courses on climate change and climate adaptation. One of another important initiatives among others is to establish adaptation plans at district level. The major drivers identified behind these initiatives are the political will of top leadership in the province, climate vulnerability, and existing threat of climate change. The major challenges identified are lack of coordination in line departments, weak intergovernmental relations, financial constraints, and limited research in the area.

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The Diffusion of Climate Change Adaptation Policy at the Local Level: Evidence from the State of Hessen, Germany

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There is a growing understanding that climate policy development has to rely on combined decentralized efforts and therefore has to take place at multiple levels and places including the local level. The hope of many emerging governance efforts such as municipal and city networks is that policies will then spread further and diffuse. Thus, policy diffusion has become a major governance approach in local climate policy. However, whether and how climate policy diffusion works remains severely underexplored. The present paper addresses this gap by studying the spread of adaptation policies at the local level, an integral part of climate policy where top-down governance is scarce and policy needs and effects are highly localized. Drawing on original representative survey data from municipalities in the State of Hessen in Germany (N=215), we test among several interest-, rights-, ideology-, and recognition-driven diffusion mechanisms (linked with the better-known mechanisms of coercion, learning, competition, and emulation) and their potential contribution to spreading local climate change adaptation policy. Our analysis relies on spatial regression models and connectivity matrices informed by multiple diffusion mechanism. We also study whether these mechanisms are conditional on socio-economic characteristics such as the size of municipalities. The results advance our understanding of policy diffusion by showing the (relative) contribution of different diffusion mechanisms for spreading adaptation policies. They are also important for policy-makers

wishing to bank on policy diffusion to advance local resilience to climate change impacts.

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An evaluation of climate adaptation policy in Britain and Ireland: Do governance approaches control enabling conditions for successful climate adaptation?

Denise McCullagh

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As the climate continues to change at an ever increasing rate, it has become even more essential that we learn to adapt to these changes as mitigation alone is no longer sufficient to halt many physical hazards, which are in turn giving rise to non-linear socioeconomic impacts and deepening inequalities as system thresholds are continually breached. Although there has been an increasing focus on planning for adaptation to climate change impacts in recent years, implementation is still piecemeal in many areas. As it is often policies and legislation that help drive climate adaptation, it is imperative that these policies are held to the highest standards to ensure effective and just climate adaptation is supported.

Adaptation policy is a broad concept that incorporates a number of facets, but overall it is defined as strategic, international to-sub-national guidance and/or legislation pertaining to how sectors and geographies should adapt to current and future climate change. Divergences in policy development and implementation are indicative of differing political structures, socioeconomic conditions and values.

To explore how each of the five jurisdictions areas within Britain and Ireland (Ireland, Northern Ireland, Scotland, England and Wales) have adapted to the challenge of climate change we carried out an assessment of the adaptation policies of each of these regions evaluated against a list of essential criteria for successful adaptation. The findings of this research will be used to explore the role

national and regional governance has played in driving inclusive, sustainable adaptation in each area and whether place-based and context specific factors that are proving challenging for adaptation action can be overcome with proactive approaches to adaptation at a national and sub-national level.

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Drivers of stagnation – A set-theoretic analysis of the determinants of climate adaptation policy lock-ins

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With the climate crisis looming large over the world's societies, immediate action is required to prepare for and adapt to current and future climate change. Despite increasing calls for action, certain policy sectors remain slow or even resistant to change, and limited action on the part of policy makers and authorities prevails. Current understanding of the drivers and determinants of such policy inaction remains arguably limited, with research tending to identify static 'barriers' to adaptation. However, to go beyond these narrow, linear barriers, Earth System Governance scholars more recently brought forward the concept of climate adaptation policy lock-ins. From this perspective, the adaptation gap is determined by path-dependent dynamics of self-reinforcing mechanisms that narrow the opportunity space for alternative actions and potentially lock in specific pathways within policy subsystems. Such self-reinforcing mechanisms are not limited to the political realm but emphasize the feedbacks that link policy decisions and institutions to infrastructures and technologies, as well as human behavior, routines, and practices. Together, these

constitute strong forces of path-dependency and system rigidity that stabilize incumbent paradigms and policies, blocking changes necessary for climate adaptation.

With this study, we aim to advance the lock-in perspective by exploring the systemic drivers that determine these self-reinforcing dynamics through a crossed, comparative design, applying set-theoretic analysis. Considering 18 cases comprising of six climate adaptation problem domains (coastal protection, water scarcity, forestry, biodiversity conservation, heat stress, mental health after extreme weather events) in three countries (UK, Netherlands, Germany) each, we pay particular attention to the institutional, physical, and societal resources that are maintaining incumbent policies and paradigms. Such resources include e.g. dominant types of knowledge, socio-cultural beliefs, or governance architectures, that together are at the center of lock-in dynamics and drive their reproduction. By means of Qualitative Comparative Analysis (QCA) we distill archetypical patterns of how these resources co-occur in order to identify overarching patterns of drivers of lock-in dynamics. Understanding these dynamics provides the fundament for designing transformative policies and fostering those specific capacities of adaptiveness and reflexivity that are instrumental for closing the climate adaptation gap.

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Drivers of adaptation architecture in coastal flooding communities: Evidence from the gulf coast

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Multi-actor and multi-jurisdictional architectures are necessary to effectively cope with the impacts of climate change and increase community resilience to coastal flooding. As the impacts of climate change increase in coastal regions worldwide, there is a growing impetus to develop knowledge and

practices that can support adaptation decisions. The explicit inclusion of co-production emphasizes a science for adaptation that bridges the science-policy-practice divide and links interdisciplinary researchers to stakeholders. Our project focuses on the communities of the US Gulf Coast, specifically Beaumont, Texas and Weeks Bay, AL. Our core research question asks: what are the main drivers of co-production networks – in both planning and recover – and how do different perceptions of risk drive network formation? We answer this question through a series of semi-quantitative fuzzy cognitive mapping exercises and a network survey of stakeholders across each study site. We apply exponential random graph modeling to understand how variations in risk perception drive network formation. Despite sizeable literature on adaptation governance, there exist significant gaps in our knowledge about how architectures of co-production are formed when it comes to climate adaptation. This is particularly important for disadvantaged community organizations that are often left out of decision-making processes.

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International coordination for sustainable development

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Mismatches in social-ecological knowledge as a barrier to reflexive and adaptive international development cooperation

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International development cooperation increasingly leverages systems thinking as its overarching lens, allowing for adaptiveness and reflexivity in a constantly changing world. Systems thinking in international development cooperation highlights the importance of embracing multiple perspectives on the links between society and nature in order to fully assess synergies and trade-offs between the effects of development projects. However, these efforts can be hampered by a mismatch between how social-ecological systems in the areas of development project implementation are perceived and understood by international development cooperation actors and by local actors, across multiple contexts and scales.

In this contribution, we present the results of participatory systems mapping of the social-ecological system of a recipient area of international development cooperation, comparing the perspectives of development actors and local citizens and authorities. Specifically, we focus on the Mongu area in Western Province, Zambia, comparing participatory systems mapping and related knowledge co-development in collaboration with three actor groups, (1) Czech international development cooperation actors based in Czechia, (2) Czech international development cooperation actors originating from and based in Zambia, and (3) local actors in the Mongu area, spanning from local citizens and experts to representatives of customary and statutory governance structures.

The results show that all types of actors acknowledged the key importance of social-

ecological linkages for the outcomes of development projects. However, not all international development cooperation actors have fully embraced the importance of interactions between society and nature in their complexity in designing and implementing international development cooperation projects. Specifically, we illustrate that the understandings of social-ecological realities differ along several dichotomies, among others, between international development actors and local actors, and between holders of power and disempowered actors. In particular, we identify mismatches between how different actors reflected on the role of customary and statutory governance processes in the recipient areas, and what role was assigned to values, rules and knowledge. One of the major barriers to filling this gap was related to the processes of knowledge co-production and creating spaces for sharing and operationalizing social-ecological knowledge in framing, designing, implementing and assessing international development projects. This research demonstrates that nurturing knowledge co-production and creating dedicated platforms for related processes is key to allow for reflexive approach and reaching mutual understanding in the interpretation of social-ecological linkages. Such understanding is vital for international development cooperation to help build sustainable outcomes across contexts and scales.

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Reflecting on the lifecycle of social-ecological knowledge in international development cooperation

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The design and implementation of development cooperation projects focusing on sustainable livelihoods are contested by multiple issues, ranging from questioning the past and recent development paradigms and the fundamentals of development cooperation itself to projects' intended and unintended consequences, including sealing power disbalances. Many of these issues have stemmed from (a) the lack of acknowledging complex social-ecological links between societal and environmental dynamics, and (b) the lack of robust and legitimate processes to co-produce knowledge on these links by multiple actors in international development cooperation, including citizens, experts, policy-makers and researchers in both the "donor" and the "recipient" countries.

In this contribution, we critically reflect on the practice of Czech organisations engaged in the development cooperation and illustrate how nesting development interventions within social-ecological system thinking is contested by (1) limited recognition of the need to explicitly embrace knowledge generation and knowledge flow mechanisms; (2) fuzzy knowledge transfer across different project implementers (including among particular entities) and social and environmental scientists resulting from underdeveloped cooperation with academia; and (3) insufficient resources for an establishment of a multistakeholder process of knowledge co-creation engaging with parties on both, "donor" and "recipient" side. We explore the lifecycle of knowledge on social-ecological linkages within Czech development cooperation projects and their wider context, building on a transdisciplinary research process with key actors of Czech development cooperation. In addition, we unravel the principles, biases and dynamics of knowledge co-creation while exploring the interactions of diverse perspectives on the local realities. Finally, by reflecting on the knowledge flows across diverse actors, scales and knowledge systems, we identify key barriers and enablers of the knowledge co-creation process and provide lessons learned on the functions of development-related science-practice interface, transferable to other decision-making and practitioner contexts.

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Reflexive governance for the UN Sustainable Development Goals

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The 2030 Agenda for Sustainable Development, adopted by the United Nations in 2015, presents a comprehensive set of 17 Goals to address major global challenges, including poverty, health, inequality, climate change, environmental degradation, peace and justice. Characteristic of the Sustainable Development Goals (SDGs) is the novel 'governance through goals' approach. In contrast to rule-based governance, goal-based governance works through establishment of priorities, i.e. the goals to be attained, for which resources and attention are mobilised to achieve them. In this paper, I propose 'reflexive governance' as a blueprint for SDG transformation governance in the remit of the 'governance through goals' approach. Given the complexity and interconnectedness of sustainability problems (and the SDGs), reflexive governance refers to a governance mode that is capable of creating feedback on existing regulatory frameworks and institutions with the aim of stimulating reflection and setting off transformation processes.

The paper will elaborate the notion of 'reflexivity' in different dimensions – knowledge, power, values and needs, and practices and culture – and with regard to different challenges that the SDGs pose. In the knowledge dimension, SDG governance requires dealing with interlinkages between the goals, and reflexive governance can be interpreted as a form of complexity management. In the power dimension, achieving the SDGs requires building partnerships, and here reflexive governance refers to forms of cooperation and orchestration. In the values and needs dimension, the SDG challenge is to 'leave no one behind', and reflexive governance contributes to inclusiveness and empowerment of actors. Finally, in the cultural dimension, achieving the SDGs requires broad

transformations in our societies, to which reflexive governance can contribute by promoting experimentation and learning processes. In all these dimensions, reflexive governance will be elaborated as a blueprint for SDG governance, using the transformation of food systems as an example to study expedient governance tools and arrangements that advance the transformation towards sustainability.

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Designing a fair and feasible loss and damage financing mechanism

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Vulnerable countries and communities are already experiencing severe losses and damages from unavoidable climate change impacts, and they urgently need finance to support their recovery, protect human rights and development gains, and prepare for future displacement and livelihood losses. Eight years after the Warsaw International Mechanism on Loss and Damage was established, efforts to mobilise finance for affected countries remain stalled, mainly due to disagreements over liability and compensation. Breaking this stalemate is a priority for developing countries and may be critical to the perceived legitimacy of the climate negotiations.

This paper examines how a fair and feasible financing mechanism for loss and damage could be developed, identifying pathways forward to advance loss and damage finance within the existing constraints, without closing off future, more equitable alternatives. It draws on a combination of a comprehensive literature review, semi-structured interviews, stakeholder engagement and observation of negotiations to present a set of five key principles that should underpin any mobilisation of loss and damage finance.

Overall, the paper argues that loss and damage finance could be mobilised imminently on the basis of solidarity, accounting for local needs,

historical responsibility and the “polluter pays” principle, and the well-established notion of “common but differentiated responsibilities and respective capabilities”. Recognising the urgency of the need, the paper suggests that countries can take a first step by pledging bilateral finance for loss and damage. It argues that national-level loss and damage systems should be set up to thoroughly assess needs within countries, respect principles of country ownership, additionality and transparency, and ensure that finance reaches the most vulnerable communities.

Given the scale of global needs, the paper stresses that a formal, dedicated loss and damage finance mechanism should remain the long-term goal, and suggests pathways forward within the climate negotiations. These insights provide useful research-based policy recommendations to inform ongoing processes within the climate negotiations on loss and damage finance, such as the upcoming Glasgow Dialogue.

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Reflexive and adaptive governance practices

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Evaluation and reflexivity in European environmental governance: the case of the Water Framework Directive

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The governance system of the EU, in which horizontal relationships operate at multiple levels between EU institutions, states, sub-states actors and individuals, has been called “experimentalist” or “polycentric” to reflect its complex and innovative architecture. Within

this system, European laws set objectives and measures which are recursively revised by these different actors, including independent institutions involved for the sake of objectivity and fairness. How do European environmental policies adapt to societal changes and to evolutions at the member state level where they are locally implemented? Their open-ended formulation leaves room for periodical evaluation, but how much do we know about the processes of internal analysis and how they are conducted? In particular, how are the technical assessments taken into account in the revised policies? In this paper, we take the case of the Water Framework Directive (WFD) as an example of how the EU has “experimented” many adaptive and reflexive ways to evaluate EU water policy. Its innovative 6-years reporting cycle in the form of River Basin Management Plans (RBMPs) tracks the progress made towards the objectives of the Directive (Article 15). Additionally, the Common Implementation Strategy (CIS) prepares resource documents supporting WFD implementation. A “Fitness check” opens possibilities to a larger audience to give feedbacks through online consultations. Finally, the European Environmental Agency (EEA) produces independent reports on the state of European waters, based on the individual reporting of national environmental agencies. A constellation of experts from national agencies, independent institutions (e.g. EEA) or EU-led working groups (e.g. CIS) is therefore bringing onboard different kinds of expertise. They have allowed the adaptation of the RBMPs, funding and legal adjustments, and recurrent updates of the Directive’s annexes. However, could these modifications really foster a better inclusion of national contexts and local obstacles to the implementation of the Directive? This paper will track the internal policy adjustments that have been made through this evaluation process, and what factors have favored adaptiveness and reflexivity in the revised text of the WFD. It will give particular attention to the inclusion of practitioners and experts feedbacks into policy revision, revealing the importance of knowledge sharing between scientific communities in enhancing the capacity of the WFD to survive and adapt in the very diverse

cultural, hydrographic and economic contexts of the member states, but also to global systemic change such as climate change.

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Reflexive governance for implementing UN SDGs based on EPI approach: Assessing capacities in Bulgaria

Aneliya Simeonova Paneva

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On 25th September 2015, the 193 Member States of the United Nations adopted 17 Sustainable Development Goals (SDGs) aiming to resolve pressing socio-economic problems, while sustaining life-support systems. The collective commitment underlines the need to integrate various policy fields, thus posing a significant challenge for policy-making and societal development at the same time. No consensus on how to pursue such an integrated approach has been reached, yet, it is generally accepted that policy coherence and coordination represent the appropriate form of integration in this context. While these approaches characterize good policy-making, they fail to recognize the ‘principal’ nature of environmental objectives in the SDG framework. This is a major drawback because putting all objectives at the same level would cause to overlook the real issue of sustainable development, namely shaping society within Earth’s biophysical limits and thus, will not lead to the achievement of the transformative purpose of the global agenda. Drawing on the core idea of ecological economics that society and the economic activity are embedded within the natural environment and are bound by its physical limits, it is argued that prioritization of environmental objectives as a form of integration is needed for the successful SDG implementation. This underlying normative assumption brings important implications for the governance mode and capacities that need to be created in domestic systems. By linking the concept of

environmental policy integration (EPI) to literature and research on reflexive governance and social learning, the paper lays down a set of criteria to assess the cross-cutting capacities of countries. These criteria are applied to Bulgaria in a national context, representing an exemplary country from the Eastern Enlargement of the European Union. Based on a qualitative approach, data collected during the period 2015-2019 showed that despite political willingness, the necessary human, institutional and financing capacities of national authorities have not been developed. The present paper aims to compare these data to more recent data, following the formation of a new government in 2021. New insights are provided regarding the government response to the national SDG implementation and the capacities established in this respect. On these grounds, policy recommendations are given.

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Anthropocene Audits

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“Democratic audits” of (national) political systems are well-established, and have been carried out in several countries, subjecting political systems to assessment on a number of dimensions relevant to democracy (such as electoral competition, human rights, meaningful participation). We propose the idea of Anthropocene audits in order to assess the fitness of institutions (most of which developed under perceived relatively benign Holocene conditions) in light of the requirements of this emerging epoch. We begin with the idea that the first virtue of social institutions in the Anthropocene is ecological reflexivity. Reflexivity means the capacity of an institution, structure, or set of ideas to reflect on its own performance and core commitments, and if necessary, transform itself in response. Ecological here means openness to feedback on the condition of the Earth system, and the capacity to anticipate and forestall potentially catastrophic state shifts in that system.

We unpack ecological reflexivity first into the three requirements of recognition, reflection, and response, then further into a more precise set of criteria that could be applied to political systems at all levels, from the local to the national to the global. So for example recognition can involve the degree to which particular dimensions of crisis in the Earth system (formalized as planetary boundaries) are covered in the media, are on the agenda of legislatures, governments, and governance networks, feature in election campaigns, arise in opinion polls, and are the subject of political activism. Recognition also requires the linking of catastrophic events and developments (such as coral reef bleaching and changes in fire regimes) to Earth system change; and scientific capacity to discern risks and developments. The presence and reach of discourses, framings, and vested interests that suppress recognition also need ascertaining.

We illustrate all this through reference to some results from the beginnings of an Anthropocene audit of governance in Australia (encompassing NGOs, movements, and the private sector as well as government). Among other problems, Australia illustrates what happens when issues such as climate change are processed through an adversarial system and seen as opportunities for partisan and sectional advantage, rather than as collective problems to be solved. Some recommendations are developed as to how this could be overcome.

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The role of adaptive water governance in enhancing the transition towards ecosystem-based adaptation

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Climate change is increasingly recognized as one of the greatest threats to the sustainable governance of water resources and the attainment of sustainable development. In

recent decades, growing realization of the inadequate progress in global climate change mitigation efforts has generated interest in climate change adaptation policies among scientists and policy makers. Climate change adaptation refers to the processes, actions and outcomes associated with how households, communities and societies learn and adjust to climate change impacts in order to reduce harm and take advantage of opportunities. However, conventional adaptation policies have been critiqued for their top-down, expert-driven and narrow sectoral approaches that often lead to maladaptive outcomes. As a response, research has focused on sustainable forms of climate change adaptation that could promote long term ecosystem health and social equity. In this regard, the concept of ecosystem-based adaptation has been receiving attention as an integrative framework for maintaining healthy ecosystems with the aim of building the resilience and reducing the vulnerability of social and ecological systems to climate change impacts. However, there is currently an inadequate understanding of the institutional requirements for the transition toward ecosystem-based adaptation. A promising institutional mechanism for addressing these governance challenges is adaptive water governance, a governance mechanism that relies on flexible, multi-level institutions to connect actors across multiple scales in managing conflicting values and uncertainties in ecosystem-based management processes. The key features of adaptive water governance include the pursuit of integrated management goals, reliance on polycentric institutional structures, utilization of analytic deliberation processes, and mobilization of diverse types of knowledge. The paper discusses four ways in which the key attributes of adaptive water governance could contribute to social-ecological transformation in water resource systems towards ecosystem-based adaptation: (1) creating awareness about climate change through social learning and the integration of diverse sources of knowledge; (2) generating interest for policy change through the provision of economic and non-economic incentives; (3) creating opportunities for change through the promotion of vertical and

horizontal interactions among actors; and (4) building capacities for change through enhanced access to relevant institutions and resources.

Panel ID 506 | Onsite

Governing nature and biodiversity in a changing world

Panel Day and Time: TBD

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Biodiversity mainstreaming in development cooperation: linking groundwork with the new UN Global Biodiversity Framework

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Mainstreaming biodiversity in development cooperation activities is called for by scientists and policy-makers alike, as the current biodiversity crisis can only be mitigated if the linkages between biodiversity and human wellbeing are acknowledged and strengthened. Donors and recipient of Official Development Aid (ODA) use a range of approaches to 'mainstream' (i.e. integrate) biodiversity into sector-based development. The upcoming 'Global Biodiversity Framework (GBF)' which will be finalized at the 2022 Conference of the Parties of the United Nations Convention for Biological Diversity, will guide future biodiversity conservation actions worldwide and is also expected to strengthen the momentum for effective biodiversity mainstreaming. We present the findings of two of our recent studies on biodiversity mainstreaming. We first conducted a Delphi survey among development cooperation practitioners at the aid provider (donor) side, to gain insight into current and future

biodiversity mainstreaming and its monitoring. Our findings demonstrate that biodiversity mainstreaming indicators remain inconsistent and difficult to compare. The lack of biodiversity data, as well as their low accessibility and suboptimal use, and the inherent complexity of addressing biodiversity loss are challenges. Respondents strongly orient their own biodiversity mainstreaming and monitoring approaches towards international biodiversity governance dynamics. This means that, at least on paper, the ambitions of the GBF are in line with the expectations and challenges of aid providers. Indicator-based monitoring of mainstreaming, and exchange of good practices among aid partners need to be improved though. While this first study provided insight into the challenges and expectations of development actors in general, we also aimed at gaining a better understanding of how biodiversity mainstreaming is actually realized on the field. We therefore zoomed in on the Democratic Republic of Congo (DRC), a highly biodiverse low-income country where people are often directly and highly dependent on biodiversity for their livelihoods. This second study combined expert interviews with an evaluation of environmental impact assessment (EIA) reports. Our findings indicated that biodiversity mainstreaming in the DRC is considered challenging due to enduring contextual (*e.g.* governance) factors. Turning to conducted EIAs, the diversity of framings motivating the uptake of biodiversity is remarkable. Instrumental reasons do not thwart intrinsic motivations –which is indicative of a support base for the non-instrumental value of biodiversity. We conclude by highlighting the need to link biodiversity mainstreaming to the plural valuation of nature and to the GBF, yet at the same time apply, validate and improve mainstreaming groundwork in the Global South.

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Assisted Species Migration and Climate Change: Challenges and Complexities for Ecosystem Governance

Rosalind Warner

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As noted in the Taskforce on Governance of Nature and Biodiversity, new forms and modes of governing nature and biodiversity in the Anthropocene will likely emerge as climate changes intensify. One question arises as to how change occurs and what role might be played by changing norms and practices? International laws and policies reflect prevailing norms around species that are anthropocentric. One example of anthropocentric norms is the classification of ‘alien’ or ‘invasive’ species. Particular classifications of ‘alien invasive species’ focus on how species migration affects human interests, especially around agriculture, pest management, recreation, infrastructure, and transportation. The prevailing norms surrounding species migration are focused on threats to ecosystem services and human needs. Such decisions are inherently ethical, and premised on anthropocentric, rather than nature-centric, concerns. As climate change intensifies, for many species, adaptation responses may be insufficient to enable species protection. Species mobility will increasingly become a factor in survivability. Assisted migration may become more urgent and pressing if survivability is to be achieved. At the same time, the greater complexity of governing highly mobile species will tend to complicate efforts at ecoengineering. These changed circumstances beg the question of which species will be prioritized for protection, management, and migration. What are the implications of this selectivity for nature governance, and what are the prospects for a new classification of species based on nature-centric and intrinsic values? With the rapidly increasing pace of species migration in response to climate change, the

policy and norms around invasive species will likely become an important governance concern. The potential for human-induced climate change to introduce more complexity into the subject of species migration is not being addressed within the prevailing dominant discursive frame of invasive alien species. A more holistic view arising from earth system governance would take note of the complexity of species' responses to climate change, and consider how these prevailing norms might be transformed to reflect the needs and interests of species themselves. This approach would likely permit the expansion of the use of assisted migration as an important tool in nature and biodiversity governance.

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The challenge of multi-level governance of transboundary risks: crisis as an opportunity for learning? The case of the 2018-2021 desert locust outbreak in East Africa

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Desert locusts (*Schistocerca gregaria*, Forskål) are considered by the United Nations to be one of the most destructive transboundary pests that, during a plague, can put people from up to 60 countries at risk of food insecurity. Desert locust governance is a complex problem due to long recession periods between outbreaks, and its multi-continent scale that spans high variability in environmental and socio-political conditions. Biological and technological research has produced great advances in desert locust management, yet, despite the inherent socio-political complexity, there is only limited research on its governance processes. We analysed desert locust

governance during the 2018-2021 upsurge in East Africa using semi-structured interviews with key stakeholders. Our preliminary results indicate that desert locusts can be effectively governed with a combination of a centralised multi-level coordination team and a decentralised country-level monitoring and control effort. There was consensus amongst interviewees that successful desert locust governance requires preventative action. However, in this outbreak, ideal weather conditions, inaccessible breeding grounds due to insecurity, and the unavailability of short-term emergency funding meant only a reactive response was possible. After the UN declared the desert locust outbreak an emergency, funding increased, providing opportunities to develop new technological tools such as drones and crowdsourced data methods, as well as increased research into biopesticides and long-term investments in regional locust centres. The 2018-2021 outbreak attracted new actors to join the desert locust management efforts, which led to some uncertainties regarding the distribution of roles and responsibilities amongst key actors at local to global levels, and subsequently to discussions surrounding the role of international stakeholders. The results indicate that future long-term sustainable locust management requires consistent funding and an instantaneously available emergency budget, as well as a clear understanding amongst all stakeholders as to who will take the central coordination role. This case study provides a good example to further understand the challenges of transboundary pest governance and the opportunities crisis situations enable.

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Natural Asset Management Knowledge Mobilization: A Challenging Dialogue

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Many local governments recognize that it is equally important to understand, measure, manage and account for natural assets as it is for the engineered assets that provide services to their communities. Municipalities are faced with both mitigating and adapting to climate change. Therefore, the need for professional advice on nature-based solutions to manage natural infrastructure and natural assets is becoming more urgent. Evidence-based professional standards and capacity-building (including knowledge, academic programming, training and certifications) are prerequisites for natural assets management (NAM) to become a broadly-based practice in Canada. One channel to guide capacity building and to integrate NAM practice into traditional asset management is by framing NAM competencies to align with existing professional advice and norms.

Taking a participatory action research approach, structured discussions were initiated using a format from the Challenge Dialogue System (CDS™) to allow groups to test the nature of the natural asset management challenge, its context, crucial assumptions, and expectations. Knowledge mobilization is integrated into the project design to benefit both research outcomes and knowledge users in NAM practice and policy, such as staff in local government and First Nations, natural resource and asset managers, and representatives in peak industry bodies in asset management. This dialogue has an explicit goal to help build a strong case for local governments to implement NAM capability and lays the groundwork to explore user needs related to NAM training in Canada.

Based on the response from 117 invited participants, this paper is focused on addressing what knowledge, programming and training are particularly relevant to existing discipline standards. Participants aligned with engineering and geoscience practices contributed significantly to the dialogue with one province already having adopted professional practice guidelines for natural asset management considerations for local government. Input was sought to better understand different types of knowledge domains including Indigenous, Western science, and the humanities. However, deeper

engagement is needed to delve into these complex and contested areas. Acknowledging the iterative nature of knowledge mobilization, this paper presents early results and will invite input from the ESG community to enrich the dialogue.

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Governance Innovations for forest ecosystem service provision – Insights from an EU-wide survey

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In this talk we analyse the occurrence of governance innovations for forest ecosystem service (FES) provision in the forestry sector in Europe and the factors that influence innovation development. Based on a European-wide online survey, public and private forest owners and managers representing different property sizes indicate what type of governance innovation activities they engage in, and why. To investigate forestry innovations as systems, the analysis focuses on biophysical, social and technical factors influencing innovation development. Our results show that most innovation activities are largely oriented towards biomass production. Accordingly, most forest owners implement efficiency-driven optimisation strategies for forest management and technological improvement for provisioning service supply, to generate income. In contrast, the provision of regulating and cultural services is not yet a prominent part of forestry innovation activities. Reasons are rooted in a market-oriented economic rationale focusing on timber production, which is related to a lack of financial resources to compensate for other FES provision or institutions to provide backup and security to forest owners and managers for engaging in innovation development outside wood production. If other FES beyond timber provision shall be provided, new forms of communication, cooperation and financing are needed. Given that the provision of a wide range of FES is a politically well-established

objective for forest management in Europe, a strategy is needed that helps to align actors and sectors for supporting related forest management approaches and business models. The current revision of the forest related policy framework on EU level under the EU Green deal poses a window of opportunity for better fostering novel governance approaches for more sustainable FES provision.

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Imagining new social relations in environmental governance

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Kinship as a Metaphor in Earth System Law and Governance

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This paper will use a discourse analysis to evaluate how metaphors are used in prevailing dominant systems of international environmental law, and explore the transformative potential of alternative metaphors of kinship as a basis for earth system law. Prevailing metaphors used within the international environmental law system utilize mechanical, reductionist and hierarchical metaphors. As a metaphor for human-nature relationships, kinship activates quite different ethics and ontologies. Kinship allows for legal subjectivity and moral agency, an extended ethic of intergenerational time, and an ethic of intrinsic value. Drawing out the origins and history of various human-nature metaphors and their application in international environmental law, the analysis will explore existing metaphors of property, personhood and sovereignty. The analysis will conclude with a comparative discussion of the historical and cultural origins, as well as the

potential limitations of a kinship metaphor as it might be more widely applied within earth system law and governance. New ways of thinking about systemic relationships can articulate social, economic, institutional and technological relationships that renew and sustain the earth's natural ecology. How does the law reveal, interpret and define its subjects, objects, guiding principles? How do discourses work to ascribe meaning to the natural and social world in ways that permit some actions while proscribing others?

The anthropocentric language of law is being increasingly challenged by earth-centric discourses that frame nature as subjects. What kinds of metaphors might capture the ontological, normative, and transformative promise of earth system law? Metaphors of kinship between humans and nature are often articulated within legal arguments from indigenous peoples as part of a framing of territorial belonging. For example, it is common in Indigenous origin stories across North America to find the natural world making a conscious effort to produce the first humans, and there is rarely a division in these tales between humans and nature. Kinship metaphors are also found within Western legal theory and international law, although less often applied to human-nature relationships. Precedent for kinship-based legal discourse concerning nature is nevertheless present, and growing.

A kinship metaphor permits the subjectivity of nature, but also brings a specific form for that subjectivity. This paper proposes that a metaphor of 'kinship' precludes the instrumental use and reduction of nature by reframing the ethical relationships in terms of family and relations. As such, kinship contains more promise as a transformational discourse of earth system law than personhood, property, or sovereignty.

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Awesome Societies. Governing a Sustainable World on a Foundation of Awe and Feeling Alive

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This paper critically examines and questions the dominating measures that are currently being used to evaluate the success of our societies. It argues that these indicators, including the GDP, are essentially measuring things that are of little value to living beings. The aim of this study is two-fold: Firstly, it examines how environmental behavior is connected to the well-being of people and where this connection plays out in particular. Secondly, it uses these insights to examine how the well-being of people and nature alike can be transformed into specific, but alternative, governance tools. The first question is answered through survey studies made among members of green communities in Denmark and a representative sample of Danes from 2019 (N=1273) and 2021 (N=1139). Specifically, these surveys examine the relationship between carbon footprints, well-being and being a member of a green community. The study finds that members of green communities are more satisfied with life compared to the 25 % top consumers of Denmark (with respectively an average carbon footprint of 8.4 ton CO₂-eq and 22.6 ton CO₂-eq). Additionally, there is no correlation between life-satisfaction and consumption among members of green communities as opposed to among non-members of green communities. Through fieldwork, this study furthermore finds that communities not only create social and physical infrastructures that make environmentally friendly choices easier – they also create structures and environments that promote essential feelings of aliveness and experiences of awe. These basic emotions have long been of interest for psychologists and contemporary environmentalists because they tend to force one’s attention from oneself and create a self-transcending feeling of being part of something bigger. This dynamic leads,

in itself, to the experiencers being less hedonistic, less materialistic, more caring about others, and feeling greater life-satisfaction. The author finds that these emotions are the common denominator of experiences within communities, nature and art. These scenes of interaction are therefore of essential importance with regards to creating sustainable societies with the well-being of its members as its core. To understand how these findings can manifest into specific governance tools, this study analyses two recently developed cost benefit models that include measures on subjective well-being and assess the environmental and climate effects on economic policies: The CBAX-model from New Zealand and the analytical tool GreenREFORM from Denmark. In doing so, the new concept ‘*awesome societies*’ is being unfolded, tested and proposed as a concept worth governing by.

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Planetarism & Exnovative Genealogies: Critical Histories to Make Way for a Self-Consciously Planetary Politics

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“Planetarism” is a broad, coalitional approach to situating political ideologies within the Earth’s system such that their proponents become politically responsible for human effects on that system. Post-nationalist, planetarism’s basic political unit is the planet, focusing on politics reflexively related to planetary boundaries. “Exnovation” is the process of excising social constructions that have failed to live up to their promise and that obstruct what is needed or desirable now. An exnovative moment within “ecological reflexivity” is a major part of undoing “pathological path dependencies” wherein human institutions remain decoupled from responsibility for their effects on the Earth’s

system. In that moment, “rethinking” of “core values and practices” and “rearticulation” of “core aims, values, and discourses” can occur. What is important is to confront pathologically path dependent ideologies with critical accounts that motivate their uprooting in favor of planetarist framings.

Here is where genealogy helps. Critical genealogies “problematize” institutions, showing, for instance, how they grew from contexts that are no longer relevant or that were unjust. They confront us with an imaginative, historical grasp of how institutions could be “otherwise”. In so doing, critical genealogies help make the ideologies apparently legitimating the institutions questionable. They thus help prepare the way for ideological exnovation, undercutting the self-evidence and sometimes even legitimacy of ideologies behind institutions.

We propose this historical tool as a friendly amendment to existing Earth System Governance practices. Tracing two critical genealogies that we think should be part of the historical horizon for ESG work – “the genealogy of colonialism,” rooted in 1492, and the historically parallel “genealogy of nationalism,” – we argue that ESG work should proceed in the horizon of these genealogies’ critical, historical understanding. These genealogies help to exnovate both epistemic coloniality and ideological nationalism, clearing the way for an “anthroponomous” planetarism: the coordination of human politics through cultural and communal autonomy and epistemic pluralism to become collectively responsible for anthropogenic Earth system effects. An important upshot of our approach is to reiterate that the ESG community should actively include historical approaches and that ESG discourse should develop thick historical understanding in pursuit of articulating informed policy goals.

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Design thinking as a playbook for enacting and implementing creative earth system governance

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The socio-ecological crises facing the earth system are rooted in “wicked problems”, which have structural characteristics posing attendant demands on leadership, policy design, and implementation for effective resolution and governance. Wicked problems are multi-faceted (i.e. complex) and often bear inherent uncertainties (e.g. imperfect information). Governance around wicked problems must be more than management; leaders and institutions must create and foster spaces for governance that are complex-adaptive and problem-based. Further implications are that policy design should be understood as a verb (i.e. creative process) rather than noun (i.e. product). The field of design thinking systematizes how designers solve problems (e.g. Ulrich 2011), and this paper discusses its implications for governance. Design thinking can be contrasted to linear thinking, which relies heavily on expertise or authority for top-down planning and execution (Chang 2019). Instead, design thinking employs an amalgamation of evidence and vision (Berger 2009) to rapidly explore-test-iterate multiple generations of possible implementations before adopting any particular implementation longer-term (Ulrich 2011, Chang 2019). In design thinking, early impressions of a problem are not presumed to be sufficiently accurate, and the design-thinking process -- which includes regular consultation with stakeholders on desired outcomes from interventions -- feeds back into making sense of what the problem truly is. Furthermore, human-centred design (Brown 2009) calls on designers to ground their problem-solving in empathy for stakeholders (see also Chang 2019). The empathic core of human-centred design has implications for the

problem-solving process of governance itself. To truly be human-centered, creative governance must engage a large matrix of human capacity for problem solving (e.g. the co-design of governance with stakeholders). Instead, too often, governance is subject to “bureaucratic thinking”, which treats governance as a sequence of predetermined steps (e.g. Brown & Wyatt 2010). Through a theoretical analysis of different sensemaking and problem-solving styles -- namely the Cynefin framework, linear thinking, and design thinking -- as well as case studies of city governance in the UK and explorations of regional land-use planning in Canada, we conclude that linear, bureaucratic thinking is likely to lead to sub-optimal policy or outright failure due to underdeveloped (or simply incorrect) problem structuring. Wicked problems facing socio-environmental systems should be approached with humility, which means that leaders must be committed to sustained, problem-based learning leveraging a diversity of human perspectives and relationships.

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Lessons on programming transdisciplinary collaborations for climate and development research: A comparative study of four international programmes

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The funding landscape for climate and development research programmes has evolved considerably in recent decades . New modes of governance, collaboration, evaluation, and incentive mechanisms are being experimented to meet the changing

demands and realities in the international field of applied research for development.

Large-scale, multi-consortium models of programming are increasingly used to deal with the complexity and urgency of climate change adaptation and resilience challenges in vulnerable countries, particularly those in the global South. Traditional research funders are placing greater emphasis on ensuring the scientific and social impacts of the programmes that they support; whilst development agencies are showing increasing commitment to generating evidence and learning from their programming. Hence the boundaries between research and development are blurring. Increasing investments are being made in transdisciplinary impact-focused collaborations that cross disciplinary and professional boundaries to engage stakeholders and intended research users to increase the relevance, uptake, use, and impacts of research that meets practical needs. However, our understanding of programme design has not kept pace with the evolutions in climate and development research . A funder’s track record and historical associations, for example, tend to influence the investment priorities. The wider political, institutional, and economic factors can shape the governance and modalities of how research collaboration is financed . With international investments into large-scale programmes on the rise , and the form of those programmes evolving over time there is a need to learn from past programming experiences and scale-up successful innovations in funding and applied research models.

This study uses empirical insights from four programmes fitting this transdisciplinary impact-focused model, funded from both traditional research funders and development agencies, to illustrate how programme design enables and/or constrains actors to strive for greater impact. These programmes share the common features of using a transdisciplinary and knowledge co-production approach to enable climate and resilience actions between research, policy, and practice. Strong emphasis on learning *in* and *from* programmes through adaptive management and programme evaluation is also observed. Based on our cross-programme analysis, the presentation

will focus on identifying emerging lessons on their consultation processes, commissioning and awarding models, collaborative governance structures, incentive mechanisms, and approaches to knowledge management, brokering and learning. This presentation will be of interest to funders, researchers, and other stakeholders keen to contribute to future programming for climate and development research.

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Resilience in human societies

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Resilience Index of Flood Prone Communities in Ibadan Metropolis, Nigeria

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The long-term management of urban flood risk is becoming a more difficult task for cities and their relevant agencies to tackle. To improve sustainable flood management in cities, a good understanding of the indicators of environmental pressures, which are, in most cases, area specific, is urgently required. Therefore, establishing Flood Resilience Index (FRI) to capture micro-level assessments and plans for long-term flood risk management in cities is critical. Despite a history of rather devastating flood disasters, Nigeria have not established effective mechanisms to reduce the risk of flood disasters from occurring and also manage them at local and national levels. Consequently, the negative impacts of the severe floods have continued to increase in affected communities due to low flood resilience. For example, a comprehensive Post Disaster Needs Assessment undertaken from

November 2012 to March 2013 in response to the 2013 flood disaster put the total amount of damages and losses caused by the disaster at US\$16.9 billion. Ibadan, the Capital of Oyo State, is one of the largest cities in Nigeria and also one of the country's most flood prone cities. In 2011, the city saw the greatest flooding in its history. Aside from the high number of lives lost and property destroyed, the Oyo State administration estimated the cost of repairing the damaged culverts and bridges at more than \$80 million. This study developed a Flood Resilience Index (FRI) for some highly flooded parts of the city. The FRI is conceptualized to address numerous issues related to physical, social, economic and institutional dimensions of resilience. A structured questionnaire was designed to assess the level of flood resilience focusing on four dimensions (physical, social, economic, and institutional). Each of the dimensions have three parameters and each parameter have three variables (4x4x3 matrix). Flood resilience was computed as the weighted mean of the four parameters used to derive the index. Responses were further corroborated by assessments of the physical conditions of the communities during the field survey. The results show that the FRI range from 1.63 to 1.93 out of maximum of 4.0 in all the dimensions of vulnerabilities while it ranged from 1.3 to 1.6 out of maximum of 4.0 when disaggregated in all the six communities. These results indicate low FRI. Institutional dimensions of vulnerability, having the lowest index, needs to be addressed urgently within the context of stakeholders' engagement and disaster risk governance in the city.

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Resilient and sustainable? Climate change adaptation strategies in the 100 Resilient Cities initiative over time and space.

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Cities are seen as key for shaping the climate future. Many cities engage in transnational municipal networks and public policy mechanisms to mitigate and/or adapt to climate change and future challenges. A currently promoted public policy mechanism in the climate change adaptation literature is transformative adaptation. Transformative adaptation in climate literature and practice seeks to merge the concepts of resilience and sustainability to prepare for uncertain futures. Experimental, participatory, and reflexive planning modes take into account specific shocks and systemic stresses of (urban) systems. In this way, transformative adaptation assumedly advances profound systemic change. Empirical evidence on urban climate change adaptation points, however, to a technocratic, top-down understanding of adjustments to specific shocks without integrating system-wide stresses. The city strategies of the transnational 100 Resilient Cities (100RC) initiative seemed promising for boosting a transformative turn in this regard as participating cities were required to link resilience actions to their most urgent shocks and stresses. However, 100RC received critique for reinforcing a neoliberal agenda that aims to activate self-help in vulnerable populations, shifting the security responsibility from the government to the citizen. Political science scholars frequently believe that in general, the resilience concept pays insufficient attention to justice and equity, and, thus, reproduces unequal or unjust structures as an apolitical paradigm.

Against this background, we ask: Which notions of adaptation shape urban resilience planning over time and geographical location? And, are more transformative resilience strategies linked to more comprehensive sustainable adaptation practices in urban spaces? We examine 30 of the published 74 RC strategies of first-, second-, and third-generation cities that balance geographic representation from the Global South and North. First, we developed a three-tier coding scheme, with which we aim to reflect transformative adaptation through the procedural policy approach a city engages with. Second, we assess whether more transformative resilience strategies are linked to more sustainable adaptation practices in urban spaces by examining the coverage of and balance between social, economic, and environmental Sustainable Development Goals (SDGs) addressed in resilience strategies. Third, we perform a cluster analysis to trace whether the identified notions of adaptation vary or persist over time and/or geographical location. First results show that not only climate-related shocks but also social stresses, such as housing scarcity, are frequently considered. The main planning mode follows strategic partnerships with businesses to challenge such stresses, which reiterates the criticism of a neoliberal or apolitical understanding and implementation of resilience.

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Co-Producing Resilience: From Governance to Infrastructure

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The ability of infrastructure and communities to be resilient to rapid social, ecological, and technological change has been identified as a critical transdisciplinary and cross-sector challenge. Much of the research on resilience to date has focused on the following key themes: (a) characterization of social,

ecological or technological system dynamics that create vulnerabilities to stresses and shocks ; (b) creation of models to project or simulate changes in infrastructure design that might enhance the resilience of social, ecological, or technological systems; or, (c) the analysis of the governance, planning and policy challenges related to resilience. Emerging from this work, researchers and practitioners have concluded that the necessary infrastructure design changes are not possible without first changing governance arrangements . Not only has our infrastructure been physically designed for a climate that no longer exists, so too have our governance structures. It is only through re-thinking governance regimes that we can “open-up” transformative pathways for more resilient infrastructure designs. How, then, can researchers, practitioners, and communities collaborate to “open-up” these pathways? We argue that there is a need to co-produce research and practice that is built on a foundation of trusted partnerships focused on long-term collaborations and shared outcomes . Integrating literature in resilience governance and infrastructure and utilizing case studies of co-production in the US, this paper explores how co-production strategies and interventions can generate novel approaches to resilience governance that then enable more resilient infrastructure design choices. Building on this, we develop a set of key concepts and questions for advancing the co-production of resilience governance and infrastructure that focuses on the need to integrate not just across social, ecological, and technological expertise but also with research, practice, and local communities.

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Adaptive governance and institutions

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Accounting for Lags, Phase Transitions and Cross Scale Dynamics in Sustaining Freshwater Lakes

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While a growing body of modeling and experimental research in sustainability and environmental sciences has identified the importance of cross-scale dynamics, many issues about incorporating cascades of lags and phase transitions (tipping points) in the governance of coupled natural and human systems remain unresolved. Situated in Adaptive Governance of Social Ecological Systems (SES) theoretical framework, this paper addresses the following question: How do lags, phase transitions and adaptive governance affect the evolution of state variables in SES that interact across multiple spatial and temporal scales? We investigate this question in the context of modeling the cascading impacts of global climate change and local land and nutrient management across a river-lake continuum within the Lake Champlain Basin in North America from 2000 through 2050. Twelve future climate simulations (4 global climate models (GCMs) x 3 emissions scenarios), 4 land use land cover change (LULCC) forecast scenarios and 6 early versus delayed nutrient reduction scenarios drive a distributed hydrological model that simulates 288 scenarios of riverine discharge and nutrient loads entering Missisquoi Bay of Lake Champlain. A high-resolution system of biogeochemistry and hydrodynamic lake

models simulates the emergence of water quality in the shallow bay. Adaptive governance scenarios simulate current versus alternate public investment strategies in agriculture versus urban versus forest lands for mitigating nutrient pollution in the Missisquoi bay under different climatic and LULCC scenarios.

Simulations suggest that moderate and high emission scenarios will trigger, irrespective of LULCC changes and high nutrient management public investments, phase transitions in summer months (eutrophic to hyper-eutrophic) due to sustained high water temperatures above thresholds that promote cyanobacteria dominance. Achieving low-emission greenhouse gas trajectories at the planetary scale is necessary but not sufficient for avoiding undesirable trophic state shifts in shallow freshwater bays and lakes. Early action to reduce external loading of nutrients may avoid phase transitions of SES into undesirable states, while delayed action may lead to irreversible regime shifts. The nutrient abatement costs will be relatively higher for downstream urban areas than upstream farming and forest areas, yet the downstream urban areas will experience more benefits from the clean water through tourism revenues, higher waterfront property values and drinking water supplies. We will elaborate how climate change induced uncertainty has added another layer of complexity for designing effective, dynamic and socially just mechanisms to share the costs of nutrient management among upstream versus downstream beneficiaries of clean water.

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*Fragmented Decision centers:
Interactions in Lake Victoria's
polycentric fisheries in Tanzania*

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Polycentric systems with multiple, autonomous, coordinating decision centers are supposed to ensuring adaptiveness, flexibility, and responsiveness to address uncertainty and

complexity in socio-ecological systems. Accordingly, interest in investigating the promised benefits of polycentric systems has increased, but dysfunctionalities in polycentric systems such as fragmentation of decision centers have been understudied. Drawing upon qualitative data from Tanzania's Lake Victoria's fisheries, this research investigates how may interactions fragment decision centers to create a dysfunctional polycentric system? With the Institutional Analysis and Development framework serving as the analytical framework, findings suggest that authority, information, and resources shape conflicts, non-cooperative coexistences, and perverse cooperation between higher and lower-level decision centers, while enabling cooperation among higher level centers. These interactions fragment lower-level authorities from higher-level authorities, facilitating centralized control over fisheries management. The paper elaborates upon these findings and concludes with questions on fragmentation in polycentric systems for future research.

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*Identifying institutional structures
for reflexive Arctic science
governance*

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The Canadian Arctic is facing a series of unprecedented, parallel and multi-level pressures that challenge the integrity of existing social, political and environmental systems. As these pressures intensify and test the resilience of Arctic residents, full-scale transitions may become necessary and unavoidable, raising key questions about how to best support sustainable development in the region. Governments have regularly turned to scientific research for answers about how to best foster development in the Arctic, yet it has been suggested by residents that research governance structures have been exclusionary and unable to deliver research that facilitates sustainable development and meets public

expectations. This gap may be due in part to entrenched institutions – ‘rules of game’ – that lack the flexibility to support the current needs of the Arctic community and produce a range of direct and indirect effects that cumulatively impact overall outcomes. Engaging in reflexive governance activities that invite multiple configurations and interpretations may enhance the iterative process of re-adjusting principles, goals and processes in support of designing improved Arctic science institutions. Recognizing that Arctic scientific research operates within dynamic and multi-layered institutional contexts, this paper identifies the *institutional structures that shape scientific research governance* in the Canadian Arctic. Existing institutions, including recent policies calling for Indigenous self-determination in research, are analyzed according to their regulative, normative, and cognitive-cultural elements to identify the institutional constraints limiting reflexivity in Canadian Arctic research governance. Novel strategies to enhance science-informed innovation in support of Arctic sustainability transitions are then discussed.

Panel ID 510 | Virtual

Rethinking human-environment relations in a changing world

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Professional farmer collectives for more effective Agri-environmental schemes: a Qualitative Comparative Analysis

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Agricultural environmental schemes (AES) have been implemented in twenty-eight countries in Europe. In 2013 the EU Common Agricultural Policy (CAP) enabled groups of farmers to be applicants and final beneficiaries of AES. The Dutch government went one step further, ruling that only groups of farmers (farmer collectives) could be beneficiaries of AES. One of the reasons why the Dutch government chose a collective approach was to enhance effectiveness by benefiting from local knowledge, social capital and collaboration between farmers in order to achieve high participation and spatial coordination of individual measures. As a result, in 2015 a network of 40 new farmer collectives was established. These farmer collectives coordinate the implementation of management measures at landscape level, increase farmer involvement through local networking, stimulate learning, and improve monitoring, evaluation, sanctioning and payment.

In 2019, after three years of coordinating AESs, the professionalisation of the Dutch farmer collectives was assessed (PM), with the aim of ascertaining how professional the collectives

are and how differences in professionalism can be explained. This study did not investigate the impact of professionalisation of farmer collectives on the ecological effectiveness of AES, but we expect that for example a shared strategy on agrobiodiversity, monitoring and evaluation of results, learning and development of ecology knowledge will contribute to achieve more agrobiodiversity (PM).

In 2020, Wageningen Environmental Research (WEnR) carried out an interim evaluation of the implementation of AES on behalf of the Ministry of Agriculture, Nature and Food Quality. Part of this evaluation was a study of the effectiveness of AES by examining which ecological conditions have been realised in the habitats.

In this research we will identify which criteria or conditions of professionalisation (PM) contribute to a more effective AES. We perform this study based on a Qualitative Comparison Analysis (QCA). Our research question is: Which conditions of professionalisation are necessary and/or sufficient for an ecological effective AES?

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Environmental world view of school students in Ukraine: A gradual shift towards ecocentrism

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The study focuses on the phenomenon of environmental world view. In Ukrainian sociological and psychological literature, this phenomenon is mostly known as “environmental consciousness” (EC) and considered to be one of the basic concepts in environmental sociology and psychology. Structurally, environmental consciousness consists of three components: *cognitive* (which corresponds to environmental awareness), *emotive* (which is connected with environmental responsiveness) and *conative* (which determines the type of environmental behaviour). As far as the “human–nature”

relationship is concerned, there are three main types of EC such as *anthropocentric* (human-centred, which views a human being as dominating all other living creatures, so the natural world is supposed to serve various human needs), *biocentric* (nature-centred, which regards nature as of the greatest value and calls on humans to subordinate themselves to the natural world) and *ecocentric* (which brings to the fore humans’ living in harmony with nature). Taking account of this classification, the author has decided to conduct a pilot survey among students from several Ukrainian schools. The survey was aimed at determining the prevailing type of EC among these students. For this purpose, the following research tools were used: two questionnaires (“How important is nature to you?” and “What are you ready to do for the sake of nature?”), short stories about nature, pictures of beautiful landscapes and those of environmental pollution, a quiz titled “A quick look at the natural world”, etc. The survey lasted from March to November 2021 and covered about 50 students from different age groups. The preliminary results indicate a slight prevalence of an ecocentric world view, especially among the students involved in extracurricular environmental activities/projects (such as park and lake clean-ups, developing open-air educational and recreational areas, building a shelter for stray animals, establishing the Children’s Ministry for the Environment, etc.) or attending classes in environmental science. It is worth noting that those schools had a more flexible schedule and taught students to work together as a team. The author also proposes a more detailed classification of environmental consciousness, which includes ten subtypes such as anthropocentric-contemplative, anthropocentric-pragmatic, anthropocentric-destructive, anthropocentric-preserving, biocentric-altruistic, biocentric-syncretic, biocentric-aggressive, ecocentric-rational, ecocentric-constructive and ecocentric-oppositional. This classification is based on a person’s attitude towards nature and his/her activity in the natural environment.

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Making Trans-Provincial Water Cooperation Possible in China: The Case of Ting-Han Watershed

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Water quality cooperation faces considerable institutional obstacles and has long been a rare phenomenon in China. Nevertheless, recent years have witnessed a surge of inter-jurisdictional collaboration among different localities. This research focused on trans-provincial state projects and argued that successful coordination relied on two key factors: a favorable contract design that solved the incentive problem and a successful policy lobby that settled the issue of legal credits. We tested this argument with the case of the Ting-Han River and found that Guangdong and Fujian achieved cooperation was first because of the introduction of the eco-compensation mechanism (ECM), which offered both parties new incentives to join in. It second resulted from the policy advocacy in Provincial and National People' Congresses, which helped obtain legal permission and extra financial and political support. Despite the case's weakness in being a long-term project, our analysis offers important implications to water coordination in countries with rigid political fragmentation and fierce local competition.

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Social transformation through Nature-based Solutions: Evidence from local climate change adaptation in Brazilian cities

Fabiana Barbi¹, Leila da Costa Ferreira¹, Gabriela Marques di Giulio^{2,3}, Niklas Weins^{1,4}, Marcelo Soeira¹, Jaqueline Nichi¹, Eduardo Prado Gutiérrez¹, Felipe Bertuluci¹

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Nature-based Solutions, as deliberate interventions that can be inspired by nature or support it in addressing urban challenges, are amongst the practices that relate to transformations towards more sustainable cities. They have shown the potential to mitigate extreme weather events and contribute to adaptation and resilience in human settlements.

This work is guided by the question: how have local governments internalized Nature-based Solutions aimed at adapting to the impacts of climate change in their urban planning, from a multi-agent and multi-level perspective, considering the roles of other agents involved, as well as different levels of governance.

We build on evidence from two cities in the State of São Paulo: Santos and Campinas. Both have high regional relevance, economic importance, are vulnerable to climate change and face an increasing number of climate extremes. The analysis is based on a set of official government documents on Nature-based Solutions strategies and semi-structured interviews with technical staff of municipal and state governments conducted between 2019 and 2021.

Our results have shown that Nature-based Solutions are integrated into municipal urban planning and development and are driven above all by the participation of local governments in projects conducted by non-governmental actors, that is, cooperation networks of municipalities and international cooperation agencies.

In Santos, one of the actions of the climate adaptation plan was the vegetation recovery aiming at disaster risk reduction in one of the city's hills, where a significant population contingent lives. The ecosystem-based adaptation strategy has been implemented with the participation of the hill residents.

In Campinas, a municipal planning of the city's green areas culminated in the implementation of ecological corridors and linear parks in the city and even had a regional scope, with the delimitation of ecological corridors through the Connectivity Area of the Metropolitan Region of Campinas, which brings together 20 municipalities.

Focusing on the agents establishing, driving and scaling these solutions in and across cities, our results have also shown that Nature-based Solutions have transformative social impact since they mediate new social relations and social configurations contributing to social innovation in cities, with potential to change nature perception and human-nature relations in urban contexts. The cases showed the involvement of the local population, municipal decision makers, researchers and international agents in Nature-based Solutions. The articulation between these different agents have opened new paths for urban and climate governance in Brazilian cities, which advocate for ecosystems conservation and restoration.

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Contextualizing global sustainability governance: duality of the postcolonial African state system

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This paper discusses the centrality of context in global sustainability governance. The discussion is rooted in the imperative for deeper exploration of and contribution from diverse knowledge sources in global sustainability governance. Exchange among different (types of) actors as well as different systems and sources of knowledge enhances

global sustainability governance: diversity of perspective is the main strength of the Future Earth project. The dual nature of the state system in Africa adds unique perspective to global governance, and understanding (this) context enhances global policy processes. Although the United Nations 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals is universal, implementation depends on various domestic level efforts. Attainment of the Global Goals depends on and is the aggregation of efforts within the various individual states. Consequently, effective domestic level governance is essential to achieving the global agenda for sustainability, which depends on collaboration among a multiplicity of development actors across levels. This paper directs attention to the complex duality (hybridity) of the state system in Africa, where governance mostly involves interactions (collaboratively or competitively) among elements of the Westphalian and indigenous administrative traditions. Studies on environmental and sustainability governance in Africa tend to focus their framing (exclusively) on the Westphalian state system – structures, actors and processes. However, involvement of indigenous (often informal) administrative elements is essential to global (environmental) governance in Africa. Thus, understanding governance in the context of Africa's dual state system is essential to global development policy processes. The paper aims to contribute to knowledge on sustainability governance from the context of dual postcolonial African state system, using Ghana, a promising democracy with Westphalian institutions and a strong indigenous administrative architecture functioning in tandem. Based on governance of land and landed resources in a local community, the discussion draws on three aspects of the Earth System Governance Analytical Framework, namely, architecture, agency and adaptiveness, to examine sustainability governance in the context of the duality of the postcolonial state system. The discussion highlights: 1) importance of context in global environmental policy processes; 2) complexity of governance, underscoring a unique hybridity in the postcolonial African state; and 3)

significance of indigenous knowledge systems and practices in global environmental and sustainability governance.

Panel ID 511 | Virtual

Platforms in environmental governance

Panel Day and Time: TBD

Panel Room: TBD

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ID167

Engaging experts in assessing nature's multiple values: learning experiences from the process of the IPBES Values Assessment

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Our longitudinal study explores various types and pathways of learning that occurred among experts involved in the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' (IPBES) *Values Assessment* process from 2018 to 2022. Using an online survey administered before each author meeting, respondents (n=74) self-reported their views on the purpose of the IPBES *Values Assessment* (i.e. motivation); their views regarding the validation of knowledge (i.e. objectivity) which were used to classify their epistemic worldviews (i.e. Constructivists, Transformativists, Pragmatists, Post-positivists); their perspectives on the multiple values of nature; and in the last survey, their personal experiences during this 4-year learning process. Across the three surveys, 59% of the respondents who answered multiple surveys shifted their epistemic worldview between the first and the last measurement (n=27). We also detected changes regarding views on the *Values Assessment's* purpose, and views on the engagement needed in the assessment. In particular, experts holding a Post-positivist worldview came to adhere to more engagement-inclined themes during later survey periods. At the same time, only few changes were observed on the core understandings of knowledge claims in all four worldviews. Overall, the longitudinal assessment revealed multiple learning pathways connecting cognitive, relational, reflexive, and transformative learning. Pathways of learning suggest multiple levels of reflexivity occurred in the IPBES *Values Assessment*. These findings have broader implications for the design of multi-level learning processes in the future work of IPBES and similar organisations utilising inter- and transdisciplinary practises aiming to include the plurality of values and knowledge systems.

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Leveraging Multi-Stake Holder Partnerships To Combat Climate Change In Africa

Benjamin Anabaraonye

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The challenge of addressing climate change in Africa and globally cannot be overestimated. It will require a substantial transformation of the present economic development model and multi-stake holder partnerships to mitigate and adapt effectively to its impacts in Africa and globally. Research increasingly suggests that climate change has intensified the frequency of droughts, floods, and other environmental disasters across sub-Saharan Africa. In response to the resulting array of climate-induced challenges, various stakeholders are working collectively to build climate resilience in rural and urban communities and trans-continentially. This paper examines key climate resilience-building projects that have been implemented across sub-Saharan Africa through multi-stakeholder partnerships. It uses a vulnerabilities assessment approach to examine the strategic value of these projects in managing the mitigation of climate shocks and long-term environmental changes. There are still many challenges to building climate resilience in the region, but through multi-stakeholder partnerships, sub-Saharan African nations are expanding their capacity to pool resources and build collective action aimed at financing and scaling up innovative climate solutions. This paper concludes that multi-stakeholder partnerships are increasingly being utilized for pooling the economic and technical resources needed to finance and scale up innovative climate resilience projects in developing countries in Africa.

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The meaning of governance and institutions to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES): A critical appraisal

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Ten years after its establishment, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), in many ways, might be regarded as entering a phase of maturity as its functions, operating principles and institutional arrangements become stabilised. IPBES has produced an array of environmental assessment reports. Following the successful launch of the Global Assessment on Biodiversity in 2019, IPBES has now transitioned to a continuing work programme with a new set of commissioned assessment reports. However, there remain unknowns around how the inclusion of social science and humanities perspectives is to be achieved, and related gaps persist at the heart of the Platform's framework.

In this paper we discuss the Platform's function by evaluating the IPBES Conceptual Framework (CF). We analyse how IPBES considers the relationships between people and nature, and how those are represented in IPBES assessment mechanisms. The CF shows how IPBES develops from earlier conceptual frameworks from the IPCC, with particular emphasis on the plurality of knowledges that also include indigenous peoples' and local communities' traditional ecologies and knowledges (TEK). However, the concepts of Institutions and Governance that are at the heart of the IPBES CF have been largely left as monoliths, being conceptualised only in a dictionary style definition.

With this in mind, we seek to unpack the definitions of governance and institutions

which IPBES uses. While IPBES has developed a glossary of key terms, the definitions offered by the CF remain vague and arguably unreflective of the political nature of governance and institutions as well as their multiple meanings, including lack of attention to notions that go beyond a primarily rule-based understanding. How satisfactory are such definitions for the work of IPBES?

We explore these questions through an analysis of key IPBES documents and reports, showing how governance and institutions are typically left implicit or referred to in general terms. We outline how the ways in which IPBES is mandated and the manifestations of its structures, functions and processes are likely to have important implications for how it conceptualises governance and institutions. Against this background, we show how IPBES has the potential to foster reflexivity of governance and how this could be improved within the limits of the mandate of IPBES. In so doing, we offer arguments for why governance and institutions should receive more attention in IPBES' conceptual work.

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"We cannot wait for speeches when the sea is rising": Discourses on climate migration at the Global Climate Adaptation Governance architecture

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The climate migration scholarship is still short in comprehensively reviewing how international actors interact concerning climate-related human displacement. In International Studies, most works have either tried to prescript how a just and effective governance framework should look like or demonstrate the lack of governance and policy instruments available for those displaced by climate change-related phenomena. Unlike these perspectives, I argue that the lack of formal international policies does not equate to a lack of governance and governmentality of

climate mobility. Instead, there is a need to inquire whose interests are reproduced in the institutional settings, how mobility is framed, and who are the leading players addressing it within global governance architectures, moving beyond analysis of formal documents. This task can be achieved, I argue, by investigating international discourses at the Global Adaptation Governance Architecture. This paper applies fully integrated content analysis and Critical Discourse Analysis (CDA) to investigate discourses on climate migration into and as a result of multilateral negotiations, primarily focusing on two sites of deliberation: the United Nations General Assembly, and the High-Level Segments of the Conference of the Parties (COPs). The results are then compared with the framings that migration has received in theoretical and conceptual debates. I argue that, both in scholarships and policy negotiations, climate mobility is still conceived in pathological framings typical of the Holocene, embedding its discursive constitution in the pathologies of securitization, societal resilience, and cosmopolitanism. These are enclosed in the frameworks of migration-as-crisis, led by estimates of hordes of billions of migrants fleeing the Global South towards the North due to global warming and sea-level rise, and in the 'migration-as-adaptation' setting, in which governments instrumentalize resettlement to enhance climate adaptation capacities. While critical scholars have sought to surpass these frames by departing from an ontological precedence of mobility rather than stasis in social reality, envisioning a more-than-human approach to climate migration that is more at home with Earth System science, the literature still lacks a proper investigation of which framings are discursively employed by international actors. Through mixed-methods content analysis and CDA, I explore how climate mobility is constituted in international norms and negotiations and the governance implications thereof. By interrogating international discourses, we arguably get one step closer to conceiving an Earth System Governance for migration suited for governing in the Anthropocene.

Panel ID 512 | Virtual

Climate change adaptation across diverse contexts

Panel Day and Time: TBD

Panel Room: TBD

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Challenges and opportunities of WEF nexus as a climate adaptation strategy in Arctic regions

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In the face of climate change impacts, ensuring water, energy, and food (WEF) security in the Arctic regions – the habitat of several culturally distinct Indigenous communities – has appeared as one of the key policy agendas. The interconnected WEF systems, also known as the WEF Nexus, need synergistic management and governance systems. Thus, the transboundary nature of the Arctic regions and the presence of multi-level, cross-scaler and sector-specific formal and culturally distinct informal institutional regimes need to be coordinated and collaborated for utilizing the synergistic management of the WEF systems as an opportunity for climate adaptation. This presentation addresses the question of synergistic management reviewing literature on the WEF Nexus and Arctic climate vulnerability and adaptation. It identifies and expands discussion on governance and institutional challenges like sector-specific management of the WEF systems, lack of institutional innovativeness for building cooperation and coordination, obstacles to reorganizing the roles and responsibilities of different stakeholders, and the complexity of integrating different knowledge systems. In summary, this presentation intends to synthesize the current state of knowledge about the uses of the WEF Nexus for the climate adaptation and expands our understanding about how to overcome WEF

Nexus challenges in the Arctic through institutional and policy interventions.

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Governing extreme variance and the inherent fragilities of adaptiveness: Insights from locusts

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Locusts are a peculiar case of large-scale extreme events that, despite being considered one of the most destructive migratory pests in the world by the United Nations, has been poorly studied by social sciences and governance studies. Their natural dynamic that alternates between recessions and periods of large-scale expansion imposes great spatio-temporal variabilities and discontinuities. These dynamics bring into sharp relief gaps in societal capacities to collaborate to face this transboundary and erratic bio-hazard, as well as successes where societies have been able to implement preventive strategies that effectively reduce frequency and amplitude of such events. Using multiple sources of data including interviews, literature review, participatory workshops, and social network analysis in three different case studies - the desert locust, the Australian plague locust, and the South American locust - we analyzed the governance systems associated with these preventive strategies. We highlight that locust managers have implemented multi-level, nested, and adaptive systems, from local to international levels, more or less centralized depending on the stage and the context. While these systems necessarily have to present a high level of adaptiveness to face the extended, uncertain, and discontinuous dynamic imposed by locusts, such adaptiveness results in blurring the distribution of responsibilities and questions actors'

willingness and capacities to fulfill their roles through space and time - especially under a reduced frequency and amplitude regime of perturbation. We discuss how global trends towards decentralization and inclusion of local levels, and increased consideration of environmental issues, albeit essential, have intensified variability in the represented values, interests, and action capacities of the actors. In addition to the inherent spatio-temporal dynamics, these societal shifts further challenge collaborative governance for managing and responding to large-scale disasters.

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Connecting climate justice and adaptation measures in Finland and beyond: an Adaptation Justice Index

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As the need to adapt to climate change has become evident, we have to understand the dimensions of justice in adaptation planning. Here, as part of the Justice in climate change policy project of the Finnish Climate Change Panel, we analyse the dimensions of justice in the context of climate adaptation at different levels of governance in Finland, using an index framework. For situating the results in the wider context, we apply the framework to case examples from other Global North countries. Despite the increasing body of academic literature on considerations of justice, there is still little empirical work assessing the justice dimensions of adaptation policy and its instruments. Thus, there is a gap when it comes to connecting the dimensions of justice to different types of adaptation policy documents and how the dimensions can be translated into adaptation planning. We synthesize the findings of previous studies to create an index framework for the four aspects of climate justice in the context of adaptation: justice as recognition as well as distributive, restorative, and procedural justice.

This framework can be used to analyse climate adaptation plans in different societal contexts as well as at different levels of governance. We offer an analysis of four city-level cases, Helsinki, Stockholm, Vancouver, and London, and four state or country level cases, Finland, Sweden, Canada and England, UK. In general, the analysed cases gain best scores from the dimension of procedural justice, while justice as recognition and restorative justice are largely absent from the analysed plans.

In the Finnish case, we also analysed regional level documents, but found that the index could not be calculated due to a lack of material. The concept of climate adaptation was almost absent or even misunderstood in regional climate change strategies and plans.

As adaptation planning is still a relatively new area of climate governance, the information produced offers valuable feedback for the development of ex ante analyses of climate justice in the planning phase. This framework offers a basis for developing similar tools for analysing the implementation of adaptation. Developing indicators for assessing the justice dimensions reveals questions about the relationship between justice theories and practical reality at different levels of governance. We discuss the identified questions and develop directions for future research. This project connects to the general theme of the conference, as well as the streams Justice and Allocation and Adaptiveness and Reflexivity.

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Groundwater salinisation in North West Germany: a societal challenge of climate adaptation

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Groundwater salinisation due to sea-level rise is a problem that has been overseen for long by governance actors in coastal areas. As an ecological problem associated with climate change, it can be severely exacerbated by incautious water management. Saltwater intrusion is a slow process that unfolds with

long time delays and can hardly be reversed. It could thus be categorised as a “creeping catastrophe” that threatens fresh water sources and, thus, society. As a problem sitting at the crossroads of adaptiveness, reflexivity and anticipatory governance, we were interested in the actors’ preparedness, reflexive approaches including monitoring and contingency plans, and integration into larger climate adaptation policies on different governance levels.

This paper studies governance processes, actor perspectives and responses to groundwater salinisation and sea-level rise in East Frisia and Frisia at the North Sea coast of Germany. Due to its low-lying landscape, some areas below sea-level, groundwater salinisation is of concern. Our research questions are: (i) What awareness to governance actors in the study region have vis-à-vis groundwater salinization and climate adaptation challenges? (ii) How can an anticipatory governance approach instigate proactive governance processes addressing the complex problem groundwater salinisation in terms of perception, agenda-setting and problem-solving?

We conducted semi-structured interviews and workshops between 2017 and 2021, including a group of 15 actors from private and civil society organisations as well as authorities on local, regional and state levels. Our study finds that problem awareness in municipalities and regional governance levels in East Frisia and Frisia is low. Current management of groundwater salinisation mainly focuses on technical response measures, while precautionary measures are given low priorities. Technical solutions often imply the assumption of rational and centralised decision-making that underestimate the multiplicity of informal settings and various interests. With regard to governance approaches, our study identifies apparent societal challenges of groundwater salinisation at the complex interface between water management, human activities and natural processes, and sustainable ways to manage and protect groundwater resources. However, there are variations in the region allowing us to identify the most vulnerable areas and the main drivers leading to groundwater salinisation. In participatory processes, we built

scenarios and reflected on hydrogeological models as an anticipatory governance approach. Here actors discussed possible technical, non-technical and institutional adaptation options for the future. Finally, conclusions will be drawn how knowledge and awareness building can contribute to change actor’s perspectives on the overseen problem of groundwater salinisation and increase adaptiveness.

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Towards adaptive water governance: the role of systemic feedbacks for learning and adaptation in the eastern transboundary rivers of South Africa

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This paper contributes to scholarship on AWG (Adaptive Water Governance) following policy reforms in South Africa. Insights from a suite of innovative and evolving water governance praxis ‘experiments’ are provided. South Africa has a two-decade history of AWG that has been operationalized through IWRM (Integrated Water Resources Management). The paper explores progress in AWG from a longitudinal, evaluative perspective in two complex transboundary basins, with a focus on the unfolding enabling environment for sustainability and equity. The Inkomati Basin (shared with Mozambique and eSwatini) has a two-decade history of progressive implementation of AWG, whilst water governance in the Olifants Basin is still emerging. The paper emphasises the central role of ongoing co-learning and adaptation as critical aspects of AWG.

Learning in complex, uncertain situations requires an enabling environment that makes space for constructive experimentation over

time and where positive gains are ‘fed-back’ and institutionalised within a functional governance network. Enablers strengthen such feedbacks in cycles of action-and-learning which become institutionalised through evolving social and institutional arrangements. We examined enablers and constraints of ongoing co-learning and adaptation through a focus on evolving multi-scale feedbacks within networked governance. These enablers - which function to build adaptive capacity and resilience in complex and uncertain systems - include a shared vision, the role of champions and ‘watchdogs’, self-organisation and accountability around a shared purpose, trust, leadership, communication, and agency to act as well as the availability of systemic tools and shared protocols and networked polycentric governance systems. Key is the creation of enabling spaces for collaborative experimentation and learning so that feedbacks are progressively strengthened and embedded in evolving institutional arrangements. The role of networks is highlighted; particularly the relationships between government-led systems and other stakeholders in developing responsive and resilient systems. Despite progress, the sustainability of long-term action-learning feedbacks appears unlikely in some cases. Constraints include governance failures, particularly delays in the establishment of a basin-wide authority with a shared vision, as well as failures to address unlawful use and continued chronic inequities in access. We suggest that the enabling meta-governance arrangements that offer an ‘institutional home’ within which to embed learning appear to be critical. We conclude with recommendations for future work, emphasising the need to explore alternative hybrid, networked governance arrangements that explicitly manage for feedbacks that enhance learning at multiple scales in order to cultivate adaptiveness and reflexivity.

Panel ID 513 | Virtual

Rethinking environmental governance in a changing world

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Governing marine cloud brightening: The impact of scale and purpose

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Marine cloud brightening (“MCB”) is an emerging technology currently being considered to mitigate impacts from climate change on coral reefs. Research into MCB is ongoing, with world-first field trials conducted on Australia’s Great Barrier Reef in March 2021. MCB governance in the context of coral reefs may prove challenging considering novel risks and uncertainty about impacts and benefits associated with this technology.

Drawing on a systematic literature review, this paper identifies important knowledge gaps concerning governance implications of MCB. The existing literature largely examines solar radiation management and geoengineering, under which umbrellas MCB is often categorised. However, the potential small-scale application of MCB, and the recent progress to trial phases, indicates a need for targeted research into whether governance needs are impacted by project scale and purpose.

This paper, therefore, explores the differences between solar radiation management, geoengineering, and marine cloud brightening, across their different potential applications ranging from planetary- to local-scale deployment. It then examines the challenges and recommendations for MCB governance in the context of project scale and purpose, investigating the extent to which they remain appropriate to smaller-scale conservation applications of MCB. This research will

contribute to the development of effective governance frameworks for MCB, which should incorporate context-specific evaluation of the novel risks and uncertainties associated with this technology. This will enable regulators, scientists and stakeholders to make decisions informed by their specific context.

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International environmental law and the promise of restorative environmentalism for socio-ecological recovery

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Despite significant interest in restoration (2021-2030 being the international decade of ecosystem restoration) international environmental law dedicated to restoration is still developing. What does exist is often concerned with the rehabilitation of discrete types of landscapes, for example Ramsar wetland sites, or reforestation using voluntary instruments such as the Bonn Challenge. Such approaches are indicative of certain ideological and cultural dispositions, with political decisions about preferred recovery trajectories, future landscapes and questions of adapted and novel ecosystems often unexplored or ignored.

This paper will first present a brief summary of the state of international environmental law and its governance of ecological restoration. It will then take up particular questions of ontology inherent to international environmental law in order to consider the limitations of the current legal system in the governance of recovery. The paper will focus the debate on the significance of inputs for developing the ecological complexity of socio-ecological systems. Complex systems are creative and resilient and respond to change and uncertainty. Inputs into the restoration of such systems can be in response to climate change, the prevalence of invasive species, and other anthropogenic harms. We argue that

prioritising inputs into developing ecological complexity requires an ontological shift of the neoliberal human and nature relationship where more active care, monitoring and engagement is required. We will discuss how inputs differs onto-epistemologically from other recovery guiding concepts such as net gain or no net loss and show that a focus on inputs for developing ecological complexity will function as an important fulcrum that can balance the required shifts in the human-nature relationship alongside the ecological resilience needed for responding to changes and harm. We refer to this fundamental shift in thinking as restorative environmentalism, processes by which human beings actively and reflexively participate in socio-ecological systems to facilitate the complex flourishing and reimagining of the natural world. Using this lens we apply ourselves and study an international instrument to highlight the limits of current approaches to protection and conservation for Earth Systems.

417

The Resilience Fix to Climate Disasters: Recursive and Contested Relations with Equity and Justice-Based Transformations in the Global South

Jola Ajibade

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This paper engages with the easily-taken-for-granted separation between resilience as stability or resilience as transformation after disasters. It examines whether strategies adopted after climate-disasters are transforming cities in ways that foster egalitarian urbanism or reinforce capitalist urbanization. To address this question, I develop the notion of ‘a resilience fix’, returning to Harvey’s influential thesis on spatial fix which captures how capitalism overcomes its crises of overaccumulation by deepening its spread through the production of new spaces and the built environment. I

combine this thesis with an interrogation of urban metabolism and the governance of urban spaces and natures to show the recursive relations between resilience fixes and transformative resilience strategies. Focusing on a ten-year post-disaster development in Metro-Manila, this study shows how resilience fixes act within and through political economy systems, land use planning, technology adoption, and risk management regimes to decenter those who experience the double violence of capitalist urbanization and disaster capitalism while naturalizing utopian development, citizen surveillance, and a class-based retreat from the city. By offering false solutions and translocating disasters, these fixes inextricably reproduced social inequalities that would stimulate resistance politics and counter-hegemonic strategies aimed at partial transformation.

634

Does recurrent mass coral bleaching serve as a focusing event for the Great Barrier Reef social-ecological system?

Amber W Datta^{1,2}, Brian C Chaffin¹, Carina A Wyborn³, Tiffany H Morrison², Michele L Barnes²

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Extreme climatic events are causing persistent changes in social-ecological systems that challenge efforts to govern systems towards desired outcomes for ecosystems and people. Adaptive governance is an approach to environmental governance theorized to support the capacity of decision-makers, managers, and resource users as they navigate social-ecological change. In theory, adaptive governance facilitates the ability of governance actors to address emerging social-ecological problems at multiple nested levels (e.g., local, national), include diverse actors in decision

making, and deliver benefits equitably between these actors. Crises are theorized to catalyze the development of adaptive governance approaches. Yet there is little empirical research documenting whether actors are able to realize the aims of adaptive governance after an extreme climatic event in a large social-ecological system. Here we describe the effects of an extreme climatic event on an established, region-wide adaptive governance regime in Australia. Specifically, we draw on document analysis and on two rounds of semi-structured interviews in 2019 and 2021 to examine the priorities and engagement of diverse governance actors after recurrent mass coral bleaching (2016 and 2017) in the Great Barrier Reef region of Australia. We reveal slight shifts in regional governance priorities, particularly toward reef restoration and climate adaptation, with the potential to benefit certain actors over others. We find minimal but growing evidence of a shift towards climate mitigation efforts, despite identification of emissions as the root cause of bleaching events. Our results provide evidence that the established adaptive governance regime is struggling to realize its aims after extreme climatic events. These findings underscore that even governance systems designed to deal with change are struggling to recognize and cope with climate impacts that transform social-ecological systems.

635

Evolving adaptive governance: examining assumptions through an examination of fisheries policy in Solomon Islands

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Unprecedented, rapid social-ecological change threatens marine ecosystems and the livelihoods of communities who depend on them. Governance scholars have identified adaptive governance principles that enable

managers and decision-makers to respond flexibly to such change. However, much of this work is the result of case studies undertaken in democratic countries in the Global North. Despite this, governance actors (e.g. government officials, non-governmental organization professionals) in countries with other governing systems are increasingly applying adaptive governance principles normatively to policy. This expansion in the implementation of adaptive governance requires that governance scholars account for substantial variation across legal systems and sociocultural norms around decision-making in different geographies. Governance scholars must closely examine areas where adaptive governance principles need to evolve to better suit a wide variety of governance contexts. We conduct such an examination through an empirical case study of a fisheries policy developed in a country in the Global South—the Solomon Islands Fisheries Management Act (2015). We analyze the content of the policy along with data from interviews with governance actors and fishing village residents to: 1) show how the policy realizes several adaptive governance principles through novel provisions that formally incorporate local communities and their practices into national fisheries management, and 2) illustrate four challenges for policy implementation that require critical reflection on approaches to institutionalizing adaptive governance in diverse contexts. We illustrate how these challenges are rooted in three assumptions underlying adaptive governance theory. These assumptions relate to: 1) the role of the state, 2) the role of democratic ideals in enforcement, and 3) the role of Western science, compared to other epistemologies, in decision-making. We conclude with suggestions for evolving these assumptions in order to improve the institutionalization of adaptive governance in countries with a wide variety of legal systems and governing norms.

657

Should we be racing towards a decarbonising world? Questioning the idea of ‘time’ in climate action

Hema Vaishnavi Ale

Transitions Research, India

There is an emergence of ‘futuring’ of climate change policies and climate action, with calls for ‘rapid’ decarbonisation of world systems growing each year. The Glasgow Summit has brought countries like India and China on the journey towards net-zero transitions, where declarations for mid-century net-zero targets have been announced. While such calls for action, based on timeframes are not new to achieving global development objectives, the last two decades have witnessed an increase in global calls for action, bound by timeframes, to achieve sustainability goals towards earth systems governance.

Ideas of urgency, driven by timeframes, are now being embedded in climate action policies, which spell implications for social, political and economic norms and values that constitute climate governance. In the monochromatic conceiving of the future, ‘timeframes’ as tools have enabled the extrapolation of trends, and the production of forecasts, prognoses and scenarios represent a form of anticipatory global governance, which seems to be shaping homogenous policy recommendations and sociotechnical imaginaries for climate futures globally.

With the idea of action towards climate mitigation being thought through and imagined in accelerated terms, the paper questions the implications of such rapid decarbonisation attempts. The paper brings to the fore how the ideas of justice and power translate on the ground when governing such ‘accelerated’ transitions. The paper critically examines ‘rapidity’ and the idea of time as policies are being formulated on the climate action front. The current climate policies shaped by certain notions of time and urgency are producing newer realities and new modes of politics, which need to be critically examined and addressed.

The paper contributes to examining political responses to climate change by tracing the idea of timeframes and urgency underscoring climate action calls. The paper will review interdisciplinary social science literature to examine the political effects of driving urgent actions for long term earth systems transformations. The paper will develop a typology of dimensions of timeframes that have been mobilised to imagine climate action, which will help evaluate the significance of such frames and help in better decision-making and analysis. This paper underlines the need to reconceptualise dominant and normative notions that guide the earth system governance, specifically the idea and practice of mobilising timeframes. The paper aims to initiate a debate on the promises and limits of timeframes as a tool for policymaking in climate change.

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Measuring and Overcoming the Lack of Ambition in Climate Mitigation and Adaptation

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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“Leading with the International” and the Stringency Gap Between Nations’ Outward-Looking and Domestic Climate Policies

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As the climate crisis reaches epic levels, analysts have noted an ambition gap widening between international climate policy (what countries claim in international fora) and domestic climate policy (what they enact at home). However, none have systematically

documented the causes of this gap, which we do for the first time by constructing new indexes of domestic and international climate policy performance. This article reinforces the notion that nations tend to “lead with the international,” demonstrating that “outward-facing” international climate policy adheres to a logic consistent with mitigating the climate crisis, whereas the same nations’ “inward-facing” domestic climate policy does not follow such a clear logic. Using these two indexes of climate policy and other data, including the first tests of fossil fuel subsidies data estimated by country, we find that international policy and fossil fuel subsidies affect nations’ greenhouse gas emissions, but that domestic policy has no significant effect. We then break the universe of nations into subsets according to international and domestic policy stringency, finding that, again, international policy and fossil fuel subsidies impact groups of nations’ emissions, but that domestic policy stringency is not significant. We conclude that greater progress has not been made in reducing emissions worldwide partly because nations make more ambitious commitments at international fora, but that “leading with the international” does not translate into commensurate ambition in the implementation of domestic climate policies.

721

Vulnerability, Climate-Change Laws, and Adaptation in the Middle East and North Africa

Tofigh Maboudi, Elisa D’Amico

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As climate related disasters have grown more frequent and severe, climate-related laws and regulations to protect the climate vulnerable have also become more commonplace (Ref. Removed). Under pressure from international institutions and lenders, many “climate-change producing” (oil exporters) and “emission receiving” (poor, non-oil rich) states in the Middle East and North Africa have hastened to adopt new laws and regulations to mitigate

and/or adapt to climate change, but without the institutional capacity or the resources to do so. This chapter asks two core questions: First, under what conditions do these states tend to adopt climate-change laws and regulations? More specifically, is vulnerability to climate change-related events (particularly drought and flood) a predictor of the strength of adopted laws? Second, does the adoption of these laws have any impact of these nations' climate change performance? Using both cross-national statistical analysis and case studies, this chapter shows that while vulnerability is a predictor for adoption of climate change-related laws in the region, the adoption of these laws has so far failed to help these nations to mitigate or adapt to climate change. Oil politics and basic development objectives seem to be the key to this failure.

722

Who Pays for This? Can Carbon Pricing and Green New Deals be Equitable Solutions?

Katja Biedenkopf

Kuleuven University, Belgium

Many economists have strongly promoted carbon pricing policies for a long time. Since the early 1990s, first, carbon taxes and, then, emissions trading systems – which are the main types of carbon pricing policies – slowly diffused across the globe. According to the World Bank, 65 carbon pricing initiatives had been implemented in late 2021, covering 45 nation states and 34 subnational jurisdictions.[1] According to economic theory, carbon pricing policies deliver the most cost-effective climate mitigation solutions. Yet, implementation in practice has turned out much more complicated. One important aspect that requires due attention is equity. Carbon pricing policies increase the costs of carbon-intensive products and services. This can disproportionately affect low-income households that struggle to shift to low-carbon alternatives. For this reason, several policy designs have been developed to cushion and

remedy these effects. This paper traces the emergence and diffusion of carbon pricing policies and then focuses on their equity dimensions, identifying different styles and patterns. These insights are placed in the broader context of the Green New Deals that have emerged, most notably, in the United States, the European Union, the Republic of Korea.

Panel ID 354 | Onsite

Housing systems in the Anthropocene: Implications of housing governance, policy, and outcomes for a just climate transition

Panel Day and Time: TBD

Panel Room: TBD

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Power research in adaptive water governance and beyond: A review

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Power dynamics are widely recognised as a key contributor to poor outcomes of environmental governance broadly, and specifically for adaptive water governance as a critical consideration to the emergence of adaptive water governance. Water governance processes are shifting with increased emphasis on collaboration and social learning. Understanding how power dynamics impact these processes in adaptive governance is hence critical to improve governance outcomes. Power dynamics in the context of adaptive water governance are complex and highly variable and so are power theories that offer potential explanations for poor governance outcomes. This study aimed to build an understanding of the use of power theory in water and environmental governance

and establish a foundation for future research by identifying power foci and variables that are used by researchers in this regard. We conducted a systematic literature review using the Web of Science Core Collection and the ProQuest Political

Science databases to understand how power is studied (foci, variables of interest, methods) and which theories are being applied in the water governance field and the environmental governance field more broadly. The resulting review identified that the explicit use of established, general power theories are uncommonly used in adaptive water governance. Further, we identified a number of emerging theories of power specifically within environmental and water governance. In both cases, the variables of interest in the review sources varied substantively, captured in seven main categories: instruments and strategies; discourse and knowledge, power dynamics in stakeholder relationships and interaction; governance structure and features; context; stakeholder action and in-action, decision and non-decision; and, relationship between governance process and outcomes. This research can serve as a practical reference for adaptive water governance inquiries that seek to study power in-depth or intend to integrate power considerations into their research, including a focus on the emergence of adaptive water governance. The identified power variables add to a much-needed groundwork for research that investigates the role of power dynamics in collaboration and social learning processes. Furthermore, they offer a substantive base for empirical research on power dynamics in adaptive water governance.

742

Translatability of lessons learned from adaptive governance experiments across socio-economic contexts

Amanda T. Stahl, Alexander K. Fremier

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Adaptive governance requires institutional capacity to coordinate polycentric responses to environmental problems at appropriate scales and provide networks for information sharing. This implies a capability to translate successful governance experiments from one social-ecological setting to another. Yet, translating lessons learned from case studies in adaptive water governance to other settings is all but straightforward. Many water governance problems emerge at the watershed scale, where water and land use are more distributed and therefore more challenging to govern. Watershed condition is a cumulative result of upstream ecological factors as well as land use decision-making processes, which may involve diverse stakeholders and multiple, nested levels of government. The relationships between site-specific land management decisions and water-related ecosystem services not only vary by location, but are further complicated by biogeochemical flows, ecological interactions, and social-ecological trade-offs. We view this governance challenge from a biophysical science perspective, highlighting the need to focus on translatability of governance approaches such that land use decision-making processes can better fit the dynamic, multidimensional, spatially continuous nature of riverine ecosystems. To learn from a previous attempt to translate successful governance approaches across social-ecological settings, we investigated a case study of streamside area management in Washington State, northwestern USA. After observing firsthand the barriers caused by disparate definitions and the complexity of the social-ecological landscape, we analyzed relevant terminology and social-ecological

system characteristics to identify key variables for translatability of governance experiments. First, we reviewed the scientific and management literature to organize and interpret definitions referring to streamside areas, describing ways in which each type of knowledge can contribute to translatability. Second, we developed a systematic approach to map the landscape as a nested collection of areas with shared ecological characteristics and applicable policies or other incentives that may be spatial indicators of translatability. We then discussed factors that can promote or inhibit the translation of successful governance experiments to different settings. We conclude with recommendations for being more intentional when planning to translate lessons learned to other situations to help shift processes toward more scale responsive adaptive water governance.

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Interminable Lakes: Strengthening institutional fit and social learning by accounting for agricultural value chains in lake governance

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The collapse of terminal lakes, such as the Aral Sea, involves challenges of adaptive water governance. One of the key issues is institutional fit, in terms of the relationship between institutions and the problems that they are designed to address. Namely, the depletion of terminal lakes occurs due to production and consumption decisions across globalized agricultural value chains. This paper focuses on the impacts of global agricultural value chains on terminal lakes which have historically been considered exogenous or external in assessments of water governance. We examine how - and how well - governance arrangements for terminal lakes respond to the externalities of agricultural value chains. Specifically, we assess terminal lake basins in western North America that have been recognized for their contribution to regional

biodiversity, support irrigated agriculture, and are impacted by regional competition for water resources. Specifically, we conduct a three-step diagnostic assessment to: (1) generate a historical dataset of commodity prices and key value chain disruptions, (2) assess changes in agricultural productions and lake conditions, and (3) trace the evolution of irrigation and lake governance networks in response to the opportunities and risks presented by market integration. The result of this analysis is to generate a map of the governance networks and the spread of payoffs and externalities associated with agricultural production and its impacts on rural livelihoods and restoration or conservation objectives. Our aim is to collate and integrate previously disconnected datasets to shed light on the disturbance-response patterns associated with the perverse incentives of global agricultural markets, regional economic development, and environmental conservation. Our analysis demonstrates the importance of institutional fit and social learning, specifically the integration of new and marginalized actors into value chain governance and the emergence of new spaces for social learning in response to distributional conflicts. By charting the disturbance-response cycles in terminal lake basins, we uncover the governance pathways that integrate attempts to reconcile the multiple agendas of rural and regional development incentives and efforts to manage water for restoration and conservation purposes.

744

Do river basin committees contribute to the transition from centralized management to adaptive governance? Reflections from Uruguay

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The formation of river basin organizations as multistakeholder forums involving government and non-government actors is usually a sign of a shift in governance. In Uruguay, the water reform had a legal landmark in a referendum in 2004, when the society voted to approve a Constitutional Reform which included the participation of civil society in planning, management, and control of water resources. Since the National Water Policy was passed (2009), 14 Basin and Aquifer Commissions have been formed. Presided over by the Ministry of Environment, they are composed of members of the national/subnational governments, public/private users, and civil society (social organizations, academic institutions). The objective of this research was to assess the contributions of basin committees to different dimensions of adaptive water governance, namely collaboration/coordination, participation of non-government stakeholders, and flexibility. We conducted a multiple case study approach, focusing on three basin committees in Uruguay: Laguna del Sauce Lake (formed in 2010), Santa Lucía River (formed in 2013), and Laguna del Cisne Lake (formed in 2014). Our research took place from 2019 to 2021. Methods included semi-structured interviews with participants of these committees, participant observation during the committees' sessions, and document analysis (legislation, minutes, management plans). Collaboration and coordination among actors, particularly between different government organizations (national-national, national-subnational), were identified by participants as highlights/accomplishments of

the three committees. Despite progress, however, coordination still faces the challenge of fragmentation (lack of integration). The creation of basin committees as participatory forums involving non-governmental actors was also identified as an accomplishment. Nonetheless, and to varied degrees in the three cases, participants were dissatisfied with the limited decision-making power of the committees given their consultative/advisory nature, as well as the limited attention given to concerns of social organizations. The degree of flexibility of the committees (actions or responses undertaken to address certain issues or water crises) also varied from case to case. In two of the cases there is a risk of rigidity given that the operation of the basin committee depends almost exclusively on the National Water Directorate (Ministry of Environment). Our research suggests that concentration of power in upper government levels (in this Ministry), a trait of centralized and hierarchical governance, hinders the potential of basin committees in the transition towards adaptive water governance. We discuss the findings from the three cases in a comparative fashion, shedding light on the factors that enhance and hinder adaptive water governance in a Global South context.

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Assessing the Institutional Foundations of Adaptive Water Governance in South India

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Institutional structures can fundamentally shape opportunities for adaptive governance

of water resources at multiple ecological and societal scales. The properties of adaptive governance have been widely examined in the literature. However, there has been limited focus on how institutions can promote or hinder the emergence of adaptive governance. Elinor Ostrom's institutional theory stresses the importance of formal and informal norms and rules in effective governance of natural resources. Specifically, Ostrom's "design principles" (DPs) are considered important because they increase the capacity for adaptive decision making and facilitate the emergence of self-organization at smaller scales. Self-organizing agents can frequently modify rules-in-use, procedures, and technical methods to tackle changing ecological conditions and address significant management issues left by more traditional governments. In this study, we examine institutional arrangements for successful water governance by analyzing 1) the co-occurrence of DPs in irrigation systems, and 2) the combination(s) of DPs leading to social and ecological success. We collaborated with a local non-profit organization to review institutional records and conduct interviews in 50 irrigation communities in Andhra Pradesh and Karnataka in South India. Using qualitative comparative analysis, we found that the effectiveness of design principles is contingent on biophysical properties, such as the size of the watershed being governed, and attributes of the community, such as population size. We also discuss the methodological and data-related challenges involved in collecting primary data for conducting a context-specific institutional analysis. Our study offers a much-needed example of empirical research that investigates the role of operational level rules in adaptive water governance.

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Pro-Poor Climate Governance and Carbon Trading : A Case Study of Ningxia in China

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In general, climate change poses a threat to poverty eradication. If high energy consuming industries are developed in poor areas, it will aggravate the damage to the local ecological environment. Fortunately, these areas are often rich in renewable energy, such as wind, solar energy, and so on. Therefore, supporting the development of renewable energy and carrying out carbon emission trading in poor areas can further promote the realization of green development, circular development and low-carbon development. As the largest developing country in the world, China is facing the great challenge of balancing economic growth and climate change in its marginal areas, which refer to the remote, mountainous and ethnic minority dominated poor areas mainly in Western China. After experiencing uneven development in the region and long-term exploration, significant progress in China's economic growth and climate improvement has been witnessed in recent years. Till March 2021, a total of 8,415 Clean Development Mechanism (CDM) projects have been applied by China from UNFCCC. The Xihai area of Ningxia in western China has been recognized by UNESCO as the most uninhabitable place for human beings. Today, the ecological environment continues to improve, and the forest coverage rate has increased from 22% in the 1960s to nearly 65%. As the first province in China to set up CDM Environmental Protection Center, Ningxia CDM Center, as a public service unit (PSU) at the beginning, and developing into a private non-enterprise later, has been assisting actors to apply for CDM projects and carrying out carbon trading capacity-building practices, mainly focusing on how rural agriculture can adapt to climate change.. The ebbs and flows among CDM Centers in China and carbon markets growth speaks itself that it would be too simple

to assume that after the growth of the market economy, changes to a sustainable and low-carbon economy will automatically take place. This paper attempts to present the complexity of climate governance in poverty-stricken marginal areas, what kind of local low-carbon governance structure is forming based on the indirect relations mediated by poverty reduction and industrial development. How could the marginalized areas “glocalize” the international norms into motivations of grassroots, and how the experience of Ningxia CDM Center could be shared more broadly? An “idea-policy-regime” framework might be utilized for the case analysis.

Panel ID 407 | Onsite

Housing systems in the Anthropocene: Implications of housing governance, policy, and outcomes for a just climate transition

Panel Day and Time: TBD

Panel Room: TBD

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Understanding the nexus between climate change adaptation and housing: a systematic review

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Housing constitutes a significant portion of urban infrastructure, and a lack of adequate and secure housing can limit the capacity of individuals, households, and communities to adapt to climate change impacts. Housing and climate change adaptation intersect in at least three ways: 1) housing influences the (re-)production of climate change vulnerability; 2)

adaptation measures can be implemented through housing policy; and 3) housing system governance can constrain or support adaptation opportunities. In this paper we conduct a systematic review of this scholarship to understand the state of knowledge on how housing systems shape climate change vulnerability and adaptation responses.

We adopt a novel, multi-method approach that integrates natural language processing and manual article coding. First, using a search string developed from a review of the housing systems literature, we retrieved over 600 peer reviewed articles that address: 1) impacts of climate change, social vulnerability to climate change, or adaptation to impacts of climate change; and 2) at least one aspect of housing systems, including interactions between actors and institutions involved in the building, allocation, financial, regulation and maintenance of housing. Using structural topic modelling, a type of unstructured machine learning, we identified 10 topics that represent key themes within this body of literature. These topics reveal key words, concepts, and issues that characterize the literature on housing, vulnerability, and adaptation. We then identified a short-list of 130 articles that are most closely associated with each topic and coded them to identify research design, the article’s discursive framing around housing, housing type(s) examined in the research, relevant climate change hazard(s), any described policies, attention to equity, inclusion, and justice issues, and discussion of marginalized or vulnerable groups.

Preliminary findings indicate that much of the literature in the adaptation-housing space frames housing as infrastructure, rather than as a human right, an area of social policy, or a public good. Our topic model results reveal geographic differences in topic prevalence, however, with engineering-focused topics more common in industrialized regions and vulnerability-focused topics more common in middle- and low-income regions. The scalar focus of this scholarship tends to be on large cities or metropolitan regions, leaving significant knowledge gaps about small cities and rural areas. We observe a limited focus on equity, inclusion, and justice issues, with the biggest focus found in articles dealing with

social vulnerability, resilient land use planning, and coastal land use planning.

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Climate Change Adaptation Readiness and Co-operative Housing: Governance, Policy, and Possibility

Zacharie Carrier

Concordia University, Canada

Canada faces overlapping, accelerating crises in both climate change and the diminishing availability of affordable housing. To date, Canadian adaptation research has focused almost exclusively on how adaptation is being implemented in the private housing market, with a general focus on homeowners. A critical gap has emerged in our understanding of how different forms of housing tenure are being integrated into Canadian adaptation governance, and how decisions around social vulnerability, equity, inclusivity, and housing justice are factored into planning and policy processes.

This paper examines how adaptation plans and policies in Nova Scotia, a province with both high place-based vulnerability to sea level rise and high social vulnerability to climate change, are integrating the needs of the non-profit co-operative housing sector into climate adaptation decision-making. It also investigates the potential for housing co-operatives to contribute to a transformational vision of climate change adaptation, and a more resilient housing system through adaptation work at the intersection of climate and social justice. The case study evaluates this potential using a modified framework of ‘adaptation readiness’ by considering co-operative principles of democratic governance, autonomy, and equity, as well as the need for transformational change at the housing-climate nexus. Two methods are employed: 1) A systematic content analysis of municipal and provincial climate policy documents, and 2) semi-structured qualitative interviews with municipal and provincial adaptation planners

and key informants, including co-op board members, the provincial housing authority, the Co-operative Housing Federation of Canada (CHF), and the Canadian Mortgage and Housing Corporation (CMHC).

Findings suggest that diverse forms of tenure, including co-operative housing, are largely neglected in adaptation policy and planning for NS. Nonetheless, there are signs of modest adaptation ‘readiness’ for the co-operative housing sector as evidenced by new co-operative organizations, funding opportunities, emerging models of development, and co-operative leadership which is willing to take on climate and sustainability work. Barriers identified include a lack of usable climate science for non-profit housing providers, inconsistent funding streams, an unnavigable system of bureaucracy, and failure to substantively grapple with issues of equity in adaptation policies. Housing co-operatives remain a form of tenure with the potential to stimulate transformational change in the sphere of housing systems adaptation, enhancing climate and social resilience through increased access to affordable housing and expanded democratic governance at the community level, but only if risks, opportunities, and constraints for the sector are considered comprehensively by both state and co-operative decision-makers.

786

Paying attention to the social, spatial, and health dimensions of energy poverty for a just energy transition in Canada

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Canada is one of the largest energy producers and consumers in the world. A cold climate, dispersed population, affordable energy prices, and high standards of living contribute to Canada’s high energy intensity. Yet, some 6%

to 19% of Canadian households are experiencing energy poverty, a situation that happens when households are unable to access or afford adequate energy services at home to meet their needs and maintain healthy indoor temperatures. In Atlantic Canada, over 30% of households are in energy poverty. Despite this high prevalence, energy poverty has received little attention in Canada, both from a scientific and policy perspective. The objectives of this paper are: 1) to explore social and spatial inequalities in the distribution of energy poverty across Canada; and 2) to assess the health impacts of energy poverty.

Data on representative samples of Canadian households are from the 2017 Survey of Household Spending and from the 2018 Canadian Housing Survey. Energy poverty is measured using expenditure-based indicators, i.e. the ratio of energy expenditures to annual household income, and using self-reported indicators of thermal comfort, i.e. satisfaction with the ability to maintain comfortable indoor temperature in the winter and in the summer. Variation in energy poverty is explored in relation to selected dwelling (repairs needed; type of dwelling; etc.) and household (composition; financial hardship; etc.) characteristics, by province and by urban and rural location.

Results show significant social and spatial inequalities in energy poverty. Energy poverty is significantly higher for one-person, lone-parent, and older households, for households with someone living with a long-term illness or disability. Energy poverty is significantly higher for households living in single-detached and in mobile houses, in dwellings built prior to 1960, in dwellings requiring major repairs, and for renters in urban areas. There are geographical patterns, with energy poverty being higher for households in the Atlantic provinces and in rural areas. In Exposure to energy poverty is significantly associated with higher odds of poorer self-rated general and mental health, independently of households' financial hardship and poor dwelling conditions.

These findings demonstrate that energy poverty is patterned across a social gradient in Canada, that it varies across space, and that it is a risk factor for the health of Canadians. As Canada strengthens its energy transition,

attention should be paid to the equitable distribution of these efforts across the country, and especially for vulnerable, low-income, and rural households that are currently experiencing energy poverty.

787

Policy integration of adaptation and housing policy in Canada

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Adaptation is an essential component of action to deal with the growing severity of climate change. It is widely recognized in the literature that adaptation is a cross-cutting issue that requires deliberate and coordinated engagement from all sectors and levels of governance to achieve successful implementation. The housing sector is particularly impacted by climate change. Frequent exposure to climate events such as flooding, wildfires, and extreme heat are leaving households unable to cope with worsening conditions. In addition to physical risks, lack of access to safe and secure housing is a major driver of social vulnerability, which increases the disproportionate burden of climate change experienced by disadvantaged and marginalized groups.

In Canada, housing makes up one of the biggest economic sectors and therefore has become a crucial consideration in national adaptation efforts. To date Canada has favoured a decentralized governance approach to climate change adaptation that disperses responsibility across federal, territorial, provincial, and municipal jurisdictions. Consequently, strategic initiatives are emerging to address adaptation from each level of government, which raises the question of how well integrated adaptation action is across sectors and levels of government. Does Canadian adaptation policy recognize the role that housing policies play in shaping climate change-related risks and vulnerabilities? To what extent is housing and adaptation policy vertically (by level of government) and horizontally (by sector) integrated?

In answering these questions, this paper builds on a growing body of policy integration research by conducting a content analysis of policy goals and instruments in Canadian housing and climate change adaptation strategies. Using a policy comparison framework adapted from Candel and Biesbroek (2016), I identify 60 strategic documents related to adaptation and housing policy published since 2015 from 27 units of government. I identify 2,567 policy instruments from these documents and examine the extent to which there is integration across policy frames, goals, instruments, and policy subsystems within these policy domains. Though there are policy integration studies in other sectors such as forestry, energy, and agriculture, this paper will demonstrate the first policy integration study involving adaptation and the housing sector. It aims to provide insight on key challenges in Canada's policy design for these sectors and inform a more coordinated climate resilience policymaking in the future.

Panel ID 479 | Virtual

Knowledge Cumulation in Earth System Governance Research Part I: Foundations of Knowledge Cumulation and the Science-Policy-Interface

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Assessing knowledge cumulation in earth system governance research: An analysis of 100 published ESG papers

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Research in earth system governance (ESG) aspires to be both academically sound and policy-relevant (Biermann et al. 2007, 2012; Burch et al. 2018). Arguably, both objectives require the production of reliable evidence by cumulating – refining, challenging, complementing and synthesizing – existing research (Nutley et al. 2019). In line with a growing focus on evidence cumulation in sustainability science (Pauliuk 2019), we ask how and to what extent ESG research contributes to evidence production and cumulation.

To this end, we first define what constitutes ESG research as all publications that emerged from the first seven ESG conferences (from Amsterdam 2007 up to Norwich 2014). To be precise, we define the body of ESG research as all journal articles published in or before 2021 which can be attributed unequivocally to an abstract accepted for an ESG conference. We identified 362 publications that match these criteria, of which we further analyse a random set of 100 publications. We show descriptive

statistics and network graphs to characterise this body of research.

The resulting set of 100 journal papers were coded for their theoretical, conceptual, normative-prescriptive or empirical orientation. Empirical papers are coded for a qualitative, quantitative, interpretive or meta-analytical research approach, and whether they can generally be regarded as positivist or constructivist (Burch et al. 2018). We coded in what way papers add to, refine, challenge or synthesise existing research, and in what way they contribute to developing shared frameworks, definitions or datasets.

Overall we find that evidence cumulation is still poorly developed within the ESG community. Like the field of environmental policy and governance more generally, ESG research may be characterised as a “fragmented adhocism” (Whitley 2006), explaining the widespread failure to produce robust and cumulative knowledge .

We close by suggesting a number of avenues for stronger production and cumulation of evidence in the ESG community. These include the development and use of more widely shared core terminology, e.g. through broadly accepted dictionaries and common research protocols, allowing to produce shared and compatible datasets, and meta studies that synthesise existing (case-based) research following shared frameworks. Hence contributing to a growing body of – cumulating – evidence on what “works” in ESG will, so we hope, more likely and more lastingly inform policy and governance.

800

Using accumulated knowledge in environmental and sustainability governance: The case of Australia

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The emerging discourse of knowledge accumulation has so far mainly centred on practices within the scientific community. Questions are being asked in relation to activities (how), actors (who), timing (when),

storage and dissemination (where) and its purpose (why). The usage of accumulated knowledge in policy making does not fare prominently, yet cannot be ignored in times in which research activities are being scrutinised as to their potential to deliver societal impacts beyond the academy.

This paper asks whether the fact that knowledge has taken on the form of being accumulated has an impact on the degree to which it is being used in environmental and sustainability governance. To this end, this research analyses an original data set of evidence used in more than 120 regulatory impact assessments (RIA) prepared by the Australian government between 2012 and 2020. RIAs are documents prepared by government to provide a case for policy intervention. Typically, they contain references to multiple sources of evidence with a view to convincing parliament, stakeholders and the wider public of a specific course of action.

In order to explore to what extent bureaucrats draw on accumulated knowledge when they draft RIAs, this paper relies on a comparative research design: (a) knowledge as accumulated raw data (e.g. data sets) v. knowledge as findings that are based on techniques of knowledge accumulation (say, meta-analyses), (b) accumulated v. non-accumulated knowledge, (c) knowledge available in the public domain v. behind a paywall, (d) environment and sustainability-related RIAs v. other policy fields, (e) scientists, stakeholders and government authorities as different creators of knowledge. The latter enables the study of extreme cases: Would isolated scientific knowledge trump accumulated knowledge from a potentially biased lobby group?

Subsequent qualitative analyses explore the relationship between references to accumulated knowledge and emotive statements in environment-focused RIAs. Case studies of isolated events – such as major catastrophes – do not only offer facts and analyses; they also possess the potential to activate emotions such as sadness, disgust and outrage. Accumulated knowledge may provide a fairer picture of the overall evidence base, yet the political value of emotions triggered by studies of singular events will be well hidden

under the cover of aggregation. Consequently, it may be strategically advantageous to reference well-chosen case studies rather than meta-analyses when attempting to gather policy support via RIA documents.

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Using narratives to advance sustainability research and science communication

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Interdisciplinarity is both a central asset and challenge for cumulating knowledge in sustainability science. While the diverse research strands, ontologies and epistemologies as well as researcher backgrounds drive innovative research that can better address the complexities of sustainability transformations, this eclecticism also increases the risk of misunderstandings, blind spots and adverse decision-making.

Narratives are a unique tool to unpack and make sense of this eclecticism. They highlight problem descriptions, values and goals underpinning choices at all steps of knowledge production. In this contribution, we develop practical guidance for researchers to articulate, discuss, and alternate between scholarly narratives, gauge their problem-solving potentials, manage them in projects, and understand their relevance for practitioners.

We synthesize a (preliminary) set of archetypical narratives in sustainability research and propose a narrative-led knowledge exchange to deal with their ontological variation and contradictions productively through three distinct strategies. While the typology helps to identify and structure narratives underlying individual and collective research choices, the strategies help clarify ontological perspectives, illuminate blind spots and mitigate adverse decision-making.

Our narrative-led guide aims to create a “forum of exchange and mutual understanding”, which supports scholars in drawing informed conclusions on the growing range of sustainability science knowledge. The guide will help to (1) structure and systematize existing knowledge in new ways, (2) identify new fields of research and action, and (3) foster mutual understanding and decision-making in interdisciplinary collaborations. Effectively supporting sustainability transformations will require scientists to navigate between, and learn from, diverse philosophical positions and interrelated research assumptions. Such learnings are also essential for understanding the relevance and implications of the generated knowledge when communicating across disciplines and between science and policy practitioners. It may help practitioners to better evaluate the diverse pools of knowledge, their interrelated, complementary of contradictory findings as well as their main research gaps.

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The two faces of open science in cumulating knowledge for sustainability

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In several European countries, actors are posing fundamental questions about the potential of universities and their current recognition and reward systems to contribute to addressing pressing sustainability issues. The debate on open science is a key manifestation of this movement. As the name suggests, the vision of open science is to ‘open’ up science, not only in terms of opening access to scientific data and knowledge but also in terms of opening the co-construction of

science with society. Its grand ambition is to make science more transparent and inclusive, increase the chance for science to solve societal problems and transform society. However, the jury is still out on whether, how and with whom open science can contribute to knowledge cumulation within and beyond universities. In this paper, we intend to elucidate this question based on an empirical analysis conducted at five European universities under the auspices of the EU-Horizon 2020 TORCH research project. We studied the (dis)incentives of public engagement and transdisciplinary science practices as part of the open science debate. We based our analysis on a review of relevant literature (e.g., on open science, knowledge cumulation, transdisciplinary science) and data collected from 64 semi-structured interviews and 10 focus group discussions with university and societal actors, including experts at the systemic level (national, regional, and international level). Our findings show contrasting perspectives on open science for knowledge cumulation: critical and favourable. Those departing from a critical perspective pose fundamental epistemological questions around what is considered (scientific) knowledge, who should produce this knowledge, and what is the credibility and legitimacy of knowledge and the actors producing it. Meanwhile, those departing from a favourable perspective puts forward societal impact and sustainability as a clear purpose of cumulating knowledge through open science, placing society as the beneficiary of knowledge cumulation vis-a-vis university. These two perspectives are oftentimes intertwined. However, we consider them in light of the contextual challenges and opportunities for open science that are shaped by diverse and complex features inherited by historically more and less advantaged actors, institutions and systems. We also argue that the issue of power and politics are inseparable from the discussion around open science as each actor defends their (vested) interests in navigating their role. We conclude this paper with a suggestion to reflect on power asymmetries as a potential threat to equity in realizing the true aspiration of open science.

Panel ID 487 | Virtual

Knowledge Cumulation in Earth System Governance Research Part I: Foundations of Knowledge Cumulation and the Science-Policy-Interface

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The archetypes approach for knowledge accumulation in earth system governance research: Recent advances, current limitations and emerging frontiers

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When searching for ways to improve sustainability, scholars are confronted with the diversity of local factors and processes which are often interlocked in complicated ways. This imposes a challenge for knowledge cumulation across heterogeneous cases. Recent years have seen the emergence of archetype analysis to understand and to foster transitions toward sustainability. The archetypes approach might be one specific approach to cumulate knowledge in Earth System Governance (ESG) research.

This contribution aims to reflect on the current state of the archetypes approach and assess its suitability, limitations and emerging frontiers for knowledge cumulation in ESG research. A systematic literature review reveals that the most frequent motivation for archetype analysis is cumulative learning across cases and contexts. Case study research designs in ESG and other fields of sustainability research enable in-depth understanding at a high level of detail. However, a recognized limitation of

case studies is their restricted validity beyond the immediate study sites. This restriction limits the understanding of the conditions for which specific knowledge claims from case studies hold; which results are generalizable; and how contextual factors modify general insights. Furthermore, in rapidly expanding research fields, scientific knowledge quickly becomes scattered across hundreds of case studies. Without systematic synthesis, learning in science and policy making cannot keep pace with the collected evidence. Ideographic traps can emerge when researchers embrace the complexity of social-ecological systems. Here, archetype analysis offers a methodological approach to foster cumulative learning from case studies in a systematic way. The approach generalizes case study results through multiple explanatory models. Analysts can assess the commonalities and particularities of individual cases by relating them to a suite of multiple archetypes. To address questions of similarity and replicability in a rigorous way, archetype analysis can draw from a broad portfolio of qualitative, quantitative, and mixed methods. A core starting point is the assumption that it is useful to consider multiple explanations, theories, or models in parallel. It is assumed that a single archetype would not be able to explain all cases of a phenomenon. Admitting a suite of archetypes thus also promises to be conducive to interdisciplinary collaboration when a common epistemological base is not available.

This paper reflects on a recent special issue's empirical and methodological contributions. We scrutinize on whether and how archetype analysis can indeed be part of larger knowledge cumulation efforts in ESG research.

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Bayesian reasoning and interdisciplinary knowledge accumulation

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This contribution explores how the methodology developed in Social Inquiry and

Bayesian Inference (CUP 2022) could promote knowledge accumulation in diverse, interdisciplinary fields like earth system governance.

Bayesian reasoning involves assigning “prior odds” to rival hypotheses given the information we possess. We then gather new evidence; ask how likely that evidence would be if a particular hypothesis were true; and update to obtain “posterior odds” on our hypotheses. Following Bayes’ rule, we gain more confidence in whichever hypothesis makes the evidence more expected.

Bayesianism offers multiple advantages. It provides a natural framework for knowledge accumulation: posterior odds based on what we know so far simply become our “prior” odds when we proceed to gather more data or encounter salient studies that we were not previously aware of. Bayesianism likewise provides a systematic framework for meta-analysis that aims to assess the cumulative state of knowledge for a research agenda by pooling evidence across multiple studies. Bayesianism can help us make more rigorous inferences and avoid common cognitive biases, especially when analyzing nuanced qualitative information. This approach also opens up our analysis for scrutiny and facilitates evaluation of the reliability of findings, with an emphasis on ascertaining whether the evidence presented justifies the conclusions. Bayesianism also affords flexibility—it accommodates all kinds of evidence, whether quantitative or qualitative, stochastic or nonstochastic, experimental or observational. Inference proceeds in the same manner regardless of what kind of information is at hand. In addition to providing a unified framework for learning from both qualitative and quantitative information, Bayesianism has the potential to bridge between interpretivist approaches that emphasize positionality, and positivist approaches that seek an underlying truth. Accordingly, Bayesianism could help foster greater understanding across the diverse earth-systems research community.

Last but not least, Bayesianism facilitates communication with policymakers. Bayesian reasoning is a natural framework for evaluating how much uncertainty surrounds our findings, and it mirrors the way people intuitively

approach inference. Accordingly, this approach provides results that are much easier for laypeople to interpret. In contrast to orthodox statistics, which reports p-values that are regularly misinterpreted even by trained scholars, Bayesianism directly answers the question that is usually of central interest for policymakers: how much confidence should we hold in the truth of a hypothesis relative to rivals in light of the evidence? Posterior odds on the hypotheses in question can directly and immediately inform decision-making on important matters of public policy.

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Systematic data coding and state-of-the-art modelling for knowledge cumulation in earth system governance: An application to economic corridors

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Different researchers approach similar problems with different terminologies, due to, among other things, different problem framings and disciplinary backgrounds. Often, a team of researchers will describe an aspect of a problem using multiple terms within the same publication. Systematic techniques for data coding have been developed for coping with heterogeneous terminologies, thereby aiding knowledge cumulation. However, challenges remain in how to make use of the resulting syntheses. For example, cumulated knowledge is sometimes analyzed using system dynamics models, which can reveal systemic properties such as alternative stable states, pathways, and levers for systemic transformations. Knowledge of such properties can be helpful in supporting multi-stakeholder decision-making processes. But when purely quantitative methods of modelling are used, system details that are difficult to quantify can be lost or distorted. There is thus a need for an approach to knowledge cumulation and

modelling that retains qualitative as well as quantitative system details. In this paper, we demonstrate such an approach, combining systematic techniques for data coding with the Cross-Impact Balances (CIB) method, which retains qualitative system details. In recent years, the CIB method, which was designed for scenario analysis, has been adapted for system dynamics modelling – opening the door to new analyses built on cumulated theories, case studies, and reports. As an illustration of its potential, we apply our approach to the topic of economic corridors. Economic corridors are large and complex infrastructure projects that cross multiple scales (geographical, political, economic, ecological, etc.) and levels (global, regional, national, and local) and that have mixed effects on people and the planet. Thus, their governance requires a systemic understanding. To contribute to such an understanding, we derive a conceptual model from a sample of pertinent theories on our topic, which we convert into a system dynamics model and analyze using the CIB method, identifying promising levers for systemic transformations. We conclude with reflections about the potential and limitations of our approach for the cumulation of knowledge in Earth System Governance.

Panel ID 631 | Onsite

Adaptation, Resistance, and Sovereignty in Earth Systems - Institutional Navigation of Multi-level Arctic Governance

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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From co-management entity to a regional governance platform: The Alaska Eskimo Whaling Commission

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Conservation governance has largely shifted from fortress mindsets toward co-management orientations reflecting human-non-human entanglements and (sometimes) embracing diverse knowledge systems. Co-management entities often have relatively narrow conservation or management mandates, yet due to the nature of interconnected and rapidly changing Earth systems, organizations may need to engage strategically with diverse institutions and organizations across levels. In an Arctic case, we examine the evolution of the Alaska Eskimo Whaling Commission, a co-management organization that protects the bowhead whale and subsistence whaling rights. Initially, the AEWC convened whaling captains and communities, and engaged largely with NOAA and the International Whaling Commission. But over time, the diversity of issues, stakeholders and levels of jurisdiction the AEWC engaged with has increased dramatically. Using thematic coding, institutional analysis and social network analysis for three decades of AEWC meeting agendas and reports, we examine the changing interactions of the

AEWC with other governance entities, shifting narratives advanced by AEWC and actors coming to AEWC meetings, and how the AEWC became a powerful regional convening platform on issues including arctic research, energy development, shipping, marine safety, and other marine species conservation efforts. Some of the temporal change in engagement is related to changes in climate and ecology, such as an “opening up” of the Arctic marine environment due to less ice, and AEWC concerns around potential effects on bowhead. Other changes are driven by geopolitical change, including the fall of the USSR, leading initially to increased international cooperation and strategic engagement with Russian Indigenous whaling communities and scientists, and then more limited engagement in the last decade with changing Russian domestic politics. For some AEWC leaders, a convening role is coupled with fatigue and concern about lack of support and resources that may be a drain (and potentially even a threat) to advancing their core mission to protect bowhead and indigenous whaling. International bodies, nations, and environmental organizations increasingly are embracing co-management governance strategies, yet less attention has been paid to the interconnectedness of the underlying Earth systems (including ecologies and economies) that affect co-management and the challenges for increasingly taxed co-management bodies who attempt to navigate these diverse spaces.

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Multi-level Governance of Arctic Sea Ice Change - Grappling with Variability of Variability

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The Arctic is rapidly warming, but changes to sea ice are not linear, increasing uncertainty

and making adaptation governance particularly challenging. As warming drives a dramatic shift in the physical regime, there is increasing variability of variability in sea ice change, including unpredictable breakups and false freeze events. Arctic governance, including adaptation to sea ice change, is multi-level from the local to the supranational with settler nation-state and Indigenous governance systems (the latter often spanning settler state boundaries). Diverse actors and entities navigate these multi-level governance systems to advance varied, often conflicting, adaptation strategies. Tensions evolve both horizontally, as in competition for resources which are redistributed exogenously by changing climatic conditions, and between governance levels, as, for example, when climate change opens novel resource extraction opportunities. This paper explores institutional navigation of sea ice adaptation by diverse actors in the Beringia region spanning the USA and Russia. We begin with both back- and fore-casting, localizing sea-ice change from a widely-used earth system climate model. Using a multi-level Earth System Governance framing, we explore themes from key informant interviews and archival analyses. We characterize the issues and adaptations discussed, or advocated, at different levels within and across this bi-national context. Then we characterize the tensions in the ideas discussed as well as conflicting epistemologies, narratives, and preferences centered in the different systems, or subsystems. We also investigate how key informants perceive 'normal' variability as in recurring, discrete 'normal events' versus 'extreme events' that, by definition, characterize changing variability regimes. Community actors frequently lament the lack of understanding of the Arctic context by regional and national actors, while national and international decision-makers often dismiss local actors as narrowly self-interested, or lacking understanding of global adaptation imperatives. Tensions over what constitutes knowledge and how the future can be understood are both ubiquitous and foundational to communication between institutions and between institutions and constituencies. Exploring this exemplar case provides key insights for multi-level

governance and adaptation elsewhere that are characterized by variability of variability in the context of regime shifts.

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Reimagining Arctic Sovereignty

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Within the Arctic context, there is tremendous variation in governance systems, and both competing and potentially complementary forms of sovereignty. Each governance system reflects an “imaginary” situated within epistemologies, worldviews, and histories. The sovereign nation of the Westphalian tradition divvies up geographic spaces creating national borders. These states enter modern international agreements to extend governance both beyond and within their borders around particular issues. Historically, much of environmental governance scholarship centered institutions created by, within, or between modern nation-states - a sovereignty imaginary that reflects Western epistemology that came to prominence during the Enlightenment period. But broader conceptualizations of sovereignty likely are needed to address Earth System Governance challenges in equitable and just ways. Diverse Indigenous governance systems have existed, and persisted, in the Arctic for millennia often based upon relational ontologies linking human and non-human communities to place. Increasingly transnational movements are advancing new sovereign imaginaries around diverse community and political identities, while Indigenous communities are fighting for recognition of their sovereignty within and across national boundaries including on issues such as climate, food sovereignty, and conservation. In this paper, we explore tensions between these different approaches to governance and sovereignty, such as social

contracts underlying modern nation-states and relational ontologies underpinning many Indigenous governance systems. In this paper, we explore ideas about sovereignty and highlight exemplar cases using archival analyses and secondary literature. We characterize tensions and synergies, as well as consider issues of justice and equity with a focus on governance of adaptation to change in the Arctic. Shifting toward both more diverse and more relational forms of governance linked closely to place, issues, and communities provides an opportunity to reimagine sovereignty to grapple with Earth System challenges, such as those brought on by rapid change in the Arctic.

Stream 6

Accelerating Just and Inclusive Transitions

Panel ID 600 | Virtual

Transforming the Global Agri-Food System

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Just transitions in the livestock sector: opportunities, challenges, and lessons from energy transitions

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The world's large —and growing — appetite for animal protein has profound implications for sustainable development, with the livestock industry accounting for 15% of global GHG emissions, and a major driver of global biodiversity decline. The overconsumption of red meat, in particular, is also associated with a range of adverse health impacts, livestock farming is a key driver of infectious disease emergence, and antibiotics use in the livestock sector raises serious risks from antimicrobial resistance. With many livestock animals raised in inhumane conditions, a shift away from current production and (over-)consumption models could avoid enormous amounts of non-human animal suffering.

Against this backdrop, there is increasing recognition that dietary patterns in regions with high levels of animal protein consumption need to shift. Nevertheless, promotion of dietary shifts away from animal protein remains a marginal issue on many national and international agendas.

An important policy gap remains a lack of just transition planning to realise a shift from high-

animal protein. Indeed, livestock rearing and processing is a significant contributor to employment and GDP across many countries and communities. The recent rise in investment in plant-based meat replacements and “lab-grown” meat also raises important questions about who might win and who might lose from such a transition, from consumers through to livestock producers and markets.

Systematic, timely and dedicated planning and investment away from livelihoods and lifestyles that depend on intensively produced animal protein is therefore essential to ensure that sustainability goals are met while minimising the costs and maximising the benefits of this transition. Such planning is required at different policy-making scales, and includes an important international cooperation component to ensure a globally just and equitable transition.

While the concept of just transition has gained significant traction in the energy sector, it is only very recently that the need for just transition in the livestock sector has become more widely acknowledged, with countries such as the Netherlands introducing “buy-out” schemes for meat and dairy farmers. Research on the topic is nascent, and many gaps to understand the opportunities and challenges for a just transition remain.

In this paper, we map the key stakeholders that stand to be affected by a transition away from livestock farming, and discuss the challenges and opportunities they may face. Drawing from lessons in the energy sector, we highlight key principles that can facilitate just transition planning in the livestock sector, and examples of emerging best practice.

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Applying the transformation framework to agri-food systems: The transformative potential of Seed Commons

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Research on agri-food systems is gaining more and more attention in the sustainability transitions and transformations literature, as their current and dominant modes of production and consumption contribute to interconnected environmental and societal challenges. Seed Commons initiatives, such as the Philippine rice breeder-farmer network MASIPAG or the German organic breeding association Kultursaat, offer an alternative approach to the dominant seed and variety regime, and challenge its dominant dynamics of privatization and commercialization. However, such initiatives are faced with structural barriers that limit the scope of their work and their contribution to larger societal changes is not clear.

In this paper, we apply the Social-Ecological Transformation (SET) framework, developed to bridge process-oriented and structural approaches to transformation, to assess the transformative potential of Seed Commons. The SET framework synthesizes insights derived from a review of transformation and transition literature, combining a basic understanding of the social-ecological system structures and function, with a normative frame that sets the space for legitimate objectives for transformation. The analysis shows that Seed Commons initiatives have a transformative character, but their transformative impact still needs to be enhanced: The change processes initiated by Seed Commons take place outside of the

identified incumbent paradigms of ‘control and autonomy of humans over nature’, ‘materialistic culture and growth’ and ‘expert knowledge and specialization’ that need to be overcome to enhance social-ecological transformations. Moreover, the work of Seed Commons initiatives is oriented at several resilience and justice principles, such as including diverse forms of knowledges and taking complex ecological interactions into account. On the meso level, the transformative impact of processes of change is assessed according to their effect on challenging incumbent paradigms (bottom-up) and facilitating further change processes (top-down). Seed Commons use opportunities within the current legislative system and campaign politically for the revision of barriers. Strong networks in combination with a holistic approach towards breeding and seed management have helped to build a strong alternative to the prevalent system. Predominant hindering institutions and power relations are still in place, though, and could be addressed by building even broader alliances to challenge socio-political structures. Still, by challenging fundamental functioning principles of the current economic system, such as commodification of nature and privatization, Seed Commons serve as a Real Utopia that could inspire wider societal changes.

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Beyond Certification: A Typology of Instruments of Private and Community-Based Sustainability Governance in Agri-Food Value Chains

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Certification of voluntary sustainability standards have become a main strategy to

enhance human well-being of producers, workers and communities involved in agri-food value chains. Accumulating evidence however points to the limited and sometimes even adverse effects of certification schemes. Partly in response to these mixed results, agri-food companies and producers have developed various alternative and complementary governance approaches to promoting sustainability in value chains. These include inclusive business/direct trade, and solidarity economy.

This growing institutional diversity in approaches to sustainability governance creates an empirical and theoretical challenge of mapping the range of instruments applied in different strategies. Existing typologies in this field classify instruments at a broad level, without disentangling the precise institutional details regarding, e.g., ownership, voice, and the distribution of benefits, risks and costs. The proposed paper addresses this challenge by developing a typology of instruments of private and community-based sustainability governance. It will therefore examine and compare certification, inclusive business, solidarity economy and other strategies with regard to the specific instruments intended to enhance human well-being of producers, workers and rural communities.

Empirically, this study presents the results of an extensive survey of organizations based in Peru and Switzerland that are involved in the production, processing, trading, selling, and certification of coffee and cacao and derived products. Analytically, the study is rooted in the institutional analysis and development (IAD) framework which structures the typology and embeds the discussion of sustainability governance instruments in larger policy analysis.

The expected results demonstrate, first, that value chain actors combine instruments of different strategies into their portfolio which reflects their specific value chain position, organizational mission and motivations regarding sustainability governance. Certification, inclusive business/direct trade, and solidarity economy strategies are therefore neither pure alternative nor purely complementary. Second, the typology disentangles the precise similarities and

differences of these strategies in terms of governance instruments used and underlying theories of change.

In the context of renewed demands to solve persistent sustainability issues in the agri-food sector, the presented typology of instruments associated with strategies including and beyond certification sheds light on important dynamics of acceleration toward more sustainable social-ecological systems and the underlying governance dimensions of those transitions. It may also become a useful tool for further institutional analysis of sustainability governance. Finally, it can serve as a foundation for empirical studies tracing the effects of specific instrument portfolios on various outcome variables associated with just and inclusive transitions.

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Re-configuring aquaculture sustainability assurance in the digital age

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This paper explores the emergence of digital sustainability assurance in the aquaculture sector. Over the past decades, third-party certifications have emerged as the dominant mechanism to assure the sustainability of aquaculture products. Certifications are designed to rely on 'analog' means of assurance including in-person audit visits to production locations. Digital technologies provide new opportunities to collect and verify data, assess sustainability and identify areas of improvement. Satellite imagery, drones and sensors enable remote monitoring. Blockchain technology allows for temper-proof information sharing in value chains. Using digital applications, distant actors can communicate in real time. Together, they promise to make sustainability assurance more transparent, effective, efficient, accurate, accessible and scalable. We explore how digitalization enables shifts in - and novels forms of - assurance. Based on interviews with

key experts and organizations in the aquaculture sector, we investigate how digital technologies are put to use to (re)organize the rules, procedures and practices of sustainability assurance. Building on the sociology of trust, we then identify shifts in the ways in which trust in sustainable production is institutionalized in the aquaculture sector. Preliminary analysis reveals a shift towards both increased surveillance as well as a stronger focus on enabling improvement as logics of trust.

Panel ID 601 | Onsite

Just for who? The role of citizens and place in community transitions

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Reconfiguring actors and infrastructure in city renewable energy transitions: A regional perspective

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Cities as large centres of energy demand and population are important spatially and materially in a renewable energy transition. Regions are important emerging actors in the decentralization of renewable energy systems, and in city energy transitions. This transition can affect socio-economic outcomes and relationships between cities and surrounding regions, with important implications for accelerating just transitions. This study draws on available literature on material dimensions, energy decentralization, and regional approaches to provide a conceptual framework to analyse emerging city renewable energy

transition plans for their material- and place-based actor scalar strategies. This framework outlines how the increase in renewable energy provided to cities results in new locations of productivity, interscalar relationships between new and centralized actors, and socio-economic outcomes. We use this to analyse 47 ambitious renewable energy transition plans in densely populated cities. Empirically, this study confirms that, for the most part, regions are important emerging actors in the decentralization of energy systems in a renewable energy transition; that city renewable energy transitions involve the forging of new economic relationships between cities and neighbouring communities and regions, and, as the community energy literature emphasises, that the involvement of a wide range of civic and local actors is important in shaping renewable energy transitions for cities. Further research can investigate how the institutional context is shaping these distinct actor material strategies and emerging interscalar relationships across regions. The socio-economic outcomes, particularly as they relate to new economic relationships between cities and the surrounding region and the re-spatialization of productivity and benefits, should also be examined.

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Transformative change for sustainable and just social-ecological systems futures

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Our social and ecological systems are facing 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. Yet 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 comprehensive systematic review of research that explicitly accounts for social equity and justice in sustainability transformations. Using key search terms relating to justice, equity, sustainability, and transformations, we carried out both a quantitative and qualitative review to highlight relevant key themes and frameworks.

While this review documents how equity and justice are framed, defined, and assessed in different theoretical and practical approaches to sustainable transformations, it is particularly concerned with the practicalities of integrating justice principles into sustainable transformation efforts. As such, we also chronicle who is involved in defining what is just or equitable and where it comes into transformation processes, the methods used to incorporate equity/justice considerations, the actions taken to incorporate equity and justice, and whether evidence of the impacts of these actions exists. Preliminary results reveal important implications, challenges, and opportunities for incorporating equity and justice into sustainable transformations.

To respond to and plan for dramatic environmental change, we will require transformations in the ways earth systems are governed. 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.

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The Climate Establishment

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Although international environmental (INGOs) are often seen as opponents of big polluters, often times, the two groups collaborate. This paper asks why, when and how this collaboration occurs. The general assumption is that “professional environmentalists” in INGOs are contributing positively to climate politics, but this assumption merits careful examination. Many INGOs are now large international bureaucracies, which seek to maintain their authority, access to policymakers and funding streams. Moreover, some cooperate with large emitters – including the fossil fuel industry, electric utilities, and firms in other emissions-intensive sectors. Rather than serving as outside critics, the INGOs that cooperate with large emitters are part of what I call “the climate establishment.” The climate establishment includes INGOs involved in advocacy, rulemaking and implementation of international climate policy: insiders in the climate policymaking process. This paper presents new data to identify members of the climate establishment and the ways in which they cooperate with polluters. I examine UNFCCC data to see which INGOs participate in partnerships with Fortune 100 companies, and provide a network analysis of these partnerships. Qualitative data analyzes the nature and depth of ties between the climate establishment and large emitters.

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Challenges, requirements, and opportunities for impactful and inclusive collaborative experimentations between municipalities and underrepresented communities in Metro Vancouver towards urban transformations

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In this paper, the aim is to attain insights and provide recommendations for guiding and enabling effective and impactful collaborative experimentations between municipalities and underrepresented populations for urban transformations that focus on environmental sustainability and climate action. This research identifies the key political, methodological, and epistemological challenges and opportunities that potentially enable or disable impactful collaborative experimentations between municipalities and underrepresented youth populations in Metro Vancouver. Using qualitative data from 10 semi-structured interviews with City officials and public organizations working closely with municipalities in Metro Vancouver, this research asks what are the key challenges and requirements of urban collaborative experimentations to address local innovation needs, and what are the specific elements that demand special attention to enable inclusive and deeply impactful results for such experimentations?

To respond to the growing demands to address the rapidly increasing threats of climate change and social inequalities, local governments in major Canadian cities are currently facing various challenges to tackle ambitious climate goals, while democratically and inclusively responding to the ongoing impacts of extreme climate events, growing diversity of urban populations, and increasing costs of living, using conventional planning methods and processes. In recent years, there has been a growing recognition and popularity of

emerging urban collaborative experimentations at municipalities and between municipalities and civil society organizations in Metro Vancouver in various forms, including social innovation labs. However, there are many ambiguities about the effectiveness of these emerging collaborative experimentations to generate deeply transformative, inclusive, and long-term results.

This paper seeks to bridge the gaps in the literature between urban transitions, innovation labs, and public participation in urban planning. Building on the insights gained through 6 interviews with City officials from the Cities of Vancouver, Burnaby, Coquitlam, and New Westminster, as well as 4 interviews with public organizations working closely with municipalities from the cities of Vancouver and Burnaby, the paper suggests a framework for the top elements that can potentially enable or disable impactful and inclusive urban collaborative innovation and experimentations. The suggestions from the interviews are categorized into five groups: 1) Theoretical and epistemological considerations, 2) Ultimate goals and organization of urban experimentations, 3) Connections and relationships with municipalities, 4) Evaluation and impact of urban experimentations, and 5) Essential elements and structural requirements. This paper offers insights that would be of interest to planning theorists and practitioners, urban innovation lab practitioners, and community engagement experts to support inclusive urban transformations and experimentations.

Panel ID 602 | Virtual

Politics and power: equitable transformations in the energy sector

Panel Day and Time: TBD

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Youth constituencies in global environmental governance

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The voice of youth has increased significantly in environmental politics in recent years. Particularly, youth have become prominent actors in the climate debate at the transnational level since the youth climate movement has grown as a unique social movement of our times. Yet, youth have been active in global environmental governance on a long-term basis. Since the 1990s, youth constituencies have been formalized at different venues of the United Nations (UN) mechanisms. There are the UN Major Group for Children and Youth (MGCY), YOUNGO (official children and youth constituency of the United Nations Framework Convention on Climate Change), UNEP MGCY, and the Global Youth Biodiversity Network (GYBN) (official youth group for the Convention on Biodiversity), to name a few. While these groups have been active in international negotiations, academic investigations on them have been rare until now. This is problematic, given that youth participation in environmental politics is essential for just and inclusive transitions of the social-ecological systems (6th stream of 2022 Toronto Conference).

As part of a four-year research project (Reference to project name removed), this paper tracks the historical development of international youth constituencies related to climate change, biodiversity, and sustainable development, and investigates their members, networks, financial mechanisms, and impacts.

This paper has two particular foci: 1) the dynamics and networks among the youth constituencies and 2) the linkages between the formal constituencies and informal environmental movements. This research subject assumes that networking is at the core of youth's mobilization strategy. Our methodology relies on an online survey, observations, and semi-structured interviews with youth constituencies and their individual participants of them. In addition, top-down as well as bottom-up methods are used for systematic documentary search. The results of this paper will contribute to deepening our understanding of youth actors who are gaining substantial importance nowadays in environmental politics.

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Pathways to carbon neutrality: examining political implications of decarbonization

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Achieving carbon neutrality and meeting the goals of the Paris Agreement require fundamental transformations in societies around the world. Around 50 countries have to date submitted long-term decarbonization strategies including net-zero goals to the UNFCCC. Should countries' decarbonization plans be ambitious and properly implemented, it raises questions about the consequences of transformation. Consequences could range from democratic energy development to competing agendas and political struggles. The uncertainties surrounding transformation is often lacking in academic analysis and these issues have only just begun to be explored in the transition literature. Drawing on literature from the fields of political science and socio-technical transition, we study countries' long-term decarbonization strategies to examine how countries perceive and interpret the potentials and challenges of accelerated transitions. In comparing the long-term plans

of countries, the paper explores benefits, uncertainties, and risks with the transformation. In addition, we draw on semi-structured interviews with government officials and climate and energy experts in select countries to obtain insights into their views on the prospects for achieving ambitious climate action in their jurisdictions and beyond. We probe what they see as enabling and constraining factors in implementing their long-term plans, as well as their views on the political, societal, economic and technological consequences of implementing these plans. Taken together, this generates insights on key uncertainties and evaluate viable pathways to decarbonisation. This paper thereby contributes to a deeper understanding of transition pathways by examining political implications of decarbonization.

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Europe's role in creating a gender-just and climate-just future

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Through a unique and timely theoretical reflection on the connections between gender inequality, climate change, and gender-based violence, this paper responds to the question of what role the EU can play in the creation of a gender-just and climate-just future.

There is an urgency to ensuring that climate solutions are gender just. COVID has shown us what global action in the face of an emergency really looks like, and how much change can be brought about when the political will exists. It has also exposed structural inequalities and has shown that they can be exacerbated by crises and by responses to those crises.

Gender is one of the most pervasive inequalities worldwide. The Council of Europe's Istanbul Convention (2011) presents gender-based violence as both a cause and a consequence of gender inequality. COVID has shown that gender-based violence increases dramatically in times of crisis, and the UN has labelled gender-based violence the 'shadow

pandemic'. Climate change is also deeply entwined with gender inequalities. There are gendered differences in the impact of climate change, its production, attitudes towards it, and climate leadership.

This paper puts transformative change to achieve climate and gender justice at the heart of reflections on EU climate policy design, implementation and impact. The EU has adopted the rhetoric of a 'just transition' [to a climate-neutral future] that 'leaves no-one behind'. The EU presents itself as a global leader in gender equality and in climate change. Its treaties require it to take gender equality into account in all of its activities. However, its climate policy is still largely gender blind, and this is a problem.

By bringing together the literatures on:

1. Change – norm translation, institutional cultural shift, post-crisis recovery,
 2. Policy integration, including gender mainstreaming,
 3. Equalities and social/gender justice,
- this project asks how we can make climate policy gender-just and how we can ensure that it brings about transformative change.

The paper builds a robust theoretical framework by bringing together literatures from academia, policymaking and NGOs. It draws on conceptual and empirical research in policy studies, which takes a gender lens to all institutional and political practice. It then uses process tracing, institutionalist analysis, and critical content analysis to see where gender is inserted, how it is framed and what impact it has. The data consist of policy documents and a series of semi-structured interviews with key policy actors.

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A spatial perspective on just transitions between global climate justice and local social justice claims

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Climate policies trigger energy transition processes involving local economic and societal reorientations. In the resulting structural change processes, notions of how the transition should go about are frequently expressed as justice concerns. Biermann & Kalfagianni (2020) even notice a ‘justice turn’ in political discourses on global environmental change, which is reflected in an intensifying and nuanced debate on just transitions. While nearly everyone agrees with the idea that transitions should be just, the elusiveness of the concept leads to a wide range of interpretations. Actors may disagree about the substance of justice (what is it that should be just) as well as about the scale at which justice should be ensured. Regarding the substance of justice, the three-tenet framework of considering distribution, recognition, and procedures has proven to be helpful for analytically disentangling the dimensions of justice, despite the inherent interaction between these categories (Fraser, 1998). What is less prominent to date is a thorough understanding of the scales that justice demands refer to, particularly in a spatial perspective. These scalar dimensions are reflected in socio-environmental justice discourses: while climate justice claims tend to focus on a global scale, the concept of just transition is mostly invoked in local social justice contexts.

The article aims to develop a framework for analyzing intersecting justice discourses and their spatial implications. It departs from the assumption that claimants refer to both scalar and substantial aspects conjointly when formulating their demands. The framework is formulated against the background of novel

governance arrangements in coal transition regions. Stakeholder commissions, bottom-up networks of mayors and citizens, or novel finance instruments are examples to study in this regard. In the public debates that emerge, spatially differentiating justice concerns are brought into interaction. These arenas are marked by power and knowledge inequalities and mechanisms of exclusion, but also by new alliances and modes of negotiation. The contribution is informed by empirical work on coal transition in regions in the Global North, yet the focus lies with the development of a framework for future research.

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Orderly, disruptive, or just transition? Exploring incumbent discourses of fossil fuel phase out

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“Will the transition be orderly and planned? Or will activists, NGOs, consumers and the media create a disruptive transition?”

The anticipated phase out of fossil fuels is not a passive process that will happen automatically as the share of renewable energy grows. Indeed, we can already see to date that the use of renewable energy has been largely deployed in addition to fossil fuels, rather than replacing. The phase out of fossil fuels should therefore be approached as an active process: one that requires action from governments, businesses and society to reduce the extraction and use of fossil fuels. Such processes can, however, be implemented in a multitude of ways and can also be contentious, and contested.

In my research with policy makers, investors, third sector actors and residents in extractive communities I (1) trace the emergence of different visions for fossil free futures and trajectories to achieve them, and in doing so (2) demonstrate how the emergence of the notion of ‘an orderly transition’ is increasingly employed to maintain dominant power

structures and discourage more transformative change.

This research thus contributes to Earth System Governance in two key ways. First, it highlights the *temporal* aspects of energy transitions. The notion of an orderly transition has been employed to equal a slow and gradual transition, standing in stark contrast to the notion of urgent climate action employed by scientists, NGOs and activists. Secondly, it demonstrates how incumbent actors are employing this temporal dimension to maintain their own central positions in energy systems as well as the broader governance structures that govern them. In doing so, it thus seeks to broaden understanding of incumbent power in energy transitions and the strategies employed to open and foreclose possible futures.

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Southern African city responses to climate change in the maelstrom of globalising urban governance

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Drawing on a recently completed research project, the proposed paper critically questions the extent to which city authorities in four southern African countries (South Africa, Namibia, Zimbabwe and Botswana) have managed in recent years to divert local law and policy attention to climate change.

The paper commences with an exposition of the initial post-colonial (democratic) transitions in these countries juxtaposed against more recent trends of (real and perceived) centralisation of power and governing authority. The probable implications of this trend for local climate action in the four countries are considered. The paper then turns to case studies of a total of 8 cities in the 4 countries to review and assess existing local laws, policies, programmes and projects directed at a local response to climate change (mitigation, adaptation and energy

transitions). These laws, policies, programmes and projects are critically reviewed in the context of the climate change impacts, level of energy poverty and socio-ecological pressures experienced in the country as well as the national government's climate obligations and commitments. The discussion and evaluation of the country and city level developments is canvassed against the global ecological crisis and how it ties in with the Urban Age.

The findings emanating from the case studies are subsequently used to critique the ongoing celebration of globalising urban governance and the presumed power of cities in global climate governance, specifically. The paper argues for a more fact-based distinction between the real power and autonomy of local government (municipalities) in federal, semi-federal and unitary countries spread across the global North and South. The argument is made that in the maelstrom of globalising urban governance, scholars and others may end up conjuring a truth about progress and positive impact that does not ring universally valid.

Based on the Southern African experience, the paper makes recommendations towards a more inclusive conceptualisation of the role of cities in global climate governance with an emphasis on a re-imagined meaning of democratic rule.

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Panel ID 603 | Onsite

Uncovering elitism in ‘just’ transitions

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The role of elite power in defining responses to decarbonisation policies: coping strategies for rapid and just transition outcomes

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Decarbonisation policies in carbon-intensive regions often create profoundly disruptive impacts. Mandated closure of coal and associated industries lead to job losses with cascading social and economic impacts on individuals, regions, and nations. The coping strategies that different actors are able to use to respond to these impacts largely depend on decisions taken by elite actors with high status in society who are able to define social goals and shape social order. Using theory on the governance of sustainability transformations, and a novel power framework developed for transition contexts that focuses on ideas, objects, rules, and actors, this paper explores the role of elite power in shaping the strategies that are used to cope with decarbonisation policies by actors across scales.

We draw upon a broad Inventory of Coping Strategies constructed through document analysis of 500+ newspaper, grey literature and academic sources, and 12 key informant interviews targeted at 12 of the European coal regions that are most vulnerable to disruption from decarbonisation policy. The 16 most significant resistance, adaptation and transformative coping strategies (e.g. protest marches, outmigration, preference shaping through rhetorical struggles in media, investment in renewables, miner early retirement plans) were assessed to determine

the role of elites in shaping responses and outcomes. This evaluation of elites was refined by re-coding 200+ relevant documents from the coping strategies inventory, and data collection through 8 focus groups in Germany, Greece, Estonia, Poland, Spain, the Czech Republic, Bulgaria, and Hungary.

Results reveal that early in transitions, elites with national and supranational reach usually resist change and try to prolong investment in fossil fuels. As transitions progress, these policy and business elites usually support strategies that perpetuate the structures associated with status quo institutional and socioeconomic conditions through adaptive strategies that replace or compensate for carbon-intensive activities with lower carbon industrial activity (e.g. renewables installations, retraining workers for other industrial sectors). However, some elite actors, mostly at supra- and subnational scales, and usually in more liberal democracies, support transformative strategies that are more disruptive, but that better address injustices associated with the transition process (e.g. the development of energy communities).

The study makes conceptual and empirical contributions regarding the key actors and mechanisms for shaping responses to decarbonisation policy in ways that support and accelerate just transition outcomes. It fits naturally with the overarching conference theme on just transitions, as well as with the power and agency stream.

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Can Climate Justice Accelerate the Energy Transition in Canada?

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This paper takes place at the intersection of climate policy, climate justice and public opinion. The central hypothesis of this paper is the following: can climate justice reduce the social and political tension surrounding climate policy implementation, and thereby accelerate the green economy transition in Canada? The inclusion of fairness measures in the green

economy transition – especially by targeting workers in the most affected sectors (e.g. those in oil and gas sectors in Alberta and Saskatchewan) – should impact the political acceptability of climate policy. This paper thus formulates just transition measures and then tests – via surveys – whether they increase the social acceptability of climate policy.

The background of this paper was given by a previous assessments of net job creation, investments projections and price-increase of carbon intensive goods in Canada between 2020 and 2030. Following this assessment, this paper proceeded to identify and formulate the fairness-based provisions which aimed to support workers and communities in the energy transition. These provisions were then included in survey questions aimed at testing the social acceptability of climate policy. This paper focuses on two key policies: carbon pricing and a fossil fuel phase-out. Survey questions (see below) will compare the social support for these two policies in Canada with and without accompanying fairness provisions for workers and communities, such as support for retraining and relocation. This will cast light on the potential role of climate justice as an accelerating device for climate action, for the idea of complementing climate policy with targeted fairness measures may or may not increase their social acceptability.

This study will be conducted and results will be displayed via the Project Quorum platform. The firm Synopsis will conduct the survey as such. Various survey techniques (list experiments, framing and trade-off sliders) pertaining to the study of hard issues will be used. A pool of 2000 people will be surveyed.

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Energy-scenarios and energy institutions: Is there room for environmental justice?

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Energy agencies at different levels are central in the work on energy politics, including work on energy scenarios. Historically economic and technical perspectives have dominated climate

and energy policy-making and other work on energy scenarios. This focus is understandable given that work on energy scenarios requires technical knowledge and different scenarios can also have vastly different economic consequences for individuals and industry. This eco-technological focus however risks excluding or not fully recognising issues of environmental justice, including questions about social differences between different groups in society and questions of intergenerational nature.

Previous research on how governmental authorities in Europe work with justice issues in climate policymaking, confirm the techno-economic focus but also indicate a limited knowledge within governmental authorities on how to include social factors into climate objectives. We expect to find similar patterns in the specific work on energy scenarios and claim that if questions of environmental justice are left unattended scenarios might both risk being incomplete and reinforcing existing social inequalities. Our theoretical starting point is historical institutionalism claiming that institutions are characterised by path-dependency based on previous institutional choices and norms. We employ the institutionalist scholarship as well as literature on environmental justice to explore how the concept of energy justice is understood and recognised in energy scenario-making in Sweden. We also investigate how civil servants frame possibilities for changes, e.g., the inclusion of new knowledge and concepts, such as environmental justice in energy scenario-making.

We explore this via interviews with civil servants at the Swedish Energy Agency and a text analysis of key documents on Swedish energy scenarios. Civil servants at DG Energy of the EU Commission are also interviewed to nuance the picture of how the concept of energy justice is understood in energy scenario-making.

The focus on energy institutions, thus the Swedish Energy Agency and DG Energy of the Commission is warranted since energy institutions not only develop energy scenarios and strategic documents but also produce power relations, by promoting specific norms

and values such as ecological modernisation and by including specific types of knowledge .

Panel ID 604 | Virtual

Futuristic cities: cultivating resilience, circularity, and citizen action

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Urban Living Labs: Urban Sustainability Transitions Towards Circular Cities

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Cities play a dominant role in global consumption, production, pollution, and they are associated with some big problems like air pollution, greenhouse gas emissions, and poverty. To the United Nations, cities and metropolitan areas are powerhouses of economic growth - contributing about 60 percent of global GDP. Based on the above context, we believe that the Urban Living Labs (ULLs) can be configured as potential urban sustainability transitions (ST) for innovation of circular cities. Based on this statement, our research question is, how do Urban living labs work through urban sustainability transitions to build sustainable cities systems based on the circular economy? This research aims to characterize how ULLs work through urban sustainability transitions to build circular cities. To attain this research aim, practice theory was selected as the theoretical foundation. It is a qualitative Netnography research through which data was collected from the ULLs Sites selected for this study. For data analysis we applied content analysis. As a result, we believed that the identified activities and projects of the ULLs investigated in this study

contribute to identifying sustainability transitions as the potential to build circular cities.

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Framing Climate and Environmental Justice in Barcelona and Boston

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Local governments have the academic and institutional recognition of being a key actor to respond to climate change. Cities can address climate change due to their political power over different issues and municipal infrastructures such as transportation, environment, public health, social services, and housing. Moreover, cities are in a good position to address climate change due to the knowledge of the local climate impacts, and the engagement with local stakeholders. In parallel with this situation, cities, such as Barcelona and Boston, are introducing global debates into local agendas. One example of this situation is that Barcelona and Boston are introducing climate and environmental justice respectively as an objective to achieve in their climate change plans and climate policies.

In this paper, I examine how climate and environmental justice is introduced and framed in the local agendas through the analysis of climate policy documents (climate change plans and policy documents of projects), and discourses from local authorities. With a comparative case study of Barcelona and Boston and applying qualitative research methods, I study how climate and environmental justice become an issue of debate and governance in these cities. Particularly, I focus on the climate policies whose objective is to encourage active transportation, promote healthy communities, and reduce private vehicles, such as the Superblocks project in Barcelona. The analysis of how climate and environmental justice becomes an issue to be governed, and how it is mobilized, sustained, and contested is an opportunity to focus the research agenda on

actors, interventions, and decision-making and which are the political forces, dilemmas, and dynamics that drive the climate change responses.

Studying the governance of climate and environmental justice in Barcelona and Boston is key to identifying how climate and environmental justice is framed in the local agendas, how climate and environmental justice relates to other debates such as equity and health, and how Barcelona and Boston define climate and environmental justice respectively in their official policy documents and discourses. The research is important to understand how cities, as global environmental actors, are accelerating a just and inclusive transition, and to study whether different local dynamics, perspectives, and policies influence the debate and achievement of climate and environmental objectives in cities such as Barcelona and Boston.

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When citizens reinvent cities and communities: the potentials and pitfalls of citizen participation and local experimentation to transform urban governance and leverage change

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In the literature on urban experimentation, a turn to new techniques of urban governance to embrace uncertainty and contingency has emerged. Local experiments are a form of governance innovation, which entail a shift from traditional forms of hierarchical governance (top-down) towards novel forms of network and participatory governance (bottom-up). Interventions through local experimentation are to overcome path dependencies and accelerate transformative change. However, the understanding of the potentials and pitfalls of urban experimentation to generate learning processes and contribute to transformative

change in cities and communities remains limited. Drawing on the concept of multiplicity, the contextualisation of experiments in local settings and the politics of experimentation is explored to shed light on the underlying interests, ideologies and imaginaries of experimentation. It should be elaborated how novel modes of experimental governance could be embedded in traditional modes of urban governance. Therefore, the paper asks how governance approaches have to be refined to initiate and embed urban sustainability transitions.

“Dresden - City of the Future” is a transdisciplinary and transformative research project, which emphasises the participation and empowerment of citizens through local experimentation. Ten experiments are designed and implemented by citizens and the municipality. These experiments can be defined as transition experiments, as they view experiments as sites of learning. Developing socio-ecological innovations, the ten experiments are to create local cycles of production and consumption, reduce resource consumption and promote sufficiency. The focus of these experiments ranges from edible cities, car-free districts, sustainable business models, participatory governance within districts and neighbourhoods, to a sharing platform for materials and the circular economy. The paper presents a comparative analysis of these ten transition experiments. In studying the experiments, methods of participatory observation, semi-structured interviews, focus groups and document analysis are combined. The empirical data are analysed through qualitative content analysis. The paper contributes to the literature on urban experimentation by offering insights on the potentials and pitfalls of local experiments to build transformative capacity and generate transition processes. The findings shed light on the politics of experimentation by revealing the symbolism or substance of experimentation. Actors are found to instrumentalise transition experiments to pursue own policy agendas instead of transformative change. The paper concludes by drawing lessons on the embedding of experimental governance in urban governance settings.

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A Just Transition beyond workers? A place-based approach for governing just and inclusive transitions

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The transition to a low-carbon society will require extensive industrial change. These changes will have wide-ranging socio-economic implications in the locations where these industries are based. As well as economic dependencies, geographic concentration of industrial activity also creates social and cultural dependencies: industries and industrial work become entwined with workers' and communities' social identities. In this paper we explore how decarbonisation efforts interact with social, economic and cultural ties in industrial communities, and how these interactions affect possibilities for successful and just low-carbon transitions.

In doing so we move away from narrow ideas of who might be affected by decarbonisation. Research to date into Just Transitions has primarily focused on how fossil fuel workers, such as coal miners, might be affected by the potential future phase out of the industry in which they are employed. However, changes to the labour market will impact the wider communities in which these workers live, and some of the people most vulnerable are often not directly employed in the sectors undergoing change. Furthermore, the effects of industrial change are not only unevenly distributed but individuals and communities might also have different capacities to adapt to change. This capacity to adapt is not only economic in nature, but also social and cultural.

In order to effectively govern a just and inclusive transition, it is therefore important to understand how workers and places might be impacted differentially by industrial change. In this paper we will present a novel framework that (1) sets out the multiple connections between place, work and industrial change which are expected to be impacted by efforts

to phase out high carbon industries; and (2) identifies the implications for governing just and inclusive transitions.

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Money talks but actions speak louder: motivation accelerating climate actions and transitions in cities

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The paper provides an overview of the use of incentives and internal motivation how they drive social, economic, political and behavioural transitions for climate actions in cities and further discusses the effects of internal and external motivation. A concept based on the impure public goods theory is developed to illustrate how combining a mix of instruments could accelerate transitions. The motivation conceptual model combines several instruments, such as benefits and co-benefits as incentives, the endogenous risk perspective as the internal motivation, polycentric, co-production and patterns of commons approach, climate-resilient pathway thinking, and temporal aspect for policy design to showcase with examples of cities' actions how this motivation conceptual model could support the acceleration of sustainable and inclusive transitions. The cities and sub-national level stakeholders are selected as case studies and concrete examples of cities applying these instruments in the policy designs to achieve and maximise benefits are presented. The findings show that cities can achieve benefits and co-benefits in the climate actions through the following instruments in their policy designs, which shed the lights how motivation in the dynamics of social, economic, political and behavioural drivers could accelerate transitions towards a more sustainable and climate resilient future. Firstly, an endogenous risk perspective can be taken to reduce climatic risks by adapting to what cannot be mitigated and mitigate what cannot

be adapted. This attitudinal change overcomes the discrepancy in mitigation and adaptation for stakeholders to see co-benefits from their integrated actions to reduce risks in short and long run. Secondly, climate change adaptation demands a policy examination function due to the renewal needs in climate change infrastructure to ensure climate policy is up-to-date to the latest standards in terms of climate impacts. Thirdly, climate change policy has the feature of multi-objectivity, and benefits and co-benefits could be maximised if different policies are coupled. Fourth, building on the commons from the society to gather polycentric efforts in a co-production manner is key. Lastly, climate-resilient development pathway thinking is an important pre-condition for maximised benefits, because cities as well as global stakeholders should make sure that the world is developing in a sustainable manner so the benefits and opportunities could be further harnessed. The findings from the paper and proposed concept for motivating acceleration provide examples and acting principles to motivate more stakeholders to act for climate change mitigation, adaptation and further sustainable transitions such as sustainable development goals.

Panel ID 605 | Virtual

Sectoral responses to climate change pressures

Panel Day and Time: TBD

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The surge of local initiatives for sustainable development in Andean large mining site

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There is abundant research about the impacts that large-scale mining produces over

territories to the detriment of their social and environmental sustainability. However, during our investigation in Peru, Colombia and Chile, we have also identified local initiatives that seek sustainable developments by proposing alternatives to the ways in which the socio-ecological impacts of natural resource extraction are produced and distributed along society. What are the enabling factors for these initiatives to emerge and prosper? In answering this question, in this paper we argue that local political organization and institutional innovations are crucial for the surge and implementation of such development alternatives. Local political organization and mobilization can produce an opportunity window for the discussion on extractive activities and their impacts as well as and the emergence of proposal for alternatives. Institutional innovations triggered by local political work may lead to the implementation of such initiatives.

Our results are based on qualitative case studies research on three initiatives: a) the constitution of mining exclusion zones; b) community environmental monitoring and 3) survey practices and recovery of environmental liabilities. Drawing on political ecology theory, this work aims to show how plurality of perspective can contribute to address socio-ecological challenges and promote ways to build transformation pathways towards sustainability.

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Towards water resilience through Nature-based Solutions in the Global South? Scoping the prevailing conditions for Water Sensitive Design in Cape Town and Johannesburg

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Water Sensitive Design (WSD) is gaining attention as a Nature-based Solution (NbS) to urban water problems which incorporates green infrastructure with engineered urban water systems through innovative design of the built environment and urban landscape. In Africa, Johannesburg and Cape Town are two cities engaging with WSD at a policy level. This paper uses the Strategic Niche Management (SNM) approach in a comparative analysis of ongoing engagement with WSD in Johannesburg and Cape Town. We explore the extent to which this engagement signals a take-off phase in a transformation towards water sensitive futures. WSD represents a niche that is in synergy with the visions of sustainable urban (water and environmental) management in both cities. Results indicate a progressive engagement with WSD by different actors at regime and niche levels. However, the lack of coordination and capacity deficiencies due to limited social networks and higher order learning are challenges that constrain take-off and further consolidation of the WSD approach in the transition towards sustainable futures. Furthermore, we find urban governance practitioners struggle with reconciling the pursuit of visions of sustainability to be realised through nature-based urban development with the pressing infrastructure deficits that persist in most African cities.

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Enhanced for whom? The politics of the Paris Agreement's 'Enhanced Transparency Framework'

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Transparency systems are central elements of global governance architectures that aim to accelerate sustainability transitions. The proliferation of digital technologies to monitor socio-environmental indicators may further drive this trend. Typically, the generation and/or disclosure of information is framed as a neutral means to facilitate targeted action and sound decision making. However, building on

critical transparency literature, information disclosure can also be understood as a form of governance in and of itself. This paper draws on the latter understanding to examine the politics of transparency architectures, taking the global transparency systems of the United Nations Framework Convention on Climate Change as the object of study. Global transparency mechanisms that aim to 'make visible' how countries perform vis-à-vis their climate targets have evolved rapidly over the past decade. Negotiations over the design of a climate transparency framework involved difficult trade-offs between developed countries' desire for a common framework and developing countries' reluctance to be subjected to stringent transparency obligations. Historically, the burden of climate transparency has rested largely upon developed countries. The 2015 Paris Climate Agreement introduced an 'Enhanced Transparency Framework' applicable to all countries. This enhanced framework implies an increase in scope and stringency of transparency obligations for both developed and developing countries, with the assumption that this will facilitate greater climate action from all. Yet, is this the case? Does the Paris Agreement's Enhanced Transparency Framework indeed call for 'enhanced' transparency from all, or are there also instances of regression in transparency obligations for developed countries, with enhancement targeting mainly developing countries? This remains little analyzed. Drawing on primary and secondary document analysis and interviews, we undertake an in-depth empirical analysis of the extent to which transparency obligations under the Paris Agreement are enhanced and for whom, with implications for the nature and extent of the climate action from all that such transparency is assumed to facilitate. Our analysis shows that 'enhancement' of transparency obligations are a site of contested global climate politics, rather than a neutral means through which to transcend political conflicts. Our analysis thus critically interrogates the widely assumed transformative potential of transparency in global climate governance, showing instead where the burden of transparency may unjustly come to rest, in

practice. In doing so, it contributes to earth system governance scholarship on accountability, power and justice in global sustainability governance, and to the 2022 conference theme of enabling more just transitions to sustainability.

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Fossil Fuel Companies' Sustainability Strategies and Messaging: A Case Study on Shell

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Boston's The oil and gas industry plays an important role in the governance of decarbonization and has had an outsized influence on climate policy. Analysis of how individual fossil fuel companies are communicating about their contributions to the UN Sustainable Development Goals (SDGs) and how they are responding to the climate crisis is minimal. Understanding how major fossil fuel companies have been responding over time to shifting public pressure on sustainability and climate justice can contribute to more informed climate governance. Based on the case of one multinational energy company, Shell plc, this study examines the fossil fuel company's changing operations and investments against its public messaging through its official Twitter channel. Through a mixed-methods approach that combines qualitative text analysis with computational methods, this study compares patterns in the framing, priorities, and geographies of Shell's sustainability strategies over time. As a fossil fuel company that is also an active member of the UN Global Compact, the actions of this multinational energy company are under scrutiny by shareholders and policymakers alike, as the company's plans for growth during the energy transition can slow down progress toward achieving the SDGs. Outcomes of this research will help ground truth the sustainability commitments

of the fossil fuel company by examining if trends in operations align with their climate communications on Twitter. Furthermore, identifying the geographical foci of recent projects and messaging can contribute to assessing if the company may be misreporting operational environmental, social, and governance (ESG) impacts by drawing public attention to certain projects while moving to occupy geographies with unspent or unregulated carbon budgets. Understanding the complexity of organizational sustainability strategies offers policy-makers insights to inform efforts of regulating multinational energy companies, phasing out fossil fuel reliance, and promoting a just energy transition.

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Carbon-free cities: from conceptualization to reality

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Governing and mobilizing for climate justice in the metropolis: A comparative view from Paris and Tel Aviv

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“Climate justice” (CJ) has become a key concept to address the unequal impacts, responsibilities, and vulnerabilities related with the ongoing climate crisis and the societal transitions required to address it. Indeed, the climate crisis has highly unequal repercussions on countries, cities, and communities – exacerbating existing social, spatial, and environmental justice disparities relating to race-ethnicity, gender, income, etc. Moreover,

CJ touches nearly every aspect of urban governance and policy, including housing, transportation, livelihoods, food, energy, water, waste, pollution, green spaces – thus impacting local communities and everyday lives. However, to date, CJ has hardly been theorized in relation to urban governance nor local environmental mobilization and activism. Indeed, in most existing debates, CJ is primarily located at the global scale of climate change (i.e. Global North/South) and is less attuned to local scales of justice. As such, a better understanding of CJ requires a stronger dialogue with debates on multi-scalar urban governance (from neighborhoods to metropolitan regions), community mobilizations, and everyday environmentalism. Moreover, while CJ is mostly used to describe future temporalities of unequal climatic harm, by localizing the concept we may also connect it to an expanded notion of temporality, including the histories, memories, and aspirations of communities. Our paper develops these arguments and offers a distinct urban lens on CJ through several case studies from our ongoing research fields in the Paris and Tel Aviv metropolitan regions. In particular, it focuses on how different concepts, scales, and temporalities of CJ play out in the milieus of urban governance and local mobilizations, and the multiple interfaces between them, including mechanisms of participation, arenas of debate, sites of contestations, etc. The comparison between the metropolises - based on qualitative surveys, interviews, and analysis of policy documents over several years - aims to study the specificity of governance actions and civil-society mobilizations relating to socio-environmental inequalities. Initial results show that such inequalities shape various types of links between local public action and mobilizations. Hence, the politicization of socio-ecological issues reflects historical territorial trajectories, the relationships between actors at different scales (region, city, local community), and the consultation dynamic between civil society and public actors. Through an international comparison of local governance initiatives and environmental mobilizations in two different metropolises, we hope to develop insights that will be relevant

for localizing CJ across the global diversity of urban settings – as one critical scale in the just transitions of earth governance systems.

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Decarbonising cities: assessing governance approaches for transformative change

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The paper presents the results of an empirical research project conducted by the German Development Institute between November 2020 and May 2021. The project explores how urban and multilevel governance facilitates successful transformative change towards zero carbon in cities. It studies the impact of three governance aspects – *stakeholder involvement*, *financing*, and *impact assessment* – on three dimensions of transformative change: *greenhouse gas (GHG) reduction*, *scaling and acceleration*, and *citizen acceptance*. A mixed methods approach is used, consisting of an international survey of city government officials from across the globe (N=54) and in-depth case studies of the cities of Bonn (Germany), Quito (Ecuador), and Cape Town (South Africa).

Survey results reveal that many of the participating municipal governments engage in strategic planning and mainstreaming of policies to address climate change. While there is a clear upward trend on total emissions, per capita urban GHG emissions are decreasing. The case studies show that *stakeholder involvement* is crucial for transformative change but can take different forms, from late involvement (Bonn), short-term and project-related involvement (Quito), to strong collaboration between the city administration and researchers (Cape Town). In terms of *financing*, internal revenue and central

government transfers are important sources, while cities in the Global South also depend on funding from international organisations and donors (Quito, Cape Town). On *impact assessment*, the study finds that data are being collected and sometimes incorporated into future planning. The use of impact assessment frameworks that link climate action to specific outcomes such as emissions reduction in cities, however, is still a very recent development and is not systematically used in any of the case study cities.

The study contributes to the debate on the role of cities for climate change by conceptualising and investigating three dimensions of transformative change. It also combines a macro with a micro perspective by integrating survey and case study results. Finally, it investigates the impact of three aspects of urban governance on transformative change, including dimensions such as financing and impact assessment that have not previously been studied in detail.

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Civil society and co-creation of social values in urban co-production of solar energy: A study of solar cooperatives in New Taipei City, Taiwan

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As the energy sector based primarily on fossil fuel is the major culprit for carbon emission, its reform with greater public participation in the production of distributed solar energy is urgently needed. The urban setting of human habitat poses a peculiar challenge to such participation with a large group of strangers and highly scattered propertied resources. The problem is aggravated with excessive channels of information characterized by the proliferation of the press on the Internet and social media. While this calls for the involvement of the governmental authority to steer urban cooperative action, even a

financially capable government is often constrained by its political imperative to promote economic growth and avoid a deeper socio-ecological transformation. These lead to conflicts over the use of scarce resources and under-utilization of idle resources in cities for more progressive decarbonization actions. Co-production of solar energy by civil society with the government serves to be one probable solution with higher sensitivity to local conditions. An Ostromian approach to successful co-production suggests that localized institutions achieves higher economic efficiency by lowering the transaction cost with the active participation of individuals. This approach however tells only half of the story as it overlooks the social aspect of co-production for public good, which tends to conceptualize values differently. Based on case studies of two solar cooperatives rooted in districts with contrasting demographic profiles in New Taipei City, Taiwan, this paper explores the role of non-profit organization and public entrepreneurship in urban co-production of solar energy. By conducting a process-tracing analysis with interviews, cooperatives' digital archives and documentary survey on newspaper articles, this paper argues that solar cooperatives with the involvement of public entrepreneurs grow gradually despite the dominant neoliberal economic order as it provides institutional set-up in line with the social values co-created in the process, complementing the NPO's role as a cross-scale coordinator to provide reliable information about solar energy and to maintain a group boundary for cooperation. While the cooperative mode of urban co-production of solar energy is more democratic in decision-making and fairer in the distribution of benefits, this paper also addresses its limitations.

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Institutionalizing low-carbon development practices at the local level: What competencies, capacities and capabilities matter?

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When it comes to location – and almost by definition – most climate experiments and new low-carbon development practices have started in a local context. Local policy makers and governments, working closely with local citizen groups and private companies have helped to kick-start innovations. However, despite similar overall conditions, what started in one location did not start in others. Although support by higher levels of government may have been an important element, and occasionally decisive, the composition of local non-state actors and the capacities and capabilities of local governments would seem to be critical variables in this respect. These factors mattered whether and to what extent low-carbon innovations started at all, maintained their momentum over time, ensured inclusive and fair transitions, became a regular part of local practices and gradually became institutionalized. But what has been the role of a country’s political, administrative, and fiscal decentralization and related path dependencies, and how have multi-level governance arrangements shaped such innovations and influenced their sustainability? Based on an initial review of selected low-carbon initiatives in Brazil and South Africa, particularly in the renewable energy sector, this paper will address some of the conditions that have mattered crucially for institutionalizing low-carbon development practices. We argue that some conditions favor and sustain such innovations and lead to their gradual “lock in”, while others may lead to their breakdown.

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Facilitating nature-based climate action

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Nature-based solutions for reconciliation-informed climate adaptation

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Canada is in an era of reconciliation and climate emergency. However, Canadian reconciliation dialogue ignores ecological harm while climate change adaptation perpetuates it for many Indigenous communities. Nature-based solutions (NBS) are alternative land-based climate adaptation strategies that can address social issues, and may provide a creative tool with which to pursue reconciliation. NBS literature has considered NBS and justice, NBS and more-than-human thinking, and NBS and Indigenous Peoples. However, it has yet to address the relationship between NBS and reconciliation. Therefore, this project asks, ‘How might NBS support reconciliation efforts?’.

This question was co-designed with the Squamish Nation who are interested in exploring NBS for river flooding and surface runoff from precipitation for the Squamish territory that have the potential to support reconciliation efforts. This is a response to the District of Squamish’s ‘Integrated Flood Hazard Management Plan’ that recommends the Eagle Viewing area/Siyich’em reserve dike be upgraded. This dike is located partially on the Siyich’em reserve, and partially on land owned by the District. The need for upgrades provides a unique opportunity to investigate alternative infrastructures that could contribute to reconciliation efforts and support a just and inclusive social-ecological transition.

This research has three main activities, 1) it will investigate potential NBS for river flooding and surface runoff from precipitation for the Squamish territory. 2) Create a framework to guide decision-making and implementation of reconciliation informed NBS. 3) The framework will then be applied to alternative adaption strategies (NBS) for the Squamish territory with the aim of providing the Nation with the potential to support reconciliation efforts. Site-specific NBS recommendations were determined through examination of case studies and literature on coastal adaptation NBS, examination of climate projections to the area and visits to the Squamish territory. The reconciliation-informed NBS framework draws from literature reviews on NBS and justice, NBS and more-than human thinking and NBS and Indigenous Peoples, as well as place-specific reconciliation documents, policy, legislation, and protocols, including the 94 Truth and Reconciliation Commission of Canada (TRC) Calls to Action and British Columbia's Declaration of the Rights of Indigenous Peoples Act (DRIPA). The framework will be applied to Squamish through a policy analysis of relevant National, District, and the province and semi-structured interviews with Squamish Nation Knowledge Holders, Council members, and staff and staff from Squamish District and the Provincial Government.

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Building Down: Assessing global governance efforts on land degradation and biodiversity loss in the construction industry

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The construction industry engages in resource-intensive land transformations with serious impacts for biodiversity, chemicals, and climate change. However, unlike oil, gas, coal, and mining companies, the role of construction firms in global environmental politics has not figured prominently. The construction industry has become key players in climate negotiations

with the Global Alliance for Buildings and Construction and numerous programs on energy efficiency. Land transformation issues, however, have seen less attention or mobilization by the construction industry. The Convention on Biological Diversity started developing a plan for work with the construction industry in 2016, but efforts in other forums have been limited. This paper asks: how ideas about land degradation, habitat fragmentation, and biodiversity intactness have impacted the operations of large construction firms? Using data from annual reports from large companies, trade publications, and public testimony by industry executives, this paper finds that while significant mentions for green efforts have been mainstreamed in the construction industry, larger integration of ideas regarding land transformation or biodiversity loss have seen minimal impact. Beyond simply seeking win-win solutions to environmental problems, the construction industry has utilized green efforts to prevent addressing serious and sustained environmental impacts from their practices. The methodological conclusions of the paper builds on recent work in using annual reports to detail the limitations of idea adoption by major companies and identifies some key additional limitations to this method. The governance implication of the argument is that the construction industry may prove to be a significant limiting force for global transformational efforts on land degradation and biodiversity loss without anticipatory governance to deal with the unique challenges they present.

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Are NbS on the path to achieving just transitions?: An adaptation pathway analysis of NbS projects

Alaina Boyle, Johan Arango-Quiroga, Laura Kuhl

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Nature-based Solutions (NbS) have been widely promoted as a new approach to climate

mitigation and adaptation that can simultaneously achieve sustainable development and livelihood goals, but despite enthusiasm, the mechanisms through which NbS can achieve these objectives are not always clearly defined. Scholars have raised conceptual concerns about what problems NbS are meant to solve and for whom, as well as the limits of NbS for climate mitigation and adaptation. Beyond theory, however, there has been little work to assess the implications of NbS activities and outcomes and their contributions to just transitions. This paper examines the ways NbS can contribute to elements of justice in local sustainable transitions. To address this question, this paper applies an adaptation pathways approach to analyze the design and implementation of NbS projects in Latin America supported by UNDP. Our analysis examined the Theories of Change, prioritized indicators, stakeholders, and objectives articulated in project proposals and other project documents, including evaluations and reports. The analysis identifies the different pathways through which implementation activities lead to the achievement of NbS objectives across different timescales and the gaps between the logic of the project design and stated desired outcomes. This is followed by an examination of the extent to which narratives in NbS decisions and activities emphasize justice, as well as the likelihood of achievement of these justice outcomes, based on the clarity and cohesiveness of the project's Theory of Change. We then apply the power in transition (POINT) framework to assess whether these outcomes are likely to reinforce existing dynamics that either inhibit or foster sustainable transitions. Ultimately, our analysis suggests that certain pathways dominate the current conceptualization of NbS and that others, particularly those focused on social outcomes, have not received the same attention. Unless the designs of NbS initiatives explicitly consider the full suite of mechanisms through which investments in NbS deliver the promised objectives, it is unlikely that the multiple benefits of NbS, particularly those contributing to longer-term just transitions, will be achieved.

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The implementation of land-use based mitigation portfolios in Alberta, Canada: risks and opportunities

David Sadko Ismangil

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Land-use-based mitigation technologies and practices (LMTs) in the Agriculture, Forestry, and Other Land Use (AFOLU) sector are considered key tools for achieving the Paris Agreement's aim of limiting the rise in average global surface temperature below two degrees Celsius.

The implementation of these strategies crosses boundaries and scales, and also have wide-ranging socio-economic and environmental effects. Climate policy and governance strategies are being evaluated primarily by climate-economy models, or Integrated Assessment Models (IAMs).

The inherent complexity and lack of meaningful stakeholder inclusion can diminish their usefulness for policymakers at the national and/or local level. Global models while useful for broader international targets can also fall short in evaluating portfolio of mitigation and adaptation policy options, especially when concerning the need to understand the (long-term) risks and uncertainties associated with their implementation at the local level.

Therefore, there is a need to focus on portfolios of policy options, rather than singular evaluations, which can be supported with both top-down and bottom-up local analysis. Evaluating a portfolio of existing policies can reveal how these contradict or support one another, as well as how new policies can be implemented while maintaining sustainable transition goals.

Our research project, (Reference to project removed), is addressing this need using a holistic approach that combines top-down modeling efforts that evaluate ground-level changes at scale, with a bottom-up understanding of the risks and uncertainties of the implementation of these LMT portfolios.

For this research, we are exploring the possible implementation of LMT portfolios in the oil sands region of Alberta, Canada, while considering portfolios from a local (Indigenous), regional, and national perspective. The region is an important site for resource extraction and source of economic development. It is also the location of vast stocks of carbon in both its resources kept in the soil, but also as a natural wetlands area. Future policies are aimed at ‘pricing out’ further extraction through carbon taxes but place great reliance on new technologies. Our aim is to analyze an inclusive approach of LMT portfolios which supports diversified knowledge gathering that can accurately capture the risks and uncertainties of (different) policy options, supporting the governance of a sustainable transition.

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Enablers and barriers to municipal transformations

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The Agrarian Question and Socio-ecological Transformation in India: A Case study of Two Villages

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This paper aims to examine the extent and ways by which changes in agriculture act as a cause and consequence of ecological transformation of the region. It is based on fieldwork conducted in two villages in the South Indian state of Tamil Nadu, which have been previously studied in 1993-95. Though agriculture in India has been subjected to strenuous research, not many studies have sought to systematically link changes in agriculture to changes unfolding in the ecology and the relationship thereupon.

Agriculture in the study villages is marked by prolonged crisis resultant of a complex interplay of neo-liberal policies, worsening ecology, and changing climatic patterns. The high extraction of groundwater using bore wells has taken a toll on the local ecology and the agrarian environment. The competitive digging and deepening of bore wells caused the water table to go down in the study villages. Water shortages and salinity has caused crop damage many a time. This is indicative of the ecological embeddedness of the transition underway in crop production in the study villages.

With ecological deterioration, crop production in the villages turned unprofitable. When the crop yields had only increased minimally during 1994-2018, the cost of production witnessed a major escalation. Though this applies to all farms, the degree of its impact differed by the specific crop cultivated and class position of the farmers. This has resulted in an unprecedented income squeeze of the farmers. The degradation of the local ecology puts constraints on increasing production and productivity. The growing threat of climate change has increased the uncertainties of the already fragile ecology in the locality. The small parcels of land on which the crop production is based also limit the farmers to reap the benefits of the economies of scale.

On the whole, the agricultural transformation underway in the study villages is ecologically and socially embedded. While ecological embeddedness along with other structural factors puts limits to the expansion of production, the social embeddedness of the village economies and lack of gainful alternative employment ensure that small scale cultivation goes more or less unfettered even amidst distress. The paper clearly shows that the current model of extractive farming is highly unsustainable ecologically and economically and emphasizes the need for the introduction of agro ecological farming practices in the region.

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Philanthropy in agrifood governance: how foundations fuel transformations and with what consequences for sustainable food systems

Agni Kalfagianni

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According to many commentators, we live in the “golden age of philanthropy” where private foundations assume central political roles alongside or even instead of states. Foundations: participate in elite international forums shaping global agendas such as the World Economic Forum in Davos; form partnerships with governments and intergovernmental organizations for the implementation of their programs; and become trustees of global public goods, such as of the 2030 Sustainable Development Agenda with its 17 Sustainable Development Goals. Many of these foundations are established by the super-rich who use their wealth, ideas, and political leverage to advance different policy goals in the public arena. Historically, a key domain of foundations’ activities has been agrifood governance. Dated as early as the Green Revolution which was funded primarily by the Rockefeller foundation, philanthropy in agrifood governance has been playing a major role in reshaping agri-food systems in profound ways. This paper asks how philanthropic foundations fuel transformations and with what consequences for sustainable food systems today. Based on an analysis of the top-10 funders of SDG-2 (zero hunger) the paper examines whether foundations challenge or uphold incumbent norms and ideas about agrifood system transformations. The paper contrasts incumbent norms based on consumer responsibility, technological innovation and market-based solutions, with what it considers as transformative norms centred around food sovereignty and food justice. The analysis shows that few foundations adopt transformative norms, which may eventually jeopardise efforts to

radically change agrifood governance, eliminate hunger, and secure sustainable development.

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Conceptualising intentional transformative capacity in food systems

Federico Davila, James Butler, Brent Jacobs, Leo Dutra, Alaric McCarthy, Jim Sinner

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Transformations towards sustainable futures require radical socio-political, technical, and paradigmatic change. Food systems transformations have been increasingly called for in the literature, bringing food systems to the forefront of major sustainability challenges. They focus on understanding the consequences of climate and population trends on environmental sustainability and health outcomes, yet fail to engage with governance systems and the politics of transformations. The food systems transformations literature tends to emphasise ‘what’ needs to be transformed rather than ‘how’ to transform. Understanding the ‘how’ shifts the focus to the process and planning for transformations, including the associated capacities ultimately needed to transform the environmental and health dimensions of food systems. The field of transformative capacities is undertheorized, empirical studies of planned transformations in food systems are lacking, and scholars have the opportunity to understand change and transformation retrospectively from different legacies of study in various sustainability fields and build novel theories and approaches to inform policies. Importantly, moving from theories towards intentionally planning for transformation is an important area of work in the governance of food systems in an uncertain world.

This paper develops a framework for intentional transformative capacity building. We first present an interdisciplinary synthesis of the concept of transformations and transformative capacity as an evolution of well-established concepts in sustainability science.

From this, we develop a framework focused on the dimensions of capacity for intentional transformation. We discuss each element of the framework in the context of food systems needs in the Pacific Islands, a region that is vulnerable to climate change and food insecurity. We conclude with recommendations on using the framework for intentional transformative capacity building in food systems.

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Understanding past coevolutionary processes in social-ecological systems helps to envision pathways for sustainable futures: an action situations approach on Water-Energy-Food nexus

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Despite near-global consensus on the Paris Agreement on Climate Change and on the Sustainable Development Goals, unresolved and politically contentious trade-offs have undermined implementation. One exemplary case facing difficult sustainability trade-offs are Water-Energy-Food (WEF) nexus cases. In this study, we extend the nascent ‘Social-Ecological Action Situations’ framework to analyse past coevolutionary processes of a WEF nexus case to envision pathways for sustainable futures where trade-offs are equally considered and minimised. We illustrate the value of the approach for water rights in Switzerland; a WEF nexus case with upstream hydropower production, water-bound biodiversity, and downstream agriculture with intense irrigation needs. Specifically, we use a system-level perspective in which the social-ecological system (SES) of the WEF case is constituted of interactions between social and ecological action situations, which are not just bi-directional feedbacks between separately conceptualized natural and social domains. Instead, we conceptualize the SES as an

intertwined system of coevolutionary processes between social and ecological action situations that are created and affected through interactions. First, we use this approach to understand past coevolutionary processes in the WEF nexus case, helping us to understand how emergent action situations (biodiversity loss and climate change) have led to new public policies and other changes of the system. Building on this understanding of past coevolution, we then envision a pathway for a configuration of action situations with extensions of public policies that would result in a compromise between water, energy, and land. The proposed solution-oriented, transformative approach goes beyond existing frameworks by analysing past coevolution of the intertwined system to build system understanding and to envision a pathway for a sustainable future with concrete policies. We argue that this learning from past coevolutionary processes in social-ecological systems help to envision pathways for sustainable futures and to propose policies to address trade-offs in SES and thereby to tackle global crises.

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Public Policies for Agricultural Diversification: Implications for Gender Equity

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Gender equity is recognized as central to sustainable development, but women still face significant constraints in accessing and controlling productive resources important for agricultural livelihoods. Identifying mechanisms (e.g., policies and interventions) in agriculture that enhance women's empowerment—a critical aspect of gender equity—is of paramount importance for sustainable development. In this study, we investigate how Brazil's flagship targeted public

food procurement program, the National School Feeding Program (PNAE), influences women's empowerment in southern Brazil. We conducted household surveys on farm characteristics and practices, women's empowerment (e.g., participation in farm decision-making and control over income), and women's participation in social movements, with farmers ($n = 75$) who do and do not participate in the PNAE. We found that women were more empowered in households participating in the PNAE, and that this empowerment was associated with diversified farming systems. When women had greater levels of participation in farm management decisions, agrobiodiversity and use of agroecological practices were higher. We also show that women's participation in agroecological social movements was associated with significantly higher empowerment (both in control over income and greater participation in decision-making). This study identifies targeted public food procurement as a promising policy instrument with potential to link cross-sectoral Sustainable Development Goals (SDGs) to sustainably increase food production (SDG 2), provide economic opportunities for small-scale farmers (SDG 1), and create an economic space that women in agriculture can more easily access (SDG 5).

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Food: a mechanism for holistic sustainability

Panel Day and Time: TBD

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“How Will This Affect Our Credit Rating?”: Municipal Debt and Governing the Environment

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This paper seeks to examine how the macroeconomic shift in the global economy, financialization, permeates the fabrics of local and regional governance of environmental resources. By analyzing the multiple forms of debt used by municipal water supply organizations, I present evidence to argue that the financialization of public governance gives financial interests undue influence over the management of natural resources. This study uses financial statistics and qualitative data pertaining to the largest provider of drinking water in the US, Metropolitan Water District of Southern California (MWD), an empirically significant case study. Municipal water agencies collect revenues through traditional sources including water sales and tax collections, but they also raise significant funding with a variety of debt instruments. In this study, I first observe a strong increase of revenue-backed debt, supplanting tax-backed debt, as the primary source of funding. Next, I examine how revenues have shifted since mid-century with water sales growing primary and taxation becoming peripheral. Lastly, I analyze the influence of financial gatekeepers—credit rating agencies—considering the growing reliance on private financial capital. I find that rating agencies, push finance-oriented objectives on water managers that include commodifying water to maximize revenue, avoiding expenditures, and flouting

climatological realities of scarcity, among others. I propose the notions of *financial feedbacks* and the *financial pathology of institutions* as conceptual tools for characterizing these processes.

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Placed based strategies and barriers to just transitions

Margot Hurlbert

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This article addresses a gap in knowledge of peoples' strategies and recommendations concerning power production and achieving reductions in GHGs to address climate change for a just and inclusive transition. Employing mixed methods, two day deliberative focus groups in three communities in Saskatchewan, Canada included pre and post-focus group surveys, coding and analysis of discussions, and the creation of consensus recommendations for sustainable power production in the future. These innovative mixed methods provide insights into how to advance individual and social learning.

Citizen jury methods allow for full exploration of depth, scale and quality of change. Results of comparative case study analysis provide strong support for renewables and illustrate place based differences and dynamics that have inhibited transformation. All communities supported renewable sources. The community in proximity to coal, oil and gas production supported coal, and coal with carbon capture and storage (CCS) and was concerned with the social cost of job loss on the welfare system; engaging the public was not a priority. In contrast, the other two communities stressed the importance of engaging the public and considering all costs, risks, benefits across the entire lifespan of power production sources. To achieve future sustainability, policy implications include addressing important concerns of resource dependent communities, namely job loss, and conducting holistic policy assessment of potential power production sources that account for carbon and cost across

the entire supply chain and include land use change.

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Green neighbors: Urban drivers of corporate decarbonization

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Are the facilities of large corporations within the U.S. actually reducing greenhouse gas (GHG) emissions? If so, do local government sustainability efforts matter, or are reductions more attributable to the climate action being taken at the company-level? Our analysis is the first to test both local and company-level attributes for their impact on facility-level corporate decarbonization. We use Carbon Disclosure Project data on the GHG emissions of 252 firms in 954 cities from 2010-2019 in the U.S. Results show that Company-level ESG efforts most associated with emissions reduction are building energy efficiency initiatives and low-carbon energy purchases, while local-level factors most associated with reductions are the proportion of the population that believes climate change is a threat, city adoption of climate action plans and local government programs installing solar panels on businesses. These findings show that organizational as well as spatial/institutional factors are meaningful for corporate ESG, and also offer actionable pathways by which corporations and cities may mutually maximize sustainability gains.

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Experimenting with transformative governance capacities for equitable and resilient flood infrastructure systems: Insights from a SETS convergence approach in San Juan (Puerto Rico)

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Rapidly changing climate conditions and unprecedented extreme weather events put mounting pressure on cities, states, and regions to accelerate actions toward climate-resilient infrastructure. After nearly five years since the catastrophic impacts of two extreme storms, hurricanes Irma and María, the U.S. island territory of Puerto Rico is taking swift action to spend a large influx of recovery funding towards rebuilding vulnerable infrastructural systems. In the context of flood infrastructure in the city of San Juan, the U.S. Army Corps of Engineers is investing billions towards risk-based mitigation approaches and engineered structures for fluvial flood control, such as river channelization, levees, and other structural components. The projects were designed decades ago without the input and desires of today's stakeholders and based on outdated climate data and models. Many residents, scientists, planners, and climate advocates are concerned that the urgency to implement these technological solutions will not only close down options for more creative, integrated, inclusive, and sustainable solutions to the city's current and future flooding issues, but that it may result in increased flood risks, irreversible ecological losses, and

environmental injustices to already vulnerable and under-represented urban communities. We present our efforts over the past two years to expand solution options to flood challenges in the Río Piedras watershed in San Juan through the convergence of social, ecological, and technological systems (SETS) perspectives and knowledge systems as part of the SETS Convergence resilient city network. Specifically, we present outcomes from multiple, simultaneous interventions to build transformative capacities in flood governance, including 1) enabling multi-level governance connections and networking across local, state, and federal government, non-governmental organizations, planning professionals, and local communities within the watershed; 2) creating collaborative spaces, such as dialogues, charettes, and visioning workshops to link different types of knowledge, encourage multi-sector learning, and co-produce novel SETS solutions; and 3) building equity and agency of vulnerable and under-represented communities by providing them resources and analytical support so they can meaningfully participate in the formal planning process and co-generate alternative flood resilience solutions. We conclude with insights on how these diverse capacity-building interventions and new modes of governance have enabled (or inhibited) shifts in the pace, process, and direction of flood infrastructure efforts.

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Green New Deals and other policy tools for just transitions

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Chutes and ladders to energy democracy: A universal framework & country comparative study on inclusive energy policy

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Inclusive innovation, defined by wider and deeper forms of civic engagement in socio-technical change processes, is either thought to accelerate a transition to a low emission society, or to impede acceleration through enhanced complexity of associated social processes, increased risk and capital requirements. Empirical evidence suggests that its role in energy transitions to date has been limited and unique to specific contexts. Here we characterise distinctions between inclusive and exclusive transition pathways in relation to governance and policy, in order to set the stage for research that can translate knowledge and findings across country or regional contexts and explore the relationship between the inclusivity of low carbon innovation on the one hand, and politically viable pathways and speed of transitions on the other.

Building on existing literature, we develop a generic framework with which to systematically analyse and compare transition pathways and energy policy across regional or country contexts. Inclusive pathways are characterised by narratives and conscious strategies for participation, political opportunities and resources mobilised towards enabling participation, policy co-ordination and comprehensive policy mixes to support civic arenas, resulting in broad winning coalitions in support of technological diffusion. In contrast, exclusive pathways are posited as having limited opportunity for civil society to engage in visioning or experimentation in multi-stakeholder platforms, and limited policy co-ordination, resulting in marginalisation of civic arenas, conflicting framings and lack of high-level strategies for civic participation. As a result, policy processes and outcomes are dominated by incumbent narratives manifesting in substantial policy gaps, inconsistent policies and/or lack of credible policies, narrow winning coalitions, policy instability and incremental diffusion. Furthermore, energy policy mixes can be characterised as inclusive if they cater for policies across different functional categories, each corresponding to specific barriers to civic energy in the literature, and each consisting of a set of local, state and/or federal (or supranational) policy instruments. These range from clear legal provisions for mutual ownership, to localised planning and facilitation, to market access legislation enabling independent power producers and key enabling services to access electricity, demand response and balancing markets. Applying this framework to four countries over time, we document the evolving policy mix in relation to the penetration and forms of community energy in Denmark, Spain, UK and New Zealand, pinpointing how it has shaped the emergence and diffusion of different forms of participation and influenced the dynamics of energy transition pathways.

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*Towards egalitarian energy futures in the South? Race, Empire and the impact of Green New Deals*Keston Perry*Williams College, United States of America*

This paper examines the implications of green new deal policy proposals from the United States and Europe for fossil fuel exporting countries in the Global South. While discussions have centered on improving renewable energy penetration and provisioning to meet climate targets, investment and employment opportunities, proposals often favor (white) workers and capitalist institutions in the Global North. Premised on state-led green capitalism, the technological and political infrastructures of Green New Deals work to benefit of white-majority Global North countries and further extractivism, dispossession of Black, Indigenous and racialized communities, and impose debt in these Southern peripheries. European and US state and corporate players utilize green new deal strategies while neglecting their ongoing exploitative role in creating and expanding a colonial carbon economy, enforce unjust burdens such as carbon border adjustment taxes that sanction majority racialized commodity-dependent societies while deflecting from their historical responsibility for greenhouse gas accumulation. Based on a global (racial) hierarchy, investments and installed capacities represent dynamics that mirror colonialist patterns of extraction and domination. These dynamics advance uneven spatial distributions of investments, technological power and industrial capabilities on the one hand and increased debt burdens, financial subordination, environmental degradation and extractive accumulation on the other. The paper explains that this uneven 'green' division of labour is also consonant with a racialized division of global power, resources and environmental harm and extraction. The paper revisits and extends work that emphasizes uneven racialized geographies brought on by

an impending demand crisis, the continuation of mechanisms of domination in oil and gas-based economies towards expanding renewable energy frontiers.

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*Transformation disrupted? The contested legitimacy of change and stability in climate governance*James Patterson*Utrecht University, The Netherlands*

Realising transformative climate action is a key challenge in domestic politics across advanced democracies. Failures to achieve this to date have been attributed to factors such as conflicting interests, lock-ins, and knowledge politics (e.g. denialism), among others. However, an important aspect which has so far been overlooked is contestation over what constitutes the legitimate wielding of public authority itself within attempts to reconfigure political systems in a changing world. Structural stress accumulates in political systems that are increasingly mismatched with shifting contexts particularly under climate change. Different actors make different claims about the proper role and scope of public authority (i.e. the formal power to make and enforce rules by a democratic government) in response. For example, both climate activists and right-wing populists, in very different ways, contest the wielding (or not) of public authority on climate change. These conflicts concern not only the form and ambition of climate action (e.g. instruments, targets), but also more fundamental ideas about what constitutes legitimate regulation of collective behaviour in the first place.

This creates a 'double bind' because climate change threatens the legitimacy of existing political systems (by exposing a chronic failure to address the problem), but the legitimacy of transformation is also contested as it threatens the existing political order. Both the status quo and radical alternatives are objectionable to different constellations of actors (i.e. mass publics, political elites, organised groups) due to differing views about the rightful wielding

and scope of public authority. As a result, both change and stability in governance systems are deeply contested, even while stress in political systems continues to accumulate.

This paper focuses on the question: *How are attempts to mobilise public authority to regulate collective behaviour on climate change legitimated and delegitimated, by whom, and with what consequences for climate governance?* It draws on examples of climate advocacy and resistance to show how various forms of contestation witnessed in contemporary climate politics (e.g. pro-climate action protests, reactions against specific policy proposals, backlash movements) can be traced back to underlying claims of involved actors about the rightful wielding of public authority. It implies a need to simultaneously consider complex questions of ‘legitimate coercion’ and ‘legitimate resistance’ within the broader problematique of adapting inert political systems to profoundly changing contexts. The paper contributes to understanding adverse political dynamics involved in ‘Accelerating Just and Inclusive Transitions’.

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German leadership and the diffusion of renewable energy policies

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The Paris Agreement on climate change relies fundamentally on Nationally Determined Contributions (NDCs), shifting the focus from a previous top-down approach to a bottom-up system of global climate governance. Thus, national policies and their continuous ratcheting-up are key ingredients for reaching the common goal of limiting global warming to well below 2°C. The focus on individual contributions begs the question to what extent sovereign states are able and willing to coordinate and influence each other’s climate policy activities. One line of research relates to the role of national leaders and their ability to facilitate policy activities in other countries.

However, the extent to which leaders in climate governance are able to influence policy-making in other countries is not well understood. This impedes more in-depth conclusions about the prospects of this governance principle and the ability of climate policy leaders to project their policy preferences abroad. In this paper, we address this gap by studying the case of Germany, a country with strong ambitions to promote its energy transformation model abroad. Specifically, we ask whether or not Germany is able to influence the uptake of its preferred policy model in other countries and, in particular, whether this influence extends beyond the EU, for example to the Global South? We identify several potential channels or routes of influence that may induce other states to follow the German example. This includes the role of trade, aid and assistance, as well as transnational fora and dialogues setup between the German bureaucracy. Empirically, we test our arguments by examining the global diffusion of feed-in tariffs (FIT) for renewable energy, a policy model that Germany introduced for the first time at the national level in 1990 and has since then spread rapidly across the globe (Bayern and Urpelainen 2016). FIT guarantee grid access and a specified minimum price per unit for renewable electricity producers and are widely made responsible for the rise of renewable energy production both in Germany and worldwide. Our results suggest that countries showing stronger trade relations with Germany are more likely to adopt FIT, while the effects of other diffusion channels are more context dependent. This is an important contribution to a better understanding of climate and renewable energy policy diffusion and important information for policy-makers wishing to promote transnational cooperation in renewable energy production.

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Evaluating Transformational Climate Policy in Boston: Insights from the First Year of Boston’s Green New Deal

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Boston’s newly elected Mayor Wu was the first American candidate for executive office to win on a Green New Deal platform, a transformational climate policy plan to invest in decarbonization and build equitable resilience while mitigating economic inequity, connecting sectors from housing to public pension fund investments. Transformation toward more sustainable socio-environmental systems is an increasingly essential objective for local governments as climate change accelerates, jeopardizing the lives and livelihoods of vulnerable residents. However, the extent to which the implementation of the Green New Deal plan will achieve its transformational promise is uncertain. As the anniversary of her inauguration approaches in November 2022, this paper evaluates the City of Boston’s progress toward achieving the transformative promise of Mayor Wu’s Green New Deal using a novel framework for evaluating transformational policy outcomes. Evaluating the Green New Deal for Boston can provide insight to how climate policies can be implemented with the detail of municipal governance and emphasis on justice particular to Green New Deal-type policies, a unique climate policy approach entailing investment in just and sustainable futures (Boyle et al., 2021). By combining the unique policy framework of the Mayor’s plan and an evaluation framework developed by the authors to assess the transformational impacts of climate policies, the paper provides an analysis of the extent to which the plan has realized its transformative potential as of October 2022, what is and isn’t working in implementation, and lessons for accelerating transformational climate justice policy in other contexts. The assessment

concludes with a discussion of what has driven the accomplishments and limitations of implementation so far and suggests priority next steps for implementation. With these insights, the paper applies the experience of Boston’s Green New Deal to provide broader insights that other municipalities can leverage to capitalize on the successes of this plan, avoid the barriers to implementation it has faced, and apply the evaluation framework to their own policies to gain insight into the progress of and achieve their own transformational climate justice plans.

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Addressing issues of scale in energy transformations

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Just transitions: Towards more emancipatory pathways

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Transitions and transformations are increasingly used in academic and public discourses to signal the need for radical/large-scale changes to shift towards a more sustainable future. To ensure these changes are more just and inclusive, scholars have argued for more plural understandings of transitions and transformations, more nuanced approaches of justice, and “deeper and fuller engagement with post- and decolonial thought”. We argue that while addressing these issues, the attention should go beyond merely expanding the range of topics and perspectives on *what* we include in our research, to address procedural considerations

– *how* we engage in transitions and transformation research.

This shift includes practicing responsibility, relationality, and reciprocity, which are rooted in notions of accountability. Accountability entails understanding and taking responsibility for your positionality, often by interrogating: Who am I? What is my work (purpose)? What are my values? Where did I learn them? Who is my community? Who am I accountable to, and in what ways? Relationality means we explicitly recognize other ways of knowing, as well as our own and other peoples' ecological connectedness or connection to place. Reciprocity involves mutual exchange, and our skills or knowledge as researchers can be how we show appreciation for being welcomed into a place.

Adopting the principles of responsibility, relationality, and reciprocity in research means we acknowledge how we relate to place and others, and how we participate in mutually beneficial relationships. This approach also enables us to reflect on the concept of 'just transitions' as forward-looking processes, while recognizing that the concept is historically grounded. First defined in the 1970s, and now at the half century mark, it is important we reflect on whether in process and outcome, 'just transitions' have achieved emancipatory aims. That is, transitions that have created meaningful economic opportunities, and achieved increasingly whole system shifts, including gendered, racialized, and decolonial questions. As part of our reflection, we ask: How might research based on responsibility, relationality, and reciprocity change the range of possible outcomes of transitions and transformations, towards more emancipatory pathways, leading to more just and inclusive outcomes?

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Unpacking resistance to energy transitions in the developmental state: explaining the dismantling of the South Korean feed-in-tariff

Asgeir Barlaup

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South Korea is a puzzling case in how it has pursued the energy transition. In 2008 the government introduced an economy-wide Green Growth Strategy which aimed to propel the country towards a 'low carbon society' by 2050. As part of this strategy, the government opted to replace its existing feed-in-tariff with an unambitious renewable portfolio standard. This new flagship policy has largely been ineffective in boosting a significant growth in renewables, contributing to the fact that the country today has amongst the lowest shares of clean electricity generation among all OECD member states. This begs the question why South Korea undertook such a contradictory policy shift as part of its Green Growth Strategy. This paper will analyze this policy change by conducting an in-depth qualitative case study of the policy process which led to the dismantling of South Korea's feed-in-tariffs in 2008. Thereby, it seeks to shed light on the mechanisms which underpin resistance to renewable energy support policies in the distinct context of a developmental state.

To guide the analysis, this paper will apply a novel analytical framework. Existing insights from the policy dismantling and broader political economy literature demonstrate limited explanatory power in that it emphasize a very static view of how structural factors lead to the rollback of existing policies. More comprehensive explanations which emphasize the agency of political actors, policy learning and interest group politics are missing. To address this shortcoming, this study will therefore also incorporate insights from well-established policy process approaches; a complimentary theoretical perspective which may illustrate how specific stakeholders involved in the policymaking process

undermine renewable energy policies within their particular institutional context. The study will have a particular emphasis on how the influence of energy intensive industries/conventional energy companies (i) as well as policy learning from abroad (ii) contributed to the rollback of the feed-in-tariff. The objective of this research is to add to our theoretical understanding of the political dynamics that inhibit more inclusive and accelerated energy transitions. Moreover, the South Korean case can shed light on the underlying conditions for achieving energy transitions under a developmental state governance model, and the extent to which ‘green developmentalism’ constitutes a desirable transition strategy for policymakers in other jurisdictions. Interview data will be collected in Seoul in the spring/summer of 2022.

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Backlash to climate policy

James Patterson

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Domestic climate change mitigation scholarship focuses largely on explaining policy action/nonaction within and across countries, but less attention is given to explaining adverse counteraction where policy action is taken but later rejected. For example, while pushback, policy repeals, and social mobilizations against climate action have certainly attracted the attention (and consternation) of scholars in recent years, such counteractions tend to be treated as aberrations or unintended consequences. But counteraction should also be studied as a dependent variable, particularly given the growing and often varying experiences of post-adoption climate politics in advanced democracies over the last decade. Backlash to coercive or ‘hard’ climate policy (i.e. regulatory and economic policy that imposes mandatory requirements and/or sanctions) is a particular challenge because such policy is likely to be required to meet ambitious global climate targets but may provoke strong resistance. Backlash involves an

abrupt and forceful reaction by a significant number of actors within a political community (e.g. mass publics, political elites, organized interests) seeking to reverse introduced climate policy, often through extraordinary means that transgress established political procedures and norms. Such reactions may attack not only policy substance, but also the underlying political authority of those involved in its formulation. Nonetheless, understanding why and how backlash occurs remains challenging.

Some scholars have recently proposed explanations of backlash to move beyond its common use as a descriptive metaphor. Combining such insights about backlash as either escalating feedback (policy feedback view) or as an eruption of discontent (contentious politics view), this paper argues that backlash needs to be ultimately grounded in a view of contested legitimacy. This is because a coercive or ‘hard’ climate policy mobilizes a new relation of power over policy recipients which must be accepted as legitimate to become normalized and durable. But if this does not happen, then deep discontent is likely to be provoked, and the volatile reactions characteristic of backlash become possible. Such a view locates a common foundation for different emerging explanations of backlash, and for its diverse empirical manifestations (e.g. across both electoral and party politics, and social mobilization and dissent). It also foregrounds the need to empirically understand the processes by which legitimacy is contested within a specific polity. Cases from Australia, France, and Canada are used to probe this argument, and to abductively derive propositions for comparative research. Overall, the approach suggests an ideational explanation for backlash, rather than an interest-based or institutional one.

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Towards a more nuanced understanding of scaling processes: situated pathways of change

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Cumulative social and ecological crises, including climate changes, environmental degradation, economic crises, and the COVID-19 pandemic challenge our ability to navigate sustainability transformations. Sustainability innovations, including life-style and practices changes, changes in technologies and other inventions, are already promoted by individuals and small-scale initiatives at the margin of dominant systems. These sustainability innovations may offer great insights for future sustainability transformations but are often drawn from people with diverse ideas, values and strategies. These multiple visions and pathways of change often clash or result when aggregate in uncoordinated system-level changes. This research argues that to understand scaling processes, we need to step back from a focus on singular initiatives to look at the ecosystem they are a part of. This means focusing on understanding how these sustainability initiatives relate to changing contexts, which in turn drive their visions and actions and to the power dynamics inherent in their interactions. Too often sustainability transformations are examined in isolation, failing to capture emergent dynamics resulting from their interplay with other agents and drivers. This paper focuses on understanding situated pathways of change beyond a focus on singular sustainability innovations to examine their broader effect on system change, including unexpected outcomes.

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**Action without agency?
Enabling ethical
transformations in
marginalized populations**

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How Good Norms Do Harm

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In recent years, there has been increasing attention to the everyday experiences of global governance. At the Glasgow Climate Summit, for example, the Land Rights Now! movement called on the international community to recognize the ways in which climate change treaties imprint on their daily lives: by structuring international climate agreements almost solely around distributive justice norms, climate treaties further subjugate Indigenous Peoples to nation-state assertions of sovereignty, limiting Indigenous Peoples' wellbeing pursuits and opportunities as well as their broader expressions of lifeways. Referring to the ways the costs, benefits, harms, and goods are distributed, distributive justice norms have well-established roots in global environmental governance. Such norms include the Common Heritage of Mankind principle (CHM) and Common but Differentiated Responsibilities (CBDR), among others. While international relations scholars have dedicated attention to how norms emerge, evolve, and diffuse, there has been limited attention to how people experience these norms.

Drawing from more than three years of ethnographic work in Laos and at multiple sites of global environmental governance, including the World Parks Congress, the Convention on Biological Diversity, and the Glasgow Climate

Summit, this paper explores the role of norms in shaping justice experiences. Through extensive tracing of how norms show up in global forest governance, how they are put into practice, and how forest communities experience these justice norms, this research demonstrates how some ‘good’ norms do harm. Understanding how international norms, especially justice norms, are experienced is critically important both for assessing the extent to which global institutions actually address global problems and for identifying new or alternative ways of solving collective challenges like climate change and biodiversity loss. Moreover, because justice is increasingly considered a necessary condition for effective global environmental governance, understanding why some ‘good’ norms do harm is essential for addressing environmental challenges.

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Sustainable Energy Transitions: Studying End-Use Solar Energy Transitions for India

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Understanding why an individual embraces a technology is difficult as the process of individual choice making is highly complex. Complexity can be further enhanced if we try to understand why societies transition into new technological regimes throughout their developmental path. A still greater challenge is faced when the technological choices of society have to be oriented towards sustainable patterns of production and consumption. Development pathways are constituted by a set of interlocking and interacting socio-technical regimes. The specific set of regimes represented in a given place and time will shape and lock-in its resource and environmental footprint. Historically vintage technologies associated with early industrialization had large environmental footprints. As technologies advance, a possibility to design an alternative balance of technological regimes involving cleaner

technologies for providing energy, mobility, nutrition and recreation to the society becomes possible. One of the most versatile groups of clean technologies that have gained significant momentum is solar technologies that enable us to harness the energy from sun for various end uses. India being a tropical country has immense potential for solar generation. A positive policy orientation in the form of Jawaharlal National Solar Mission (JNSSM) and favorable global solar regime is expected to promote gradual solar adaptation in the country. Solar technologies are unique in the sense they can be directly integrated at the end use level for energy services like heating, cooking, electricity, and cooling using different end use devices. Energy use pattern of a country is usually estimated in term of energy consumption. Household energy consumption patterns are often associated with the concept of an energy “ladder” to explain the transition in the fuels consumed. Solid fuels such as biomass and coal are at the lowest level of the ladder while kerosene, LPG, electricity, and natural gas are on successively higher rungs. This transition to more efficient fuels occurs with economic growth. There can be other factors as well that influence the choice of energy carrier. Sustainable energy transitions through solar technologies would be possible only when sustainability of not only the energy system but also the inherent socio technical fabric could be maintained. Assessing sustainability of system is a complex process because sustainability is an abstract concept. This study summarizes the literature review performed to understand of key concepts of sustainability transitions and generate a framework to understand the process of sustainability transitions through solar technologies.

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Repeated crises: enabling transformations or inducing helplessness in Puerto Rico's energy system?

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Despite the growing urgency of energy system transformation, policymakers do not yet know how to successfully manage change at the speed that is required to decarbonize the energy system while also increasing equity and addressing past injustices. Moments of crisis may present opportunities to disrupt the status quo and rapidly shift energy systems, but the conditions under which crises enable transformational change are not well understood. Discourses on sustainability transitions identify climate-induced crises as a motivator for rapid transitions, but crises can also re-entrench established systemic injustices. Additionally, under climate change, we can expect more frequent and increasingly overlapping crises, but the compounding effects of these events have not been sufficiently integrated into models of transformation. In this analysis, we ask how repeated crises impact the capacity of individuals and communities to engage with transformational change, using Puerto Rico as a case study. Puerto Rico has experienced multiple crises that impact the energy sector including Hurricanes Irma and Maria, a fiscal crisis, earthquakes, and the Covid-19 pandemic. Drawing on qualitative interviews with over 50 stakeholders engaged in the energy system in Puerto Rico, we examine visions of the future of the energy system among different stakeholders and the narratives of energy transitions on the island. Interviews were conducted both before and after Hurricane Maria, allowing us to analyze how perceptions of transformation have

changed and the role of Hurricane Maria and subsequent crises on the narratives of the future of the energy system. We find that, despite the motivation for change that crises can inspire, in the Puerto Rican case the repeated experience of crises has induced a trauma response, leading to a sense of “learned helplessness” that inhibits the political engagement required for transformational change. Many stakeholders had a more pessimistic view of the future for the energy system now than they did before Hurricane Maria, and these experiences created resignation and a sense of futility. Acknowledging the psychological and societal impacts of repeated crises on individual and collective visions of the future and sense of empowerment is critical to understanding the potential, as well as the barriers, to energy system transformation.

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Justice and accountability in the cycling mobility transformations of Egypt's mobility regime

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Egypt has seen in the last decade a rise in projects that serve cycling. Projects that are conducted by different actors, and motivated by environmental, economic, social, or mobility rationales. However, most of the infrastructure projects have made a very little observed impact on bringing better conditions for cycling in the city.

The research shows that these interventions have failed to meet the needs of many current and potential bicycle users. It uses frameworks of distributional, recognition, participation and capability justice, as well as responsibility, assessment, and transparency accountability. Then it analyzes project reports, expert and user interviews, as well as bicycle counts and observations. And connects the resulting analysis with a transformation analysis, of the current mobility and planning regimes in Egypt,

through rupture, interstitial, or symbiotic processes.

The research outcomes show how the distribution of projects have favored wealthy low-density neighborhoods. Implementation of projects included compromises on the safety of bicycle users for providing space for car users. Many projects targeted specific segments of bike users for choice, much of whom cycle for leisure. Participation is also limited to organized cycling groups, which marginalizes much of bicycle users for utility. Much of the projects are designed without taking into consideration the needs of users for a connected network, or suitable density and landuse mix, not delivering the accessibility that is essential for the social good outcomes of cycling infrastructure.

Analyzing the accountability of the projects, adds several insights. Assessments for projects' impacts are either non-existing or skewed to increase impact, even in official UNFCC reports. Most public and private agents of cycling infrastructure projects seek targets of providing a luxury or lifestyle element, rather than mobility, environmental, or health targets, which tend to be more in projects led by civil society or informal community arrangements.

The movements in cycling mobility are connected to urban planning and mobility regimes in Egypt. Regimes that are usually explained in relation to new city developments, informal areas, and older city fabrics. Literature describes a wide array of factors affecting the regimes in Egypt, including public and private financialization of land, economic dependence on construction, policing and control, showcasing political achievement, and commodification of environmental goods, all related to motivations of cycling infrastructure. The research concludes with the impact that the different types of approaches to active mobility have on Egypt's mobility regime.

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The Unhopeful Fate of Small Island Developing States (SIDS) and How to Change It: How climate finance and good climate governance is crucial to ensure a future for SIDS

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Small Island Developing States (SIDS) are at the forefront when combating climate change. They are not simply suffering from natural disasters that affect their entire livelihoods, as these events are increasing due to climate change, but they even risk complete disappearance. The consequences of these states and territories are not only local or national, but global with problems that will not only affect matters of security but also with the increasing wave of environmental displacements and climate refugees that are soon to occur. In this and other aspects, COP26 left many unanswered questions about issues on climate governance and climate finance concerning SIDS. On these past climate negotiations, platforms such as the Resilient Island States (IRIS) were created, with the collaboration of alliances such as the Alliance of Small Island States (AOSIS) that bring their voices to attempt to raise awareness and funds to take climate action that will help these vulnerable communities. The purpose of this research is to look at the actions followed around the issues of climate finance and climate action for SIDS, focusing on the Caribbean, and to evaluate the assessments that members of AOSIS and the governments of SIDS in the Caribbean make about the actions they are taking but also on what they feel is still missing. This research uses Qualitative Content Analysis (QCA) used to analyze a total of over 10 officials from AOSIS as well as over 30 stakeholders from the over 20 different islands in the Caribbean sharing their views on the role that several actions and programs created to help to combat the effects and consequences of climate change. The

findings show that even national governments and epistemic communities within SIDS are indeed pushing for an ambitious agenda that will help towards the goal of 1.5 degrees Celsius and their own energy transitions, they are not economically supported by the Global North. The interviews, as well as the analysis under QCA show skepticism towards the commitments made in terms of funding and actions, and the results, point to a pessimist view on climate negotiations and climate governance. However, the overall narrative shows optimism when considering community initiatives and state-lead initiatives in the SIDS when it comes to energy transformation, sustainable development, and climate awareness, particularly in the areas related to ecosystems, biodiversity, and livelihoods, that could help if complemented by the Global North.

Panel ID 613 | Onsite

Re-imagining business as usual: industry's role in energy transitions

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Blockchain and its potential as a mitigation and adaptation technology within an enhanced transparency framework (ETF)

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Climate change requires us to rethink how we might formulate an effective global response to the crisis. Due to the importance of the Intended Nationally Determined Contributions (INDCs) as part of the global response, there has been increasing demand for new and innovative systems of accounting to ensure

transparency and accountability in the commitment to long-term sustainability goals among governments, firms, financial institutions, and other organizations. Blockchain technology is an innovative technology that can assist with restructuring institutional frameworks and actors by improving how participating countries monitor, report, and verify progress toward their long-term goals. Blockchain can facilitate transparency in market transactions and global policy compliance, reduce the need for intermediaries, and spur investment in green technology by reducing risk. Additionally, blockchain is a foundational component in the creation of smart contracts which self-execute, eliminating the need for external enforcement. However, there are limitations to blockchain's capacity to support sustainability goals. The use of blockchain comes with its own set of environmental impacts. Decentralized systems like blockchain have also been shown to increase socio-economic inequality and concentrations in wealth. Our research addresses the role that blockchain may play in the global response to climate change. We conducted semi-structured interviews with a variety of stakeholders at the forefront of developing and applying blockchain technologies. These include representatives from firms and government organizations that use blockchain to further long-term sustainability goals. This research project explores the affordances and limitations of blockchain technology to enhance transparency frameworks within the Canadian context of sustainable development goals. Our unique contribution to this topic is our focus on the development of this technology, the market dynamics of blockchain and its application towards sustainability goals in the Canadian context.

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Delaying the future. How business organisations create business as usual?

Elena Pierard

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As societies need to phase out fossil fuels, major companies have become the gatekeepers to this challenge. Most of the investment of new technology has been delegated to incumbent companies that hold both organisational and capital means to invest and develop new industries. However, incumbents have a case to delay transitions to new technologies. This paper studies the role business organisations have played in developing and delaying low carbon technologies, such as oil and gas majors and renewable energy. *We ask how organisations adapt the framing of similar climate actions according to different climate change moments?*

Based on the analysis of 6 oil major corporations' decisions over a 30-year period (1990-2020) we identify three changes in the framing of climate actions: transformational frame, business as usual frame, conflictual frame. We coded a total of 130 annual reports and build a database of renewable investments over the same period with corresponding press releases. We first observed that frames and investments trends changed across what we call climate change moments.

We identify transformational frames when there is interest to grow a new renewable unit within the main market segments. We identify business as usual frames that prioritise their current business only or mainly. And we identify conflictual frames where companies are combative against public opinion or regulations on climate change.

In our data we observed that climate change actions are framed differently across periods. We compared different ways climate action has been discussed in the companies' context to identify moments of change. We develop a grounded model to explain how investments change in meaning, how organisations extract

reputational value from climate investments, and what language allows them to maintain bare minimum ambition.

We document the most prevalent frame to defend their current business within continuous tensions with external demands and expectations. We find that *business as usual* is an active practice, in which corporation reframe what is usual overtime. As such, we identify that, in large firms, *business as usual* practices are constantly chosen, rather than being a passive conservation of their current business.

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The role of the state in green finance and decarbonizing energy-intensive industries

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Energy-intensive natural resource-based industries (ENRIs) in mining, steel, aluminum, cement, and petrochemical sectors are a significant part of national economies in many countries but a core source of carbon emissions. In the past few years, decarbonizing ENRIs has become a major issue of sustainability transitions to achieve post-fossil fuel economies. Meanwhile, risks and uncertainties involved in decarbonization processes often hinder effective behavioral changes of relevant actors, and private actors increasingly call for government support to reduce and share the risks. But what is the role of the state in mitigating the risks and uncertainties in industrial net zero transitions? How do government's green industrial and financial policies affect the risks and uncertainties of decarbonizing ENRIs? Do they bring transformative changes beyond transitional changes? To address those questions, we investigate selected recent projects of decarbonizing ENRIs in Sweden (e.g., Hydrogen Breakthrough Ironmaking Technology project, H2 Green Steel, and Cem-Zero initiative) and track how primary actors'

perceptions on risks and uncertainties have changed over time and through what policies and governance mechanisms (from the early 2000s onwards). Particularly, our research focuses on financial policy measures to support the decarbonization initiatives, such as loan guarantees and tax credits. Despite a recent trend of increasing green industrial policies globally, sustainability transition studies have not shed enough light on the role of the state except for a few cases. Sweden aims to achieve its net-zero goal by 2045 and become a “fossil-free welfare state.” The ENRI sectors are crucial for Sweden’s balance of trade and international competitiveness in the global economy; however, those industries emit more than 30% of total national carbon emissions. For that reason, Sweden is an interesting case for examining the role of the state and state-society complexes in decarbonizing ENRIs. Based on discourse analyses and semi-structured interviews with policymakers and industry actors, our research shows how Sweden’s green industrial policies (e.g., the Industry Leap and the Climate Leap) reshape market signals and industrial actors’ perceptions and behaviors regarding risks and uncertainties of net-zero transitions. The main implications of this study contribute to ongoing debates on the green state and decarbonization by showing empirical evidence of a state’s role in orchestrating sustainability transitions. Moreover, this paper’s focus on climate governance to support sustainability transitions of ENRIs speaks to the main theme of this ESG conference: governing accelerated transitions.

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Climate narratives in the US labor movement: A review of union resolutions

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Transitioning to a clean energy economy will require unprecedented coordination across

national, state, and local governments, civil society organizations, and the private sector. As powerful negotiators of legislation and bodies of collective capacity, labor organizations can emerge as key players in climate mobilization efforts. Recent literature highlights opportunities for coalitions between labor activists and environmental justice advocates, but little work explores how organized labor attempts to influence climate policy, and through what mechanisms. To further investigate the intersection of organized labor and the climate crisis, we ask: 1) What roles do the largest labor unions in the US play as instigators and negotiators of climate action? And 2) What narratives around climate action emerge from labor unions across sectors? To answer these questions, we review publicly available data on lobbying efforts and political donations as well as resolutions from a sample of United States’ largest labor organizations, members of The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO). Out of the 57 AFL-CIO member unions, we identified 53 publicly available climate and energy-related resolutions from 11 unions. Using both qualitative and computational text analysis methods, we identify patterns in the demands and concerns reflected in resolutions relevant to climate policy, and discuss how these shifting narratives emerging from organized labor are shaping broader climate policy. This work highlights the importance of unions in organizing collective responses towards just transitions for frontline communities.

Panel ID 614 | Onsite

Political dynamics in food system sustainability

Parallel Panel Session X,

DAY X October 2022,

9:00-10:30 CEST

Chair:

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Identifying barriers to rural transformation in European landscapes through the justice lens

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Evidence of climate change impacts in Europe becomes increasingly noticeable, and there is a growing call for the transformation of the current development trajectories. Especially in the case of rural agricultural landscapes, there is an increasing need for transformation towards sustainability. However, transformative changes related to rural societies and landscapes can be met with resistance of rural populations due to local values, knowledge, norms as well as economic dependence on the land.

To address this issue, we study the barriers to rural transformations, applying an integrated justice-based lens. Specifically, we explored the relationship between people's willingness to accept and implement transformative changes in landscapes around them and their perception of environmental justice of these changes in agricultural landscapes of Czechia's South Moravia region. We applied a transdisciplinary approach of Just Transformation labs as a process supporting multi stakeholders' groups in addressing a complex societal problems. This included stakeholder analysis, followed by field stays, semi structured interviews, and a participatory workshop.

Through interactions with a range of relevant stakeholders, we've discovered how various actors conceive climate justice, how these plural conceptions are contested within particular places, what normative concerns act as barriers to the shared vision, and what shared norms provide opportunities for collective action. We identified several key topics related to the just transition towards sustainability in our study area., namely agricultural subsidies, land consolidation and associated justice issues, as well as the problems of landowner's loss of connection to the land, the question of their agricultural identity, and market's demands to use unsustainable farming strategies. Finally, the improper legislation, and private interests of some landowners, alongside with the trade-offs of introducing more landscape greenery, were flagged by stakeholders.

The results illustrate how creating a long-term safe space for collective learning and building shared understandings can benefit collaborative envisioning and planning for rural transformations. It also demonstrated the great importance of addressing rural justice issues when working with various stakeholders towards the transition to greater sustainability. Finally, we discuss how our research findings provide understanding and methodologies for wider application or rural transformational actions.

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Science to the rescue? Evidence types, political economy, and the wicked problem of pesticide risk reduction

Benjamin Hofmann

Eawag, Swiss Federal Institute of Aquatic Science and Technology, Switzerland

This paper investigates to what extent new evidence can contribute to addressing wicked sustainability problems like pesticide risk reduction characterized by uncertainty, complexity, and conflict. Scholars of evidence-based policymaking are optimistic that causal

scientific evidence can reduce uncertainty, capture complexity, and resolve conflict. Politico-economic scholarship is more pessimistic in this regard and holds that organized interests and their political power trump the impact of scientific evidence. I argue that these seemingly contradictory positions can be integrated by considering how different types of evidence interact with politico-economic context.

I test this argument empirically in a comparative case study of pesticide regulation in sugar beet farming in Austria, Germany, and Switzerland. All three countries withdrew the regular approval of three neonicotinoid insecticides (clothianidin, imidacloprid, and thiamethoxam) due to their toxic effects on honey bees and other pollinators. Since then, however, the countries have differed markedly in the granting of emergency authorizations that farmers demanded for the three neonicotinoids, which have been essential for pest control in sugar beet: Switzerland declined emergency authorization for 2021 and farmers do not plan to apply for authorization in 2022; Germany granted emergency authorization until 2021 but not for 2022; and Austria granted emergency authorization for 2021 and is expected to renew it for 2022. These differences are puzzling given that the three German-speaking countries have access to the same scientific evidence base about the effects of neonicotinoids and that the economic importance of sugar beet farming is highest in Germany and comparable in Austria and Switzerland.

The comparative analysis shows that the observed policy differences can be explained by taking into account scientific and experiential as well as causal and actionable types of evidence and their interaction with the political economy of agricultural policymaking. Earlier phase-out of the three neonicotinoids resulted from an interplay of increased public pressure on policymakers, new experiential and actionable evidence related to farming practices and anticipated pest pressure, limited causal scientific evidence about the adverse effects of substitute substances, and subsidies for agricultural transformation. The paper concludes that, to address wicked problems, researchers and policymakers should pay

attention to the full variety of evidence, including actionable and experiential evidence, and its interaction with the politico-economic context.

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Deepening Democracy for the Governance Toward Just Transitions in Agri-Food Systems

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Deep transformations towards sustainable, healthy and just agri-food systems are needed in order to tackle some of the world's most pressing challenges. The field of transition studies offers tools and guidance for both understanding and governing long-term processes of structural systemic change. Yet achieving a fundamental transformation in complex agri-food systems is challenging and requires rethinking governance efforts in order to confront fundamental inequalities and re-direct vested power relations that stabilize status-quo configurations.

This paper contributes to the debate on how transition governance efforts could be democratized in order to facilitate just transitions in agri-food systems. Our main contributions are a further clarification of how democratization of transition governance might pave the way for enacting just transitions in agri-food systems, and an elaboration on several key challenges democratization brings along in *institutionalizing* transition governance efforts.

We first elaborate on a multidimensional understanding of justice. Just transitions comprise the four interrelated dimensions of (1) distributive justice; (2) procedural justice; (3) recognition justice; and (4) restorative justice. While democratization of transition governance is most strongly related to issues of procedural justice, we contend that democratizing the governance of agri-food transition is inherently grounded and related to

other (outcome-oriented) justice dimensions. In our analysis we explicate this take, by arguing that democratizing the governance of agri-food transitions requires three paradigm shifts. These entail the move (1) from expert toward pluralist understandings of knowledge; (2) from economic materialism toward post-growth strategies; and (3) from anthropocentrism toward reconnecting human-nature relationships. For each of these strategies, we illustrate their implications for transition governance with different dimensions of justice in agri-food systems. Finally, we argue that this brings along six different challenges, or balancing acts, in institutionalizing transition governance. These refer to (1) balancing (trade-offs between) multiple dimensions of justice; (2) combining democratization efforts with urgencies implied by transition ambitions; (3) moving beyond the bottom-up and top-down dichotomy in setting governance directionalities; (4) navigating the translocal scales involved in bringing about just transitions, in particular between local interventions and global dynamics of injustice; (5) finding creative ways to combine realist and idealist interpretations of just transition governance; and finally, (6) rethinking the role of scientists and scientific systems in how they can best contribute to just transitions. Balancing these tensions for a deepened understanding of democracy in agri-food transitions requires thoroughly rethinking transition studies' normative and democratic ambitions.

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Institutional entrepreneurship for the sustainable transformation of agri-food systems: The case of silvopastoral systems in Mexico

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Animal agriculture contributes to the livelihoods and nutrition of millions of people.

Yet, specialisation, management simplification and increasing use of external inputs has brought about extreme alterations of natural ecosystems, with consequences that include high and rising emissions of greenhouse gases, loss of biodiversity, land degradation, reduced productivity and increased rural poverty. Increasing the levels of diversity in agricultural ecosystems, for example by integrating livestock and forestry (aka silvopastoral systems) can result in positive synergies that contribute to ecological restoration, carbon sequestration, biodiversity, increased productivity, and flexibility to cope with socio-economic and environmental risks, yet formal adoption and support for these practices remain low in the agri-food domain. Transforming livestock systems towards sustainability is a collective goal that requires action from a diverse pool of public and private actors with different agendas, influence, and levels of power. For such a transition to happen, policies, regulations, user behaviour and practices, as reflected in the overall dominant institutional structures, need to innovate. Building upon the literature on institutional entrepreneurship and sustainability transitions, this paper uses a case study of the Mexican beef value chain to explore the field-level conditions that have been undermining the adoption of silvopastoral systems in Mexico, focusing on issues of history, culture, science and policy, and discusses opportunities for institutional entrepreneurs to challenge institutional arrangements through collective action for institutional change and landscape governance. Findings highlight institutional innovations at the federal policy level with a strong environmental discourse, but a lack of transversality between sectoral institutions and programs that in practice results in contradicting policies. Additionally, most initiatives have been focused on primary technical assistance issues, with limited attention to governance issues and market development needs. Ingrained management practices and resistance to change, scarce and competing incentives, lack of farmers' associativity and overall ignorance of silvopastoral management practices and benefits hinder the sustainable transition of

the sector. Enhancing the transformational impact of institutional entrepreneurs will require improved coordination between environmental and agricultural policies, creating spaces for regional governance, increased participation of the private sector in existing and new multi-stakeholder platforms and increased efforts towards capacity building in aspects that involve social skills development and market commercialization.

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Constructivist IR theory approaches to agroecology, emerging norms of ecological transition governance

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This paper employs constructivist IR theory to analyse the growing interest within civil societies and governance towards the transitional potential of agroecology. This approach to food production has recently been included in UN literature, as part of the available arsenal of “natural climate solutions”, on account of its capacity to help absorb emissions, also thanks to the important advocacy work carried out by international independent groups such as La Via Campesina (the Peasant Movement).

The innovative potential of agroecology rests not only in its innovative approach to food production and distribution, but in its all-encompassing ethic, which entails a reconsideration of urban/rural dynamics, and of notions of community and society, with an approach that prioritizes indigenous and traditional systems of knowledge to globalised extractive systems of production and trade.

Thanks to its emulation of food production occurring in nature, agroecology helps to rethink and reposition communities within the green landscapes that can sustain them. Furthermore, agroecology is complementary to movements that demand a fundamental shift in public governance, one that can invest more attention to public goods.

Agroecology emerged across different countries of the Global South in the 1970s, as

an intellectual challenge to the prevailing Green Revolution. What was discovered was that the traditional Southern forms of agriculture were more resilient in the context of warmer climates. In fact, traditional approaches have been tested for centuries in regional settings, and therefore are the best pick for the local climate and social conditions. La Via Campesina adopted agroecology since its foundation in 1993. In a later phase, a climate collective within the group began to work on the potential of agroecology for emissions drawdown.

Building up on existing constructivist works on the politics of ecological transition, this paper seeks to track the gradually emerging transitional potential of agroecological norms, from its circulation in activists’ circles up until its inclusion in the language of international governance, with theoretical and methodological approaches that combine IR constructivism and political discourse analysis (PDA).

In regard to PDA the paper will keep track of the evolution of agroecological principles from socio-political visions able to accommodate a wide range of social demands, to more widely prevalent imaginaries able to establish dynamics of social polarization (identification and differentiation).

Panel ID 615 | Onsite

**Will we meet our targets?
Assessing climate action
through a systems lens**

Panel Day and Time: TBD

Panel Room: TBD

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*Unlocking and reconfiguring lock-in dynamics to accelerate adaptation*Meghan Alexander¹, Nicolas Jager², Lisanne Groen³, Julie King²¹University of East Anglia, United Kingdom;²Carl von Ossietzky University of Oldenburg;³Open University, The Netherlands

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 our research project (reference to project removed) 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.

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*SDG interactions from a climate lens: a global analysis*Adis Dzebo^{1,2}, Zoha Shawoo¹¹Stockholm Environment Institute, Sweden;²Utrecht University Copernicus Institute of Sustainable Development, The Netherlands

Ever since the adoption of the 2030 Agenda and the Paris Agreement, the literature has emphasized the need for policy coherence in their implementation to ensure that progress can be made on climate and development goals concurrently. Yet much work on SDG interactions has focused on identifying synergies and tradeoffs among specific sectors or geographic locations, rather than across the two agendas globally. This paper aims to fill this gap by providing a global-level analysis of how adding a boundary condition of a 1.5C climate target impacts synergies and tradeoffs among those SDG targets that are the most relevant from a climate change perspective. Applying the SDG Synergies tool, using expert perceptions, we provide a global picture of whether progress on key development goals can be made despite the need to reduce emissions and adapt to climate impacts. The ultimate objective is to identify key synergetic and conflicting points in a climate-compatible world in order to provide recommendations for improved policy coherence between the two global agendas. Overall, we find that interactions between the most climate-relevant SDG targets are primarily synergetic with one another at the global level when pursuing efforts to limit temperature increase to 1.5C. Our findings indicate that making progress on mobilizing climate finance and Official Development Assistance is most beneficial for making progress on all other targets. A second key finding is that targets aiming to address the root causes of vulnerability, such as poverty and inequality reduction and increased health, water, food and energy access, are highly beneficial for building resilience to climate impacts. With regards to tradeoffs and goal conflicts, our analysis shows that SDG targets

on water-related ecosystems and marine-based economy have the least positive interactions with other SDG targets. The results from this analysis shed light on how interactions between the two agendas might play out at a theoretical level, which in turn can inform policy-planning and cross-institutional collaboration that can enable the implementation of policy coherence measures to ensure concurrent progress on climate and development goals. In addition, this paper contributes to further methodological development of the SDG Synergies tool, by applying a global lens to SDG synergies. Lastly, our intention is to build on this theoretical exercise with empirical analysis using both global indicators and case study analysis.

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The Phases of Transformation to Sustainability (T2S) - Structuring the Complexity of Transformations and Sustainability through the Negotiation Perspective

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The complexity of linking sustainability with transformation necessitates the development of new ways of understanding and explaining actors, processes, issues, structures, and outcomes related to transformation to sustainability (T2S). A persistent problem in understanding and managing the T2S is the implied notion of a monolithic transformation to achieve sustainability. This notion underestimates the diversity of actors as well as the historical contexts of transformations. At the same time, achieving T2S is highly dependent on technical solutions as well as policies that can stir needed behavioural change, whereas these technical solutions and policies are not always socially acceptable or politically implementable. Therefore, achieving T2S also calls for evaluating normative foundations of policies and actions needed to advance T2S.

This article argues that T2S is composed of different phases, each of which having a different set of actors, resources and audience. This article explains how collective decision can be achieved through multiple levels and types of negotiations that occur in an orchestrated manner. To understand this, this article introduces a theoretical model as an analytical framework to structure how T2S unfolds. This model uses insights from negotiation studies to focus on the actors' perspectives on T2S. This framework proposes the division of the transformation process into phases – *entry point, learning, sequencing, disrupting and fortifying*. Using the Germany's energy transition (Energiewende), each of these phases is analysed to determine the "quality" of cooperation that can help fulfil the tasks required to master the so-called "cognitive games" of T2S (*ripeness game, power game, bargaining game, policy game, scaling game*). Moreover, insights are presented to explain how the designated milestone can be achieved that indicates the advancing to the next phase and eventually entrench the transformation process. The lessons and findings resulting from the analysis of the phases of T2S suggest that there is also the need to revisit underlying assumptions on negotiations, sustainability and transformation.

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The International Political Economy of Fossil Fuel Supply

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Fossil fuels account for 75 percent of global greenhouse gas emissions, yet the Paris Agreement makes no mention of fossil fuels. Inattention to fossil fuel supply reflects both the influence of the industry and producing states and an assumption, called into question by recent United Nations (UN) Production Gap Reports, that domestic policies to reduce carbon pollution will automatically translate to reduced fossil fuel supply. In advance of the UN Climate Change Conference in Glasgow, the Executive Secretary of the UN Framework

Convention on Climate Change called for revised national climate plans to enhance countries' climate commitments. Simultaneously, transnational activists have launched a campaign for a "Fossil Fuel Non-Proliferation Treaty," which calls on governments to phase out fossil fuel production. We assess how fossil fuel-producing states respond to calls to address the production and consumption of fossil fuels. We compare the updated Nationally Determined Contributions (NDCs) of 47 fossil fuel-producing countries with supplemental data to analyze how countries articulate policy measures around both the production and consumption of fossil fuels. Our analysis reveals inconsistencies between countries' commitments outlined in their NDCs and production data. Our study also highlights divergent pathways for countries that are primarily fossil fuel exporters and those that produce fossil fuels for domestic consumption. By providing the first international political economy analysis of fossil fuel supply, we draw out implications for domestic just energy transitions.

Panel ID 616 | Virtual

The nuances of allocating climate action responsibilities

Panel Day and Time: TBD

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Fixing Carbon by Soil by the "4% Initiative" A Sector-Based Perspective for Global Climate Governance

Li Li, Xiaojing Song

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In 2015, in the COP21 of UNFCCC, which adopted *the Paris Agreement*, the French

Ministry of Agriculture proposed the "4 per 1000 (4‰) Initiative". It points out that by increasing organic microorganisms in soil, more greenhouse gases (GHGs) could be sequestered underground. If 4‰ of the world GHGs could be captured into soil, the global warming challenge could be tackled. At present, 38 nation states (57.14% of the developed countries and 13% of the developing countries), and over 600 non-state actors have signed the agreement. However, China, the United States, and India--the three major GHG emitters--have not. By comparing the global average level of soil carbon sequestration with representative actors from both the Global North and the Global South, it could be seen that there seems to be different principles toward nation states, keeping in mind their heterogeneity in soil quality, political system, agricultural technology and mechanization. Besides, methodologies for soil carbon sequestration needs to be developed, so that climate mitigation practices of soil-based carbon sequestration could be taken into carbon markets, as an incentive mechanism for the active actors. This paper also proposes a soil-based principle of "common but differentiated responsibilities (SB-CBDR)", to provide a sector-based CBDR perspective to improve the feasibility and flexibility of global climate treaties in the governance structure.

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The new UN special envoy for future generations - assessing its potential role in accelerating the transition to a sustainable future

Peter Lawrence

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In September 2021 the UN Secretary-General Antonio Guterres announced the creation of a Special Envoy for future generations and further mechanisms aimed at better representation of youth and future generations. This paper provides an evaluation of the likely effectiveness of these mechanisms

in accelerating transition to a sustainable future.

Current institutions are biased against the interests of future generations owing to ingrained short-term thinking and structural flaws in governance, including in democracies, short-term electoral cycles. New mechanisms can potentially help redress this bias. But new mechanisms require normative legitimacy in order to ensure their effectiveness. Indeed, previous attempts to create international institutions of this nature have been opposed by developing countries concerned that their development aspirations and sovereignty will be potentially undermined. The paper addresses the following questions: 1) will the special envoy be able to garner broad-based support - across groupings of countries (North-South) and sufficient grassroots support - essential for its legitimacy and ultimate effectiveness? 2) Will the new special envoy likely have sufficient powers, expertise and resources to ensure its effectiveness and thus make a meaningful contribution to a transition to a sustainable future.

The paper firstly sketches the genesis of these new UN institutions and their normative rationale. The paper then addresses the questions posed above using Kalsson-Vinhuyzen and Vihma's (2009)'s framework of normative legitimacy which breaks legitimacy down into source-based, process-based and outcome-based elements. Outcome-based includes the concept of effectiveness which can be understood as including the extent to which governance contributes to problem-solving. The particular problem to be addressed here is adequate representation of the interests of future generations sufficient to contribute meaningfully to policy-making which addresses the problem of intergenerational justice - defined in terms of sufficiency in meeting core human rights linked to a concept of sustainability involving protection of the irreplaceable elements of the global ecological systems upon which human beings depend.

Thirdly an assessment is made as to the likely effectiveness of the special envoy, and related institutions based on the experience of similar mechanisms at the national level, and the performance to date of international

mechanisms aimed at protecting other vulnerable groups.

The paper concludes with recommendations on how to make the special envoy most effective.

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Hoarding Economic Power and Ritual Status: An Ethno-Historical Study of the Bhumihars in North India

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Inclusion and exclusion are two sides of the same coin. So, in order to better understand real and symbolic exclusion, it is crucial to not just study the 'excluded' but also the 'excluding' and the processes through which this exclusion has historically taken place. This study aims to address some of the core issues of caste-based exclusion and injustice by tracing their origin across a spatial and a temporal context and by analyzing the current situations which silently aid or aggravate such issues. It tries to trace the changes and continuities in the manifestations of caste-based injustice over a specific period of time. The power-seeking project of the Bhumihars, who form an important sub-caste community in Northern India, upon encountering newer meshes of socialism and capitalism also adapted itself accordingly. This study is a modest attempt to critically analyse how one of the most influential, dominant and often dubbed as 'violent' upper caste communities showed consistent prowess in maintaining resource control and caste-based dominance in the North Indian society through oral contractual practices and through oral 'land-grants' from the late eighteenth to early twenty-first century. In the present times and in absence of historic feasibility to hold physical meetings, caste associations have shifted to online platforms where Bhumihars from across the country connect. The ideological and processual project of 'history-making' becomes a primary apparatus of domination- both in the

present and for the future as the past remains encompassed in narrowing and harrowing premises.

Based on a research conducted in 2020-21 and using the ethno-history methodology, this study attempts to establish a dialogue with both the Structural and the Narrative approaches in studying caste. In this postcolonial research, the findings have shown that caste-based aspirations, solidification, mobilization, assertion and formulation of claims and negotiations through networking and lobbying are common phenomena till date, and are ignored and overlooked oftentimes, amidst the wider array of concerns, and, amidst other forms of groupings. Building on the works of Cohn (1987), Bayly (1999), Banerjee-Dube (2009) and Dirks (2001), this study revisits post-Dumont scholars' cross-caste generalizations and assumptions and argues against some of them in trying to explore the interactions of certain psycho-social and cultural categories such as 'victimization', 'stigmatization', 'dominance' and 'vulnerability', and the broader themes of 'the dilemma and the paradox of modernity' in 'changing to ensure continuity', and 'in innovating to preserve tradition', within the context of modernizing caste behavior.

Panel ID 617 | Onsite

Creating space for climate innovation

Panel Day and Time: TBD

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Co-Creating Trust in Digital Democratic Innovations: The Role of Media Art

Karsten Alexander Schulz, Élise Rouméas

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Democratic innovations, including digital democratic innovations (DDIs), have been largely presented by the academic community as a possible solution to the crisis of representative democracy. DDIs, in particular, are mechanisms for citizen participation based on digital tools and platforms, aiming at influencing political decisions. Online participatory budgeting, whereby citizens have a say in allocating public funding, is one key example of DDIs.

There is a widespread hope that DDIs can help increase citizen participation and nurture political trust in governing institutions. Yet, empirical research on the causal links between DDIs and political trust shows mixed results. One main reason is that DDIs are not inherently trustworthy. Citizens who are generally distrustful towards the processes of representative democracy are also likely to distrust institutionalized participatory mechanisms based on byzantine digital systems.

However, the vast majority of research on the topic of DDI and political trust focuses only on one side – the trust of citizens in the government and its practices, and how this type of trust can be enhanced with the help of DDIs. What has largely been ignored is the trust of decision makers towards DDIs and their outcomes. Yet, it is crucial that decision-makers also have trust in DDIs and the ability of citizens to generate valuable political suggestions. If political decision-makers do not trust the processes of DDIs, then they also do not trust recommendations, and will not implement them. Therefore, we argue that it is necessary to design DDIs in such a way that they generate trust from both, citizens and decision makers. Citizens must trust the institutions and processes designed by powerful actors, including software developers, and public officials must trust the input of participatory processes.

But how can this be achieved in practice? In this paper, we draw on the empirical findings of the 3D Project (Deepening Digital Democracy). The project conducts research on implementing DDIs in the north of the Netherlands and is based on a transdisciplinary partnership with the Municipality of Groningen, a successful

implementer of DDIs in local politics, and local media artists.

Initial findings based on interactive public exhibitions and co-creation processes show that creative digital art can be a powerful medium to enhance knowledge and acceptance of DDIs among both groups, citizens and decision makers, and potentially encourage trust.

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Planning for Circular Economy in Developing Countries: Electric Vehicles and Waste Recycling in India

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There is a growing imperative to decarbonise the economy and move towards renewable-based transportation such as Electric Vehicles (EV). Developing countries, such as India, have announced an ambitious EV target. It is assumed battery disposal will be a problem in the future, and it is not clear if the developing countries are ready for the burgeoning waste and can manage it. What will be the implications of EV transition? The academic literature on the topic has not yet focused on challenges in Global South. For this reason, we take India as an example; we estimate the future EV demand and estimate the waste generated from used/spent batteries. We have two important findings from our study that is relevant for policymakers. First, unlike developed countries, the EV battery waste recycling challenge is nearer as two-wheelers (scooters and motorbikes) dominate the market with the lithium-ion battery (capacity - 1.3 kWh; 3 years) with short-term lifespans. The spent batteries will require safe disposal infrastructure within 2030 and need urgent attention. Second, unlike the western markets, lead-acid (>1 kWh and 1 year) batteries will play a bigger role will have a significant impact" (because of toxic spent lead).in India, as e-

rickshaws are popular short-distance mobility options and will continue to be part of the EV. Most lead-acid batteries are recycled in the informal sector, and workers need a safe and protective environment. Our finding has a considerable implication; as we discuss net-zero mobility options globally, we hope relevant stakeholders will consider the implications of our work and urgently focus on battery waste management in developing countries. Failure to dispose of RE waste will lead to other implications - health and pollution in developing countries.

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Innovating policy tools to accelerate action for biodiversity conservation in German

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Despite global commitments to foster action and commitment to conservation, current initiatives by parties to the Convention on Biological Diversity (CBD) fail to transform social-ecological dynamics leading to biodiversity loss. Similarly, assessments in Germany report that the measures taken so far in the framework of the German National Biodiversity Strategy (NBS) from 2007 are not sufficient to achieve all targets set. The indicators show that some trend reversals have not yet been achieved and the achievement of some targets have been progressing very slowly. The development of a new Post-2020 Global Biodiversity Framework (GBF) and the resulting revision of the NBS opens up a window of opportunity to innovate governance approaches and tools to accelerate action and increase effectiveness. In our paper, we evaluate the transformative potential of seven policy tools in Germany: 1.sub-national biodiversity strategies in the German federal states (Bundesländer) 2.municipal biodiversity strategies 3.Protected Designations of Origin (PDOs) 4. integrated land-use planning 5.innovative participatory processes

6.ratcheting mechanism. 7. Natura 2000 in the peatland context. For the assessment we conduct at least five semi-structured interviews for each policy tool with experts with in-depth experience in their implementation, respectively, complemented by the analysis of available documentation. Our assessment considers the following dimensions: their potential contribution to national biodiversity targets, the enabling conditions determining their effectiveness, their potential to take into consider different value and knowledge systems, as well as their potential to induce collaboration among key stakeholders. Based on the different nature of the analyzed policy tools, we shed light on their possible contribution to boosting implementation. Strategies at state and municipal level allow to identify and guide actions falling into the competences of the respective level. These strategies as well as local participatory conservation initiatives (such as Biostationen) can induce collaborative action if actors perceive that conservation activities are complementary to their economic interests and practices. The example of Natura 2000 areas in the peatland context emphasized the interdependence of outcomes on different supporting policies (e.g. agricultural policy, water policy). In PDOs and land-use planning the potential contribution depends on the importance given to biodiversity, reflected in their legal frameworks. The examples showcase different levers for transformative biodiversity governance. They illustrate thereby that a “whole of government” approach requires agency at different levels by both governmental and non-governmental actors, bringing together very different, but - if properly aligned - complementary governance functions.

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Advancing knowledge transfer and transformative capacity building in Urban Living Lab research: Insights from the SUGI-GLOCULL project

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Urban Living Labs (ULLs) have gained popularity as an approach that aims to not only define and understand sustainability problems, but also to co-produce the knowledge and capacity to address those problems. Adopting experiment-based research practices, ULLs have great potential to contribute to adaptive and reflexive governance solutions to local and regional sustainability challenges. ULLs bring together institutional, private, and civil actors in a collaborative transdisciplinary research mode. They are aimed at generating actionable knowledge in order to foster just and inclusive transition processes. However, ULLs (and similar approaches such as real-world labs, Transformation labs, etc.) still face a variety of challenges when realizing these potentials. Three of these challenges are (I) quality and transferability of results and outputs of individual labs, (II) a lack of analytical approaches to deal with results, i.e. experiment and lab designs from multiple contexts, (III), the lack of approaches that foster transformative capacity building in ULL researchers.

In the (Reference of project Removed) project, which brought together seven research teams each with a local ULL, approaches for addressing these challenges were developed: a comprehensive case reporting approach, cross-case analysis, and exchange between researchers for capacity building.

The comprehensive reporting of ULL cases, through a coherent scheme, could form an essential step in order to build a knowledge base. Our case reporting scheme captures the processes of reflexivity and negotiation that enable learning and support the co-production of the experiments. Meanwhile, a case-relevant description of the larger social-political-economic context provides an explanatory base for lab decisions, directions, processes, and purpose. From this knowledge base, it becomes possible to analyze multiple and diverse cases in order to transfer knowledge and learning to other labs and experiments to build on, in spite of the potentially dramatic differences in local contexts. The (Reference of project Removed)

project was a space of interdisciplinary collaboration of researchers engaged in local transdisciplinary projects. This international consortium provided both an experiential on-the-ground platform along with a reflexive space for researchers to share learnings and build potential to better engage with their own transformative research.

In this contribution to the 2022 Earth System Governance Conference, we present these three approaches together with insights from their realization in the (Reference of project Removed) project. We discuss the approaches as means to address some of the challenges in realizing the potential of ULLs to become drivers of just and inclusive transitions both in local contexts and beyond.

Panel ID 618 | Onsite

Sustainability transformations in the Global South

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The Governance of Urban Sustainability Transformation: Findings from a Systematic Literature Review

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Cities account for 75% of carbon emissions worldwide, making urban leadership critical for achieving a sustainability transformation towards zero carbon emissions. While many technical and planning solutions for rapid decarbonization are already known or being developed, the real bottleneck appears to be

the governance of urban sustainability transformation. Which political environments, institutional arrangements, and administrative procedures are most promising for delivering a sustainability transformation in the world's cities? Which actors, networks and policy instruments are typically associated with triggering, implementing, sustaining, and accelerating successful urban sustainability transformations? This paper provides answers to these questions based on a systematic literature review of peer-reviewed and non-peer reviewed high-quality studies and evidence on the governance of urban sustainability transformation published between 2000 and 2021. Beyond its general conclusions, the paper focuses particularly on cities that are often underrepresented in the literature: medium-sized cities in the Global South which face the additional challenge of high levels of informality and the need to combine rapid decarbonization with socially just urban development. It closes with an outlook on key enablers for transformative governance.

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Energy justice in a transforming world: a critical study of energy transition policy in Southeast Asia

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This paper sits at the intersection of Theme 3 (Justice and Allocation) and Theme 6 (Accelerating Just and Inclusive Transitions). It does so through an interrogation and critical analysis of the way that governments in Southeast Asia have framed issues of justice in their foundational policies on climate change and energy transitions. The Paris Agreement and UNFCCC CoP26 reinvigorated debate about managing transitions to sustainable, low carbon energy systems to meet commitments to climate mitigation and net-zero emissions. Despite passing reference to 'just transitions' in the Paris Agreement (focusing mainly on 'decent work and quality jobs'), and expectations that socially inclusive policies are

core to green growth strategies, preliminary research suggests that government attention to the social dimensions of energy justice has been uneven.

In this paper, we examine responses to energy justice demands in Southeast Asia, a region in which governments argue that accelerated energy transitions are crucial to meeting climate change challenges and mitigation and adaptation commitments under the Paris. We interrogate how the 10 ASEAN Member States (AMS) have accounted for energy justice which we frame in procedural, distributional and recognition terms (Theme 3). Understanding this policy space provides a foundation for evaluating whether energy transition policies can deliver inclusive and sustainable energy justice to peoples and communities. Our method relies on a qualitative content and contextual analysis of official climate and energy policy statements. Data is gathered through textual ‘snowballing’, starting with AMS Nationally Determined Contributions (NDCs) and expanding to include key policy statements and programmes cited in those NDCs as central to climate/energy policy and action. Where relevant, we include other policies on energy transitions and on green growth and decarbonisation as they apply to energy policy in a climate change context. Our early findings indicate significant incoherence on policy design for energy justice, within individual AMS and across the region. Terms such as equity, fairness and justice are generally not prominent, even in the context of often widespread observations about energy vulnerability and participation. While the latter terms could be considered discursive proxies for the former, we demonstrate how and why explicit attention to justice and allocation principles and practices is essential if energy transitions in a transforming world (Southeast Asia in this case) are to ensure socially just outcomes.

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The Politics of Electricity ‘Access for All’ in Africa

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Sustainable Development Goal (SDG) 7 aims to ‘ensure access to affordable, reliable, and sustainable energy for all’ by 2030. This is a profoundly challenging task for a majority of countries in Africa, where less than 50% of the continent’s population has access to electricity. SDG 7 is even more complicated because its sub-goals espouse using clean, sustainable, and renewable generation sources to achieve the goal. How are African countries confronting this challenge? Does the expansion of electricity access correlate with either the ‘sustainable’ or the ‘for all’ parts of SDG 7? What factors determine the electricity generation sources and distribution choices governments make? This paper explores these questions by examining Kenya’s electricity sector.

We use three sources of original data in the paper: georeferenced electricity project locations; public opinion surveys; and qualitative interviews. Kenya is an important case to consider: access to electricity has doubled in the last ten years, but there has been limited assessment of the factors associated with grid expansion, including, which populations have benefitted from that expansion and how. Moreover, while the Kenyan government has been instrumental in improving access, it has also encountered problems expanding access to low-connected areas and has been criticized for using non-renewable sources.

The paper begins by critically examining what ‘access to electricity’ means in practice. Contrary to common measures, electricity access in many African countries is not a binary condition; citizens do not ‘have’ or ‘not have’

electricity. Even when a household is connected the volume consumed and quality of service varies. Access can also be gained in the community, outside of a household. Using our original survey data, we provide a typology of access types, highlighting the challenges with using access estimates in the pursuit of connection goals.

Second, the paper shows how access to electricity is distributed nationally by presenting original spatial regression data on the location of generation sources in Kenya. This data reveals whether there are asymmetries in Kenya's increased access to electricity, and whether increased access has been achieved using distributed renewable or non-renewable interventions. Furthermore, drawing on original qualitative interviews, the paper will unpack key factors driving government decisions over electricity generation and access. Together, the paper will provide a critical examination of the global challenge to increase electricity access in low-income countries and how global norms of universality and low carbon development confront or conflict with national conditions.

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Climate-poverty nexus in Sub-Saharan Africa: the transformative potential of governing SDG interlinkages, synergies and trade-offs

Eszter Szedlacsek

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The 17 Sustainable Development Goals (SDGs) lie at the heart of global sustainability. While the achievement of the goals is considered an indivisible whole, evidence suggests they are neither integrated nor jointly implemented. Among them, SDG1 aims to end global poverty with 7 underlying targets and 13 indicators. Simultaneously, efforts to tackle climate change have significantly increased over the past years, but a global response accelerating transition, integrating climate action into the broader sustainability agenda is still missing.

Consequently, attention has been paid to how the two agendas can be governed in an integrated way through interlinkages. The coherent governance of synergies and trade-offs between the two agendas clearly has transformative potential. However, even despite their interconnectedness, SDGs are still implemented in siloes, meaning that policy-making almost exclusively focuses on one sector or policy subfield and there has been little inter-sectoral and inter-institutional cooperation to date.

Interlinkages in the climate-poverty nexus are especially pressing in Sub-Saharan African countries with population vulnerable to both poverty and climate impacts. Climate efforts not aligned to poverty eradication policies may be maladaptive, potentially worsening poverty, leading to less effective climate responses. And pro-poor strategies that are based on carbon-intensive economic growth will amplify climate change. Synergistic governance of the climate-poverty nexus is therefore of key importance; however, we know surprisingly little about how trade-offs can be transformed to synergies in a global South context.

This paper offers a systematic meta-analytical review, exploring existing literature on interlinkages, trade-offs and synergies in Sub-Saharan African countries, with a specific focus on the climate-poverty nexus. The paper asks the following main questions: i) how can synergies and trade-offs be identified in a cross-sectoral multi-level setting, ii) what is the nature and extent of interlinkages in the climate-poverty nexus, how is climate policy influenced by poverty eradication (and vice versa) across sectors and scales in Sub-Saharan Africa and most importantly, iii) whether and how climate commitments support or hinder poverty eradication efforts under 2030 Agenda.

In more general terms, the paper makes a significant contribution to advance the field of SDG interlinkages by arguing that synergies and trade-offs between policy subfields are crucial in addressing pressing global challenges in the intersecting fields of climate action and sustainable development. Additionally, the paper investigates how the synergistic governance of interlinkages may have a transformative potential in a global South

context - establishing the integrated, indivisible whole of the SDGs that the 2030 Agenda calls for.

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Politics of Climate Change in Zimbabwe: Integrating Energy Transition and Ecosystem Restoration

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Zimbabwe has a climate change dilemma centered around energy production and biodiversity loss. The country's majority population who are subsistence farmers do not have access to electricity so, they rely on firewood for their energy needs. On the other hand, a greater proportion of the country's electricity is produced through coal-powered stations and the country is investing more in that sector to meet outstanding demand for industrial and domestic consumption. Policy processes and governance contexts that drive deforestation and continued reliance on coal-powered stations in deep-seated energy poverty, all constitute a regime of climate obstruction in Zimbabwe. The country needs to take an alternative course of action anchored on a just energy transition in tandem with the restoration of ecosystems. The study aims to understand the influence and workings of the policy processes and governance contexts involved in the integration of various strategies to tackle climate change in Zimbabwe. The state of politics of climate change in Zimbabwe will have a special focus on the integration of a just energy transition and ecosystem restoration. The study adopts an institutional approach that links governance and institutions. Realizing the importance of the link between environmental governance and institutions, the study proposes to use the idea of institutional bricolage by (Refence Removed) as a guiding theoretical framework. Institutional bricolage is a process by which people consciously and unconsciously draw on existing social and cultural arrangements to

shape institutions in response to changing situations. Institutions are created through improvising out of daily practices, where people assemble institutional mechanisms to attend to emergent challenges and changes in their immediate environments. Emphasis will, therefore, be placed on how rules, norms and shared strategies get stitched together through repetitive interactions by actors involved in climate change policy and action in Zimbabwe. This study adopts intensive and participatory qualitative methods, by interacting with stakeholders in addition to archival sources, for collecting data. So, in-depth interviews and workshops with stakeholders (identified through stakeholder or institutional mapping and analysis), participant observations coupled with analysis of documentary evidence will be used to generate empirical data. The stakeholders will be broadly drawn from government departments and agencies, the private sector, non-governmental organizations, energy, natural resource and climate experts, and communities. These stakeholders have a critical role in shaping Zimbabwe's climate policy and practice because of their positions, interests and the roles they play concerning issues revolving around energy and biodiversity.

Panel ID 155 | Onsite

Accelerating transformative business solutions for the Anthropocene: policy and governance dimensions to support sustainability in SMEs

Panel Day and Time: TBD

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Transformative capacities all the way down: a framework for business sustainability research and practice

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In the face of climate change, COVID-19, and the litany of ecological pressures that characterize the Anthropocene, there is urgent need to transform society-nature relationships. Research on sustainability transformations has emphasized the difference between incremental and radical perspectives, and focused on individual and firm-centric approaches to building capacity to achieve transformative changes through niche-level innovations. However, there is a gap between transformative ambitions and our ability to realize transformative measures. Moreover, it remains unclear what role businesses and communities can and will play in this transformation. What roles can small and medium businesses (SMEs) and business communities, as key actors in an ecosystem of societal actors, play in transforming society-nature relationships? And how can SMEs be supported in pursuing these transformations? To address this challenge, we approach transformation from a systems perspective to develop a framework for transformational capacities, with a focus on SMEs as part of an ecosystem of actors. This perspective moves beyond the reductionist limits of a firm-centric approach to focus on whole-system change of society-nature relationships. Approaching transformation from a systems perspective is important because actions and capacity building activities that target individuals and firms will not be as effective if they do not address system features and dynamics that oppose transformation and reinforce status quo society-nature relationships. Scholars have argued that, to move beyond the limits of firm-centric solutions, we need to focus on capacities at a systems level. We argue that this challenge entails transformation “all the way down”, at all levels of complexity from

individuals to system-wide, and implies a systems view of transformative capacities.

This paper develops a framework to identify transformational capacities of SMEs and communities of practice from a systems perspective. This three-dimensional framework for identifying transformative capacities (1) identifies different levels or places to intervene in the system, (2) examines different mechanisms and/or leverage points for action at these different levels, and (3) proposes transformative capacities to help SMEs and communities access these leverage points at different levels. Using this framework, we identify and discuss activities suited to building these capacities in SMEs and business ecosystems. The paper concludes by discussing some challenges of identifying and building transformative capacities. By building not only individual and firm capacities, but also inter-organizational, community, and governance capacities, it is hoped that societies can transform society-nature relationships.

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Characterising the policies enabling sustainability transitions: engaging SMEs in urban sustainability transformations

Chamila Weerathunghe, Megan A. Farrelly, Wendy Stubbs

Monash University, Australia

Transitions are non-linear, complex, uncertain, and unpredictable processes and policies play a vital role in advancing transitions into desired directions and outcomes. Governing urban sustainability transformations and transitions call for careful ‘packaging’ of policies rather than ‘patching’. Because of the holistic nature of the policies warranted by transitions, policy and transition scholars recommend the ‘policy mix’ approach to analyse transition policies and inform future policymaking. With the aim of interrogating the policies for an ongoing sustainability transition process, we adopt the policy mix approach. This research characterises the contemporary ‘policy mix’

targeted at SMEs in the hotel and restaurant sector in Metropolitan Melbourne to achieve net-zero emissions by 2050. This is a sustainability transition policy goal that the Australian national government and the state of Victoria, where Melbourne is the capital, have pledged to achieve. The corresponding policy strategy of the net-zero emissions goal specifically recognises the critical participation of SMEs in this process, yet little is known about how this policy interfaces with SMEs. A highly heterogeneous group, SMEs are increasingly recognised as playing a critical role in achieving urban transformations and sustainability transitions. The heterogeneity of SMEs and the complexity and uncertainty of transitions call for multi-sector, multi-level, and multi-actor governance approaches and policymaking to create an enabling environment for SMEs to subscribe to this transition policy goal. For this purpose, we delineate the policy mix related to SMEs in the sector to achieve net zero emissions by adopting the ‘bottom up’ approach proposed by (Ref. removed). As data collection methods, we employ content analysis of policy strategies (and their goals) corresponding to the instruments in the mix, and semi-structured detailed interviews with both formal and informal policy and transition actors including SMEs. Our characterisation of policies includes the policy coherence analysis of the mix, which is an indicator of policy mix effectiveness. This paper will report on the preliminary findings of empirical investigation with key policy actors and will contribute towards an early characterisation of the policy mix designed to engage SMEs in the urban transformation agenda.

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Do Circular Economy ecosystems support small-firm sustainability transitions in the garment sector in Colombia? A systematic review

Liliana Camacho

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Small & medium-sized enterprises (SMEs) are critical to the success of industry transitions towards deep decarbonization and socially inclusive economies. Despite government efforts to support them through programs, policies, and funding, sustainability-focused SMEs operate within a market context that historically embodies ideals of profitable firm growth at the expense of environmental and societal interests. This is readily evident in the fast fashion industry, characterized by rapid production and consumption cycles of low-quality clothing designed to go out of style quickly. The fast fashion model has resulted in environmental degradation, significant carbon emissions, and poor labour conditions for garment workers. Circular Economy (CE) ecosystems, which move from a linear take-make-waste business model to cycles of resource reuse and minimization throughout the entire industry, have been promoted in Europe and the U.K. as a model that holistically strives to improve environmental and labour impacts. However, research into the generalizability of CE models to Southern contexts and to small-sized firms is lacking and required prior to making large investments into CE ecosystems. CE models treat firms as homogenous, yet small firms are not structured like large firms and operate in ways that *a priori* embeds them in local social and environmental issues. Further, no single study exists on whether CE models are appropriate to contexts where the garment industry holds historic significance with land-based, women’s, and marginalized groups, such as in Colombia. This paper asks whether Circular Economy models and sustainability transitions theory offer explanatory power for interpreting small garment firms’ experimentation and acceleration with environmental and social innovations, and what significant gaps exist. The paper problematizes rapidly spreading Western-based CE models that aim to shape a sustainable garment industry transition in the Global South.

Firstly, a systematic review is undertaken on transitions frameworks suitable for explaining the dynamics between CE models and small sustainably-oriented firms in Southern contexts, with future application to Colombian garment firms. Following, the paper discusses

the relevance of Circular Economy ecosystem initiatives, including policies and programming, designed to support sustainable innovation in the Colombian garment sector.

Ultimately, the paper offers a novel perspective for ecosystem programming and innovation policy to meaningfully support small firms as governance actors in contributing to environmental and social solutions in the sector.

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Incorporating Climate Justice in the Mining-Clean Energy Nexus: Towards a Pluralist Political Economy Agenda

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Chair: TBD

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Eco-developmentalism: Critical Minerals, Uneven Development, and the Return of Industrial Policy in the Clean Energy Transition

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This paper examines the role of ‘critical minerals’ in the clean energy transition debate. The recently concluded COP26 highlights the need for accelerated investments in renewable energy, requiring both industrialized and developing countries to live up to the principle of ‘common but differentiated responsibility’ in response to the climate crisis. As the recent IEA report suggests, demand for clean technologies to meet the Paris Agreement targets by 2040 will require an increase of more than 40 percent for copper and REEs, 60 to 70 percent for nickel and cobalt, and almost 90 percent for lithium. However, tackling climate

change requires a new policy agenda that can mitigate new conflicts and exacerbate existing inequalities. Climate justice perspectives can shine a light on a huge blind spot among global leaders and national policymakers—that the costs of the green transition are highly uneven, wherein significant amounts of raw materials for renewable energy and clean technology will need to be outsourced from a few developing countries.

In this context, the paper makes a two-fold argument: Firstly, I empirically demonstrate uneven development and disproportionate costs borne by Latin America, Africa, and other resource-rich poor countries in Asia. To meet EU’s attempts at leading the world to clean energy, more intensive and extensive extraction of natural resources in the global South is needed. This is especially the case based on trends moving away from opening new mining projects within the EU. Thus the energy transition debate—and the race for renewables—reflects long-standing legacies of intensive carbon-based industrialization. Consequently, the acceleration of shifting energy resources to meet the COP26 targets bears the same problems of inequality, resource curse, and lock-in effects towards fossil fuel dependence. Secondly, I develop a critical perspective on ‘green industrial policy’ or what others call ‘eco-developmentalism’. The approach offers a middle ground between the pursuit of growth over environment on the one hand, and the depoliticized, technocratic approach towards unfettered pursuit of renewable energy on the other hand. My argument suggests that the balance between inclusive economic development and energy transition rests on politics that recognizes the principles of ‘common but differentiated responsibility’. The paper will contribute to bring together eclectic literatures in environmental politics, geography of uneven development, and political economy of industrial policy in the 21st century.

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Living Well and Lithium: Bolivia Charts its Course

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Decarbonizing the world's economy to meet the Paris Agreement targets by 2040 will require a rapid energy transition to renewable sources of energy that include solar and wind power. Yet, as countries invest in renewable energy development, what becomes glaringly evident is that many of the raw materials necessary to support this transition are located only in a few countries. As scholarship on the extractive sector has shown, the extraction of high-value minerals can lead to negative socio-economic and political effects for producing countries. Lithium – a critical raw material – for the renewable sector is found in significant quantities in parts of South America, including Chile, Argentina, and Bolivia. As global demand for lithium increases, these countries will chart different pathways for the development of the lithium sector that will have significant socio-economic impacts. While Chile and Argentina have already begun mining lithium, we examine the Bolivian case through a climate justice framework that connects local livelihoods to global climate mitigation. Central to this investigation is understanding what safeguards are necessary to avoid some of the negative effects associated with the resource curse. Thus, while a global transition to renewable sources of energy is critical for reducing global dependence on fossil fuels and reducing carbon emissions, the mining of such critical resources must be aligned with local governments vision for promoting sustainable development and protecting the rights and health of the populations and environs most likely to be affected by lithium mining. We lay out the social, environmental, political and justice components that are necessary to mitigate resource curse effects while supporting a sustainable and just form of extraction that aligns with the global

community's need to address global climate change.

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Extinguishing the 'Living Infinite'. Deep-Sea Mining and Rare Earth Metals

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One hundred and fifty years have passed since Jules Verne published his famous novel 'Twenty Thousand Leagues under the Seas'. In the book, the marine biologist Professor Pierre Aronnax, ponders whether, 'with its untold depths, couldn't the sea keep alive such huge specimens of life from another age, this sea that never changes while the land masses undergo almost continuous alteration?'. In 1872 that question was pure speculation; in 2022, it still is. The Yale 'Map of Undiscovered Life', published in March last year, suggests that 80 per cent of land-based biodiversity has yet to be identified, and suggests where the greatest concentrations may be found. It has yet to start on marine life, where as much as 95 per cent remains unknown. As it the situation on land, climate change and over exploitation is altering habitats with the prospect that life is disappearing at a faster rate than we are discovering it. At the greatest depths, where once scientists considered that the lack of light precluded the existence of any life, it has been revealed clustered around warm vents in the earth's crust a rich habitat survived about which we know virtually nothing. However, vents at the bottom of the ocean have been spewing out lumps of rare metals for centuries in the form of polymetallic nodules which contain nickel, copper, cobalt, and manganese. In addition, the seafloor holds reserves of polymetallic sulphides and cobalt-rich ferromanganese crusts. In September last year the International Union for Conservation of Nature (IUCN) voted in favour of a moratorium on deep-sea mining. However, the resolution is non-binding. Provisional deep-sea mining licences have already been granted and work is

well-advanced in developing the machinery capable of collecting the nodules and conveying them to the surface. Once operational, all of this will create noise, that will interfere with mammal communications and spread sediment over a range of several kilometres, burying all life underneath. It will be as though we had discovered life on another planet, with attributes of which we know absolutely nothing... and we kill it. This paper will examine the power balances of interest (pressure) groups involved in framing the regimes determining the future of deep-sea mining. It will also explore what lessons, if any, are to be learned from the other legal frameworks covering that lawless space that is the world's oceans.

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Climate justice and private adaptation: Evidence from the mining sector

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Mineral extraction plays a critical role in the low-carbon transition. However, mineral extraction is associated with grave social and environmental risks in producing sites, many of which are likely to be exacerbated by climate change. For instance, mining requires large amounts of water, and water availability is likely to decrease due to climate change. Moreover, extreme weather events can damage critical infrastructure and increase the risk of mines contaminating land and water. By addressing climate risks, mining companies could help mitigate such risks for local communities. However, private adaptation interventions could also exacerbate the climate vulnerability of surrounding communities if their rights and needs are insufficiently taken into account. Private adaptation thus begs the question of the moral qualities of companies' strategies to cope with climate risks. Whereas normative issues have been widely discussed by scholars and practitioners in the area of climate mitigation, they have received little

attention in relation to private adaptation governance.

In this paper, we draw on theories on private governance, climate adaptation, and business and human rights, to develop a novel theory of the patterns and sources of the moral qualities of private adaptation. First, we identify five principles underlying morally justifiable private adaptation (deliberation, transparency; participation, accountability, and protection of the vulnerable from harm). Second, we develop an argument explaining why private companies integrate such principles in their climate adaptation responses to varying degrees. To this end, we focus on two explanations. First, exposure to different types of climate-related risks faced by companies are likely to affect their adaptation responses. Second, business associations acting as standard setters in enhancing the moral qualities of private adaptation, is also likely to play an important role. We also pay attention to alternative explanations, including shareholder pressure and state regulation.

We examine the argument based on original quantitative data on the adaptation activities of the largest 37 mining companies worldwide, and their local climate risk exposure, as well as on data from 45 semi-structured interviews. The paper will examine the extent to which private adaptation adheres to the moral qualities theorized, and will assess whether and why climate risk exposure and emerging private regulatory initiatives affects the quality of adaptation responses. Yet, in absence of governmental regulations, such initiatives are unlikely to be sufficient for addressing the profound climate justice dilemmas associated with private adaptation.

Panel ID 184 | Onsite

Implementing sustainable development goals in an incoherent world: Aligning climate action and reduced inequalities

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Analyzing the Causes and Consequences of Policy Incoherence in the Context of the Global Climate and Development Agendas

Katherine Browne¹, Zoha Shawoo¹, Adis Dzebo¹, Alexia Faus Onbargi², Gabriela Iacobuta²

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Many have argued that coherent policymaking, i.e., policymaking that maximizes synergies and minimizes 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 recognize 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 analyzing 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 a lack of progress towards goals is unequally distributed and/or affects some groups in society more than others. We conclude by introducing how the framework is currently being applied to analyze policy coherence between the global climate and development agendas across national contexts.

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Policy (in)coherence and inequality in Germany's Energiewende: a capabilities perspective

Alexia Faus Onbargi

German Development Institute

Germany's energy transition – dubbed the Energiewende – is one of the world's most ambitious efforts to phase out fossil fuels, particularly coal, and transition towards clean energy sources. At the same time, an Energiewende that is oblivious to the trade-offs in other areas of sustainable development, such as in the domains of land, water, food and biodiversity, may quickly turn into an unjust energy transition. This may lead to difficulties for joint implementation of the Paris Agreement and the 2030 Agenda, particularly as the latter is premised on 'leaving no one behind'. Furthermore, the implications of such trade-offs on different social groups such as farmers, youth and biodiversity

conservationists has not fully been explored in an Energiewende discourse that has tended to focus on unemployment outcomes for coalminers.

In this paper, I consider the main incoherencies that are panning out in Germany, and in particular in the North-Rhine Westphalia region, between energy transition policies on the one hand, and Water-Energy-Land-Food nexus, as well as biodiversity policies on the other. Not only may such incoherencies have an effect on the attainment of SDGs 2 (Zero Hunger), 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 15 (Life on Land) and 13 (Climate Action), but they may also be infringing on individuals' opportunity freedoms, i.e. their opportunity to do and be what they have reason to value. Such opportunity freedoms are capabilities, as per basic tenets of Amartya Sen's Capabilities Approach.

I further explore whether such incoherencies might be the result of inequalities in the decision-making process, or of inequalities in certain groups' capability to participate in political activities (as per Martha Nussbaum's capability number 10 on control over one's environment). For example, certain groups, like climate youth activists, may have less clout to pursue their interests and ideas as they are generally marginalised from the decision-making process, and hence less able to voice policy trade-offs that can affect them. Hence, this paper explores whether inequalities in agency, voice and capacity to aspire— all of which can infringe on a person's opportunity to do and be what they have reason to value - play a role in generating policy incoherence in the Energiewende. Through thirty interviews with policy-makers and other stakeholders, as well as several focus group discussions with affected groups, I explore different perceptions of why policy incoherence arises in the Energiewende and the role of inequality therein.

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Policy coherence in contested energy transitions: sustainability and equity in renewable energy deployment across Australia

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Transitions to renewable energy have the potential to enhance equity, not least by reducing the impacts of fossil fuel pollution and climate change on vulnerable groups, creating jobs in renewable industries and making energy more affordable. However, tensions could arise between sustainability and equity objectives if affected groups are excluded from decision-making or if low-income groups gain few economic opportunities from the rollout of renewable energy. The potential for these synergies and tensions raises important questions for national and subnational efforts to achieve the Sustainable Development Goals and the Paris Agreement. In this paper we explore synergies and tensions between equity and renewable energy transitions in the context of Australia. Despite rapid growth in installed capacity of renewable energy, Australia remains heavily dependent on fossil fuels. Amid polarised debates over climate change Australia has struggled to formulate a concerted effort to address this issue. While being a generally prosperous country by international standards, Australia has seen growing levels of socio-economic inequality and a persistent gap between the wellbeing of Aboriginal and Torres Strait Islander peoples and other Australians, as well as significant urban-rural divides. Our case study analyses coherence in the formulation and implementation of policies for renewable energy deployment both at the federal level and in Australia's most populous state, New South Wales. Deploying a widely used methodology for analysing policy coherence we analyse an extensive range of policy documents across both levels of government and present a policy matrix that

quantifies levels of coherence or incoherence across more than a dozen climate, energy and equity objectives. At the policy formulation stage we find that most objectives are synergetic. However, tensions are evident between expanding renewable energy and meeting climate objectives on the one hand, and objectives to expand gas supply and ensure ongoing benefits from coal mining for rural communities on the other hand. We also present findings on the policy implementation stage based on stakeholder interviews and focus groups, showing that some of these synergies can be difficult to achieve in practice, particularly when it comes to meaningful participation of affected communities in the siting of renewable energy projects and securing ongoing local economic benefits from those projects. We conclude with a set of reflections on possible drivers of coherence and incoherence in the Australian context, highlighting challenges in inter-agency and intergovernmental coordination and the continuing political influence of both the fossil fuel industry and neoliberal ideology.

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Policy synergies and trade-offs in the Just Energy Transition and the Water-Energy-Food Nexus in South Africa

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In simultaneously implementing the 2030 Agenda and the Paris Agreement, synergies and trade-offs arise for South Africa, as they do for most countries. Two obstacles to achieving either become clear: first, widespread inequality, poverty and unemployment; second, the country's over-reliance on coal for energy generation and exports. Indeed, South Africa remains one of the most unequal countries in the world, while also being a large carbon emitter, with 80% of its emissions owing to coal dominated energy production. A just energy transition arises as a potential

synergetic solution to tackle these obstacles. However, policy conflicts may arise along the Water-Energy-Food Nexus (WEF) – an important barometer that can lead to successful implementation of the SDGs. For example, closing coal mines and installing more wind power may further intensify tensions over land access, with implications for water availability, energy security and food production. Furthermore, deliberations over the trade-offs for realizing a just energy transition have tended to focus on unemployment outcomes for coal miners, ignoring vulnerability of other groups, such as farmers, women and youth. These groups' potential overlapping deprivations and disadvantages may present different forms of inequality outcomes that need to be unpacked. In short, a just energy transition can only claim to be just if it reduces the trade-offs for various domains of sustainable development while optimizing on the synergies and thus responding to the needs of society's most marginalized groups.

In this paper our aim is at exploring the conflicts that arise in policies for a just energy transition on the one hand, and policies relating to the WEF Nexus on the other. We do this by presenting a visual representation of the most profound policy incoherence instances. We also present the findings from interviews conducted with policy makers and various stakeholders on the causes of this incoherence, and assess the role played by the interplay of ideas, interests, institutions as well as the consequences on multidimensional inequality from policy incoherence. The aim of the paper is to discern which groups are the most affected by persistence of policy incoherence. Finally, we present some preliminary findings from interviews conducted with implicated groups to gauge the extent to which they are active participants of the policy-making process towards a just energy transition.

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Assessment of SDG and NDC synergies and trade-offs in Colombia through the lens of the AFOLU and Mining sectors as critical areas for policy (in)coherence

Mario Cárdenas, *Ivonne Lobos Alva*

Stockholm Environment Institute, Sweden

Colombia has a proven track record in implementing the 2030 Agenda and the Paris Agreement. However, operationalizing and strengthening policy coherence in Colombia around the SDGs and Climate goals is a constant challenge due to different political processes that usually can facilitate but also constrain it. Recently, conflicts and incoherence around the SDGs and climate goals have arisen due to the country's socio-economic development efforts and interests, where the mining and Agriculture, Forestry and Other Land Use (AFOLU) sectors have become pivotal and have received a significant boost from the government.

To broadly inform the assessment of the effectiveness of policy coherence efforts in Colombia, we address these two economic sectors where synergies and trade-offs between SDGs and climate goals are crucial. We applied a qualitative analysis of literature review, a policy instrument assessment, stakeholder mapping, and semi-structured interviews to identify synergies and trade-offs occurring between the two agendas in the mining and the AFOLU sectors.

We found that both sectors are generating incoherence, contributing to biodiversity loss, high deforestation rates, expansion of the agricultural frontier to develop extensive cattle ranching and large-scale crops, and are significant contributors to national GHG emissions. Furthermore, we determined that Mining and AFOLU also generate severe negative impacts on equality, which has aggravated the problems to which the most marginalized and vulnerable groups are exposed. Such as those associated with eradicating illicit crops, conflicts with armed

groups, and state and economic interests that promoted deforestation and forced migration of rural communities due to the proximity of mining activities.

Our research provides some initial insights into the state of coherence between implementing the 2030 Agenda and Colombia's climate goals. Moreover, it exhibits conflicting political interests regarding natural resources, non-enforcement of environmental laws, short-term environmental policies, and a lack of partnerships with other stakeholders in the political decision-making process that hinders policy coherence. This research proposes interventions to minimize incoherence and enhance the development of public policies for mitigating climate change while accomplishing the SDGs and enlightens initial insights into the state of coherence between the implementation of the 2030 Agenda and Climate goals in Colombia.

Panel ID 192 | Onsite

Biodiversity-Climate Alignment in Transnational Governance: Current Research on Accelerated and Just Transformation

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Overview of the adaptation financing framework in Surat

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This paper attempts to understand the adaptation finance landscape of the Indian city of Surat. The 2nd tier cities of the Global South face complex institutional, operational, and political challenges to respond to climate change. One common challenge faced by these

cities is the additional burden put on their government budget for responding to climate change. With constrained administrative and financial autonomy, they have limited capacities and governance arrangements to develop and execute a comprehensive financing plan to fight climate change. This is mainly true in the case of mitigation which involves additional costs of renewable installation, and efficiency improvements through investment in new technologies, etc. However, this need not be the case for adaptation activities. The adaptation activities can be bundled with pre-existing urban developmental services and responsibilities such as housing, water, and waste management. For example, other 2nd tier Indian cities like Pune have started to exempt a percentage of their property tax for new construction that incorporates either solar panels of certain specifications or rainwater harvesting, vermicompost pits, sewage treatment plants (STPs), and so on. Many of these options, for example, rainwater harvesting serves the twin benefit of providing an additional water source as well as improving the water security of the city through conservation in the face of climate projections of declining rainfall for the city.

Using Surat as a case study, this paper illustrates how 2nd tier city governments in India are managing their financial needs for adapting to climate change. This paper describes how the various stakeholders like municipal government, NGOs, and international donor organizations like Rockefeller are actively engaging and cooperating with respect to the management of adaptation finances of Surat. Using an extensive literature review of primary and secondary sources, this paper provides a detailed overview of Surat's adaptation finance governance structure. It documents a comprehensive city-level analysis of finance flows to climate change adaptation-related activities, explores the roles and responsibilities of the networks of relevant stakeholders. This is expected to improve understanding of adaptation financing structures and governance mechanisms in Surat, which in turn may inform the bottom-up adaptation financing strategies of similar cities.

Additionally, it could serve as a starting point in identifying investment gaps and exploring the opportunities for mobilizing new resources for adaptation activities at the city level.

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Integrated climate-biodiversity strategies for accelerated and just transition: A systematic review

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Increasing scientific and political recognition that climate change and biodiversity loss are twin crises calls for ambitious integrated action by 2030. The IPBES-IPCC Co-sponsored Workshop Report highlights the need for a “new conservation paradigm” that simultaneously supports a habitable climate, healthy biodiversity, and a good quality of life for all. Existing and innovative strategies - such as ecosystem-based adaptation (EbA); and Nature-based Solutions (NbS) - resonate on the promise of accelerating simultaneous achievement of such goals. These strategies reinforce the relevance of transnational multi-actor governance, with initiatives extending beyond national policies, and involving subnational and non-state actors and partnerships. But over-optimism about synergistic outcomes risks overshadowing trade-offs and inconsistencies that can compromise both the acceleration and justice of the transition. A systematic understanding of strategies can help identify biodiversity-climate alignments and misalignments and set research and policy priorities to accelerate just, inclusive, and effective transition.

This paper reports on a systematic review of transnational governance literature whose objective is to identify approaches, methods, and gaps in climate-biodiversity alignment. After a policy context and theoretical background within a ‘governance through goals’ framework, we present the method. Following the PRISMA 2020 guideline, a search

strategy is implemented across four data-bases - Web of Science, Scopus, Proquest - covering publications between 2016-2021. The review maps out the approaches that integrate nature in transnational climate actions and approaches that integrate climate considerations in biodiversity actions, exploring the associations of diverse strategies with social goals, such as human health, gender equality, and poverty alleviation. After an outline of the search strategy and consideration of the method's limitations, the results are presented in two sections, (i) a bibliometric analysis of the academic research on the topic and (ii) a qualitative analysis of currently implemented or advocated climate solutions for adaptation and mitigation which include biodiversity considerations, and their association (positive or negative) with social goals. The discussion section identifies research priorities and policy guidelines for strengthening activities that engage transnational actors by the UN Climate Change and UN Biodiversity for accelerated and just transformation by 2030.

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Funding biodiversity and climate action simultaneously through transnational cooperative initiatives

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The causes and consequences of climate change and biodiversity loss are deeply intertwined, creating an opportunity to address both issues simultaneously. This paper explores how existing funding streams via cooperative initiatives tackle both climate change and biodiversity loss, zooming in on transnational initiatives involving cities, regions, companies, indigenous people and other non-state actors, sometimes working in partnership with national governments and

intergovernmental organizations. The paper engages with existing literature on financing for sustainable development, which is increasingly sourced and distributed via private and multi-stakeholder governance arrangements. The analysis draws upon a database of nearly 400 cooperative initiatives, to understand who, where and how transnational governance arrangements are involved in financing climate and biodiversity action. The paper examines types of actors who are part of financing initiatives, issue areas and regions they focus their activities on, as well as sponsors behind financing transnational cooperative initiatives and types of funding sources. Further, we present two illustrative case studies from both governance areas. Finally, we connect our considerations to the latest developments in the context of the policy debate on halting biodiversity loss and climate change.

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Accelerating Transformative Transnational Action at the Climate-Biodiversity Frontier? Outcomes and correlates of effectiveness of nature-based solutions

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Nature-based solutions (NBS) are touted as integrative strategies that simultaneously reduce biodiversity and habitat loss, support climate mitigation and adaptation, while generating societal benefits. They are therefore seen as potentially transformative towards a low-carbon, nature-positive and sustainable future.

Given these promises, NBS are proposed by a multiplicity of actors, including governments and international organizations, and increasingly also by non-traditional actors such as businesses, investors, NGOs, and local authorities, both individually and through networks that engage these transnational actors. For instance, the ‘Business for Nature’ alliance convenes businesses and elicits new commitments promoting pro-nature standards and best practices, while increasing climate resilience. Moreover, international organizations are increasingly mobilizing NBS through ‘action agendas’ such as the ‘Global Climate Action Agenda’ and the ‘Agenda for Nature and People’, respectively in the contexts of the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). The strong interest among transnational actors and action agendas raises the question whether transnational NBS initiatives effectively deliver on their promises. Despite considerable theoretical debate, we lack evidence to determine ‘effectiveness’, both in terms of whether individual actors and networks deliver on their promises, and whether the growing ‘universe’ of (transnational) NBS is credibly moving towards sustainable transformations. This paper addresses this knowledge gap by analyzing the performance of NBS across the aforementioned action agendas and examining incentives and driving factors that influence performance. Using the newly developed Nature and Climate Cooperative Initiatives Databases (N/C-CID), which respectively track cooperative biodiversity and climate initiatives, this study responds to three questions. First, it gauges the extent to which NBS initiatives produce outputs aligned with their commitments (or, ‘output performance’). Second, it applies multivariate regression analyses to determine factors that influence performance. Finally, it makes recommendations for action agendas to credibly support transformative Nbs initiatives.

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Nature-based solutions in agriculture: A review of their contribution to rapid and just sectoral transformation

Ina Lehmann

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‘Nature-based solutions’ (NbS) have recently gained traction among environmental policy makers and scholars. They rely on ecosystems rather than technical and engineering solutions to address major societal challenges of water and food provision, health, disaster risk reduction, and climate change. With NbS being a relatively recent concept, its guiding principles are still largely under development. Proponents emphasise NbS’ potential to accelerate transformative change towards socially just and biodiversity-friendly solutions to climate change. And yet, critics reject the concept for being fuzzy, and there remain questions about its practical guidance and the types of interventions it legitimises.

One sector that provides an important test case for NbS’ potential to address environmental and social challenges is agriculture. Agricultural NbS relate to nature-based agricultural practices in the realms of crop and livestock. The agricultural sector has tremendous social and environmental relevance. Agriculture is key for realising Sustainable Development Goal 2 ‘Zero Hunger’ and provides the immediate livelihood base of an estimated 2.5 billion smallholder farmers. Moreover, the sector is uniquely positioned as both a major contributor to climate change and biodiversity loss and the most important victim of the interruption of biophysical processes. Yet research on NbS has so far focused mainly on the social and environmental benefits of forestry or urban NbS. To address this research gap, in this paper, I scrutinise whether NbS-type interventions in agriculture are prone to accelerate the much-needed transformation towards simultaneous social and

environmental benefits in this particular sector.

Methodologically, I employ qualitative content analysis of policy documents and publications by major international bodies working at the intersection of agriculture and the environment: UNFCCC, CBD, UNCCD, UNEP, FAO, GEF, IUCN, the World Bank, IPCC and IPBES. I focus on international institutions because of their power to shape the discourse and to provide reference points for other actors, such as government agencies and NGOs, that want to gain a foothold in the field. Through an inductive coding procedure I identify how these bodies approach NbS in the agricultural sector, which aspects they highlight and which aspects they neglect. I embed the main messages emerging from the coding process into broader discourses around NbS and the governance of food and agriculture. This analysis suggests that rather than accelerating a just agricultural transformation, the framing of agricultural NbS contributes to conserving the status quo.

Panel ID 381 | Virtual

Urban governance for radical and just sustainability transformations (I)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Rescaling Urban Zero Carbon Action for Systemic Transformation

Laura Tozer

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Local governments around the world are declaring climate emergencies, but even proven urban low-carbon models are still not reaching full scale deployment. How can civil society, businesses, and policy makers at all

levels of government scale up climate solutions to transform our cities? Discussions on low carbon urban transitions are often focused on hierarchical ideas about scaling up in a linear manner and emphasize socio-technical innovation and market take-up in sustainability experiments. Looking beyond commercialization, this paper together a wider range of political and cultural dynamics that have the potential to influence the impact and scope of zero carbon interventions. Drawing from relational scaling and embedding theories in human geography and urban studies, as well as the political dynamics of scaling from political science, this paper develops a conceptual framework that furthers our understanding of how catalytic change can be triggered in ways that build enough momentum to reconfigure urban systems towards decarbonization. This framework is then applied to an analysis of a residential building retrofit case study in Canada. Society will not reach climate targets without substantially retrofitting buildings. Yet, building retrofits to increase energy efficiency and enable decarbonization have been difficult to implement effectively. They have been a particularly challenging climate solution to implement despite the fact that they can realize greenhouse gas emission reductions more quickly, are cost-effective compared to other climate change mitigation actions, and can be achieved using existing technologies. There is also no clear understanding of how to achieve the transformation this sector requires without exacerbating the challenges of energy poverty and gentrification. By examining a case study of residential building retrofit policies and experiments and analyzing gaps and opportunities to trigger catalytic change, this paper addresses questions about accelerating just climate solutions to transform our cities.

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Governing the urban heat transition: A comparative analysis of seven European cities

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Many cities across Europe have now made ambitious commitments to reach climate neutrality by between 2035 and 2050. To meet such targets, a critical area on which cities need to focus is the decarbonisation of fossil-fuel based heating (and cooling) infrastructures. Although operating within a multi-level governance context (EU and national policy framework), realisation of this commitment represents a deeply local concern. Despite this, municipalities often lack the legal mandate, financial resources, and institutional expertise to effectively steer this transition. The criticality of this contemporary urban challenge, changing mix of energy actors (both powerful incumbents and new entrants), heterogeneity of the urban context (for example, renewable energy solutions and heating sources, extent of the existing infrastructural network, building type and levels of energy demand), and levels of financial investment and institutional risk involved, mean that there is an urgent need to understand how urban energy (heat) planning processes can best support this transition. Whilst urban and energy planning are increasingly brought together to inform city decarbonisation strategies, the assumptions, negotiations and inherent politics associated with strategic urban energy planning have been minimally analysed and are commonly downplayed. Furthermore, there has, to date, been little focus on planning processes supporting the heat transition, most analyses remain abstract - being concerned with methods, tools and techniques, and where situated research exists, it tends to focus on experiences of only one or two cities. Recognising these gaps, empirically, this paper comparatively analyses the processes developed, and limitations and opportunities that arise, when seven European city

municipalities (participating in the EU Horizon 2020 DECARB City Pipes 2050 project), use strategic urban energy planning to envision, negotiate, plan and (attempt to) implement the heat transition in their respective cities. Conceptually, the paper draws upon the notion of an urban infrastructure regime, seeking to understand how such ‘configurations of discourses, agents, ‘institutions, techniques and artefacts’ (Monstadt, 2009, p1937) are configured socio-spatially and structured through often conflicting processes of political economy and political ecologies (Bulkeley et al., 2014). This approach highlights concerns and opportunities relating to the translation of decarbonisation targets, municipal capacity and expertise, and urban politicisation across diverse actors (Rutherford and Jaglin, 2015). It also provides a more ‘dynamic, plural and fragmented account’ of how, and the degree to which, embedded local urban heat energy systems can be radically and equitably remade (Bulkeley et al., 2014).

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Climate urbanism and the politics of experimentation: a Montreal living lab on climate adaptation

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Climate change is being more and more the topic of policies, experiments and interventions from cities who aim at being resilient and seizing opportunities for economic growth. In this context, scholars (Ref. Removed) have argued that a dominant trend would be structuring urban climate action. This trend, which they coin climate urbanism, is presented as a focus on carbon control, the selective securing of vital infrastructure for growth and subsequent exacerbation of inequalities in cities. This unfolds in a post-political context, where choices and structural biases of climate policies are left unconsidered, debates avoided or rendered invisible. While we find credit to this analysis, we wish to consider its manifestations in specific instances

of urban climate action, i.e. in urban living labs. We draw on the literature on the politics of experimentation to investigate through what processes living labs could challenge or, in the contrary, reinforce the trend of climate urbanism, with a case in Montreal. The study rests on a 2 year participatory research with 4 living lab workshops, 27 interviews, social network and document analysis. Our research shows the value of understanding the subjectivities of actors and the fields of political struggles where climate adaptation lands. Living lab experiments have clear limits, yet we think they can be used by researchers to muddle, with practitioners on the ground, through pathways for just climate adaptation.

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The COVID-19 Pandemic and impacts on low-carbon and climate-resilient city pathways - A comparative case study of cities across the global North and South

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Confronted with cascading health, environmental and economic crises, cities around the world are challenging traditional understandings of recovery as being dependent on short-term high-carbon development. This study investigates whether and how the COVID-19 has represented a critical juncture for cities in both developed and developing countries to embark on enduring low-carbon and climate-resilient pathways.

Through a comparative case study, using both document analysis and semi-structured interviews with city level officers, we seek to identify factors that influence whether and why cities have embarked on low-carbon and resilient pathways, returned to prior unsustainable pathways, or backtracked on climate commitments and reverted to unsustainable pathways. In particular, the study identifies causal mechanisms by which the impacts of the pandemic have interacted with contextual factors to influence whether cities have pursued high- or low-carbon/resilience pathways in response to COVID-19.

The empirical focus is on four pairs of cities in Germany, North America, Kenya and India. Although these cities all report climate action (to CDP, (formerly the Carbon Disclosure Project), their responses to COVID-19 and climate action widely varied widely between 2019 and 2021. Underlying our case selection is the assumption that decarbonization and climate resilient development is a truly global challenge. Where many studies on city-level climate action have often focused on cities in the global North, the current study examines differentiated roles in the common challenge for decarbonization and climate resilience across developed and developing countries.

By revealing the complex set of factors that shape whether or not cities' responses to COVID-19 have resulted in increased or decreased climate action, this study reveals how cities can be supported to achieve ambitious and transformative climate action.

Panel ID 383 | Virtual

Urban governance for radical and just sustainability transformations (II)

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Scholarly pathways on post-pandemic urban sustainable mobility transitions

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UFZ Helmholtz Centre for Environmental Research

The COVID-19 pandemic has led to a set of non-pharmaceutical interventions by local and national governing bodies aimed at providing for a greater interpersonal physical distance to reduce the spread of the SARS-CoV-2 virus. In cities, these interventions have involved important shifts in mobility patterns and land uses. Many of these transport and land use rapid transformations are in line with previous propositions for sustainable urban (transport) planning, which has led to optimistic framings of the covid-19 pandemic as an opportunity to change the status quo and speed up the transition towards more sustainable urban (mobility) systems. At the same time, many cities fear a collapse of their transportation systems because people consider that individual car usage has a lower infection risk. Much remains to be understood in regard to the magnitude, scope, manifestations and longevity of these rapid changes/responses to the pandemic. In this paper, we parse out potential longevity factors from the urban political ecology, urban geography, planning and systemic change scholarship on sustainable (transport) transitions and propose new questions, theoretical approaches, and research design approaches to examine the socio-spatial dynamics, ramifications and

potentials of the urban mobility changes initiated in response to the covid-19 pandemic.

777

Cities in International Climate Policy: Homogeny in the Disguise of Diversity?

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The diversification of actors and institutions in global climate governance has resulted in a multiplication of sources of authority and agency. The consequences of this diversification, in terms of effectiveness and legitimacy, have been thoroughly examined. In contrast, there is less understanding of whether and how this proliferation has generated a growing number of perspectives and approaches to climate action. To examine whether this is the case regarding cities, we examine discourses of urban climate action in international climate policy. Our analysis draws on a database of 463 international policy documents issued between 1946 and 2020. Our results reveal that, despite the growing number of actors engaged in urban climate policy, the discursive landscape is surprisingly homogenous. The language use is consistent not only across organizations, but also over time. To understand this tendency, we locate international climate policy in a landscape of organizations and ideas that are historically constituted and changes only slowly alongside shifts in global policy paradigms. Parallel literatures, such as the scholarship on policy doctrines and global intellectual hegemony, can contribute insights into these dynamics. We argue that discourse homogeny is a force that prevents diversity in global climate governance, not easily overcome through strategies of representation and inclusion.

778

How to disrupt “governance as usual”? The potential of knowledge partnerships for advancing sustainable urban development in the European Arctic

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Despite the strong interdependencies between urbanisation and the climate crisis, still sustainable urban development has not become a priority concern in societies (cities already cause 75 per cent of global emissions, continue to grow and at the same time authorities fail to build resilient cities). Likewise also in politics, broad and rather abstract approaches agreed upon at the global level fail to cause real and urgently needed changes at the local level, which is noticeable illustrated by the difficulties to implement the 2030 Agenda for Sustainable Development. In this regard, also UN Secretary-General António Guterres emphasized that the results from policy- and decision-making on urban development will be “more inclusive and durable” if urban communities are empowered and engaged in these processes.

This paper builds on the observation that in the context of urban development the transfer of knowledge from the local to other governance levels and vice versa is very limited. To investigate the reasons for this, we shed light on the European Arctic, a region that is already experiencing radical environmental transformations, which have, however, not been disrupting “governance as usual” in the region. While the European Arctic is based in the so-called “Global North”, our case studies from Kolari (Finland) and Kiruna (Sweden) illustrate that similar to (remote) urban places

in the so-called “Global South” resource constraints, missing incentives and real interest to engage locals in policy-making as well as cultural particularities require more attention for tackling this problem. One of our interviewees stated for instance that “in the end, governance really follows business as usual”. Our paper argues that knowledge partnerships are crucial to encourage urban governance for radical and just sustainability transformations. By combining our ongoing empirical fieldwork (January 2022 – December 2022) with research on transnational cooperation and participatory approaches, we identify pathways for empowering (transdisciplinary) knowledge partnerships across different governance levels and assess their applicability and relevance for the European Arctic and for remote regions more generally.

779

Solar energy in the peri-urban frontier: a comparative study of off-grid solar systems in Ouagadougou, Burkina Faso, and Cape Town, South Africa

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Of the populations that today lack access to the basic functionality provided by access to electricity services, most live in sub-Saharan Africa. While rural areas, generally those with the greatest lack of access to electricity, have been the object of national and international programmes to address this problem, far fewer programmes have been explicitly aimed at electrifying the areas between large population centres and rural areas: peri-urban areas, often characterised by the presence of informal settlements. These are often left in a kind of 'scalar limbo', and unable to benefit from either access to the city grid or from programmes aimed at rural areas proper. In this paper, our focus is on the peri-urban as a key site of production and negotiation of solar

and renewable energy landscapes. Peri-urban areas escape facile categorisations as wholly urban or rural. In part, this is because peri-urban areas are often characterised by rapid and significant change: they are ‘transition spaces’ where a mix of uses and economies blend the urban and the rural. Additionally, the dynamic nature of peri-urban areas means that they are not easily integrated within urban planning and development frameworks .

In this study, conducted through population surveys and stakeholder interviews in the peripheral areas of the cities of Ouagadougou, Burkina Faso, and Cape Town, South Africa, we employ a hybrid theoretical framework, based on work in urban political ecology and energy justice, mobilising the three-tenet approach of distributional, procedural, and recognition justice developed by McCauley et al (2013), to compare electrification policies in the two areas and provide recommendations on how to make these policies more effective and efficient. In focusing on the peri-urban, we base our analysis on a dynamic and relational concept of scale. This is because we argue that considering the nexus between justice and energy in peripheral urban areas necessitates a close engagement with the multiple scalar dimensions and processes that produce the peri-urban as a continuously shifting reality. In this regard, focusing on scale is well-suited to analysing the dynamicity of peri-urban areas, as a relational understanding of scale helps to understand sites of de- and re-territorialisation within and outside the city.

Panel ID 495 | Virtual

From SDGs to just transitions: the importance of inclusive and democratic governance for policy implementation

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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The role of good governance and democracy in reducing poverty and inequality: Evidence from a systematic literature review on interlinkages between SDGs 16, 10 and 1

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Targets under Sustainable Development Goal (SDG) 16 include institutional principles of good governance, which are considered key enablers for all other SDGs. While the governance elements of transparency, accountability, and inclusive and participatory decision-making are not exclusive to democratic regimes, they are constitutive for democratic regimes and only limited in autocratic contexts. They are largely recognized as key characteristics distinguishing liberal democracies from merely electoral democracies. Despite the systemic importance of democracy and good governance, the growing literature on SDG interlinkages has thus far provided limited coverage on how they enable or constrain transition towards socially, economically, and environmentally sustainable societies. To fill this gap, we undertook a systematic review of scholarly literature dealing with the impacts of democracy and governance aspects under SDG 16 on poverty

reduction (SDG 1) and reduced inequalities (SDG 10). For this purpose, 877 scholarly articles were screened and 108 retained for detailed review. Studies in the review sample include both qualitative case studies and cross-national quantitative analyses covering all regions of the world.

The results show that empirical evidence from a large number of studies testifies to the enabling effects of good governance on poverty and inequality reduction. For example, there is robust evidence that higher levels of transparency, participation and inclusion are associated with reduction in income poverty levels, reduced income inequality and increased access to basic services. Conversely, there is evidence that failure to adopt participatory processes can reduce the effectiveness of ecosystem services schemes and reinforce poverty. Our findings also support the argument that democracy has an important impact on the reduction of poverty and inequalities. Particularly, electoral accountability was found to positively impact the effectiveness of social protection programs and decentralisation through local elections resulted in better targeting of social expenditure and access to basic services.

Based on these findings, our study then undertakes a systematic analysis of the pathways through which the impacts of democracy and principles of good governance on SDGs 1 and 10 occur and identifies reinforcing feedback loops, which, in turn, are key to identifying entry points and accelerators for the achievement of sustainable development outcomes. In this way, the results of our study contribute to the ongoing debate about how to activate governance as one of the “six levers of sustainability transformation” (GSDR 2019), which will also be a key topic under the 2023 GSDR report.

822

Governance of interdependencies among water and land related SDGs: political-institutional preconditions for policy coherence

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German Development Institute (DIE)

There is broad consensus that increased policy coherence is a pre-requisite to successfully address the interlinkages between the 17 Sustainable Development Goals (SDGs) and their targets and to achieve an integrated implementation of the 2030 Agenda. A case in point are the challenges that arise from the use and management of natural resources for achieving food, water and energy (WEF) securities (SDGs 2, 6, 7), while maintaining a safely operating biosphere (SDGs 6, 13, 15). Coordination across different sectors and levels will be key in minimising trade-offs and fostering synergies between the WEF related SDGs.

This paper hypothesizes, that political-institutional context factors, particularly regime type and state capacity influence a) the effectiveness of mechanisms to achieve cross-sector and cross-level coordination for managing the interlinkages and b) the degree to which coordination mechanisms reflect core principles of the 2030 Agenda, particularly LNOB and “inclusive and participatory decision making”. Thus, the paper contributes to the debate on the relation between regime type and state capacity and performance of states on ecological sustainability.

The proposed paper is based on a comparative case study that analyses how interdependencies among the WEF Nexus related SDGs are governed in four river basins: the Lower Awash Basin (Ethiopia), the Rio Cuautla Basin (Mexico), the Azraq basin (Jordan) and the Shire Basin (Malawi). To control for the role of political-institutional preconditions, the country cases for this study were chosen to present different combinations

of high and low state capacity with democratic versus autocratic regime type.

The results indicate that higher levels of democracy strengthen civil society’s ability to shape the development, use, and management of natural resources. However in democratic and autocratic contexts alike, policy instruments aimed at integrating social and environmental aspects into economic development suffer from a lack of transparency and inclusiveness. In contexts with weak state capacities, the effective implementation of these policy instruments is further hampered by severe deficits of human and financial capacities. In both democratic and autocratic contexts, formal institutions were found to be undermined by co-existing informal institutions— although in different ways. In Jordan’s autocratic regime, for example, strong nepotistic ties between farmers and the royal family render instruments to control the overuse of groundwater ineffective. For another example, Mexico democratically elected governments have long been partly captured by the interests of a powerful industrial lobby that has been able to negotiate and maintain large water concessions.

823

Trade-offs and SDG politics in South American agrifood governance: the risks from cherry-picking

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There is growing interest in the role of governance in managing interdependencies in the form of trade-offs and synergies between the SDGs and their targets. Notably, in agrifood governance, this has gone hand in hand with the growing recognition for the need to make agrifood systems more sustainable. However, there is no consensus as to how such a sustainability transition would look like and how it could be achieved. There are strikingly different views as to what constitutes sustainable food and agriculture.

Consequently, it is crucial to examine interdependencies and trade-offs between different dimensions of sustainability and different SDGs in agrifood governance. The proposed paper looks at the Southern Cone of South America, a region which holds a central position in the global agrifood system as one of the most important producers and exporters of agricultural commodities. The first part of the paper identifies the interlinkages between different SDGs in agrifood governance in South America, revealing some serious trade-offs between, on the one hand, economic growth and industrialisation, and on the other hand, issues of environmental deterioration, human health and inclusiveness. We discuss how these trade-offs hamper the 2030 Agenda’s overarching principle to leave no one behind and how such trade-offs are nevertheless seldom considered in SDG politics. The second part of the paper examines the practice of “cherry-picking” selected SDGs (while neglecting others) either by governments in their Voluntary National Reviews (VNR) on national SDG progress or by non-state actors such as private companies in their reporting. Such practice obscures the existence of those trade-offs, and it risks entrenching existing patterns of power asymmetries and marginalisation despite the 2030 Agenda’s commitment to inclusiveness. Our findings indicate that more inclusive and participatory VNR processes could alleviate the problem of power asymmetries to some extent, but global political and economic inequalities in agrifood governance also play an important role. Furthermore, established democracies might be better equipped to mitigate trade-offs between agrifood production and environmental and social production, as the related grievances are taken up and addressed through established institutional channels, whereas in defective democracies the absence of such channels may lead to rural conflicts and an escalation of grievances into various forms of violence.

824

What do citizens prefer? Policy mixes for public acceptance of just transitions

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German Development Institute (DIE)

Just transitions aim at making deep green transformations fair and socially just. This is both intrinsically important, as well as instrumental; in fact, it has been found that fairness is a critical factor of climate policy acceptance by citizens. Carbon fiscal reforms have, in the past, often met strong political opposition, as witnessed with the Witness the French “yellow vests” protests and subsidy reforms in low and middle income countries. One way of making climate policy fair is to use social protection instruments to compensate potential losers from climate policy. Despite the recent surge in the use of simulations to understand the incidence of carbon pricing also for lower income countries, the issue of preference and acceptability of carbon pricing and revenue recycling has been explored mainly for advanced economies. This is important as low- and middle-income countries will also need to implement green transformations; and because in those countries social goals, such as poverty eradication, may still be the most important ones. Social protection is also critical in the context of the COVID-19 crisis. To start addressing this gap, we implement surveys in three middle-income countries in three different continents: Ghana, Philippines and Peru. In each country we survey 900 middle class households in urban areas. More specifically, we explore factors that may increase the public acceptance of policy packages. We first focus on the role of the framing and information given; in fact, acceptability is also strongly linked to perceived fairness and knowledge. We then explore the type of revenue recycling options. In this last regard, using existing social protection programs could increase the saliency of revenue recycling and acceptability of carbon pricing.

The results will shed light on the policy mix that maximizes acceptability by citizens. This is in turn important for policy implementation, as public acceptance is a crucial determinant of the political feasibility of climate policies. In particular, given the importance of justice and inclusion, it is critical to understand the available design options of carbon fiscal reforms, and especially of the social protection component, that best serve this goal. By having a comparative study design, we will also try to shed light not just at addressing the research gap in terms of low and middle income countries, but look at what other structural factor is important.

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Does inequality matter for policy incoherence in sustainable development? A suggested framework applying the Capabilities Approach

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In this paper we bridge the policy coherence and the Capabilities Approach literatures to design a framework that can help answer the following question: does inequality in the policy-making process matter for policy incoherence in sustainable development and energy transitions? First, we note that policy coherence, in aligning economic, social and environmental development policies, does not just have instrumental value to both ends. We argue that it has intrinsic value too given that incoherence can lead to important trade-offs with real impacts on individuals and social groups. A case in point is the phasing out of coal, with potential unemployment outcomes for coal-miners. Thus, we argue that policy coherence arises as an important tool to limit the shrinking of, and to even expand, human capabilities. Second, we argue that inequality in the policy-making process – what we equate to inequality of opportunities in political decision-making – may matter for policy incoherence in sustainable development and

energy transitions. Several reasons lie behind this hypothesis, including evidence that policy incoherence and political inequality both deepen inequalities of outcome. To this end, we develop a framework with a set of indicators to assess the potential role of inequality of opportunities in political decision-making – embodied by inequality of voice, agency, capacity to aspire and treatment – on policy incoherence. We hope that the framework – apt for qualitative studies – will help policy coherence scholars and advocates either rule out a cause of incoherence, or factor in a new dimension in the context of sustainable development and energy transitions. We hope it will also provide capabilities scholars with a new tool to assess how inequality may be shrinking human capabilities through policy incoherence.

Panel ID 623 | Onsite

Reflections on the role of scenario analysis in accelerating just and inclusive transitions

Panel Day and Time: TBD

Panel Room: TBD

Chair: TBD

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Regional pathways to climate governance informed by the financial sector's assessment of climate risk

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There is a growing interest in climate risk disclosure governance by central banks of leading economies that has led to the development of regulations targeted at addressing climate future realities and maintaining financial stability. Despite this

growing interest, there is a challenge on the issue of materiality, and what the definition of climate risk means to the financial sector in different parts of the world mainly due to the dynamics of different sectors. To understand this dynamic and how regional priorities play into the financial transition in the fight for climate change, this study explores approaches to financial climate governance by assessing evolving climate-related risks, policies and approaches in the financial sector across different regions, and how political and socio-economic realities are playing a critical role in central banks' policies and their commitment to addressing these risks even as financial institutions adapt to a low-carbon economic future. This paper investigates the motivating factors for financial institutions' climate governance especially in developing economies, what future adoption may look like and the critical pathways this may create into the future, especially in the classification of climate futures. Key assumptions are used to develop scenarios of what future climate approaches will be adopted particularly in certain global regions and how socio-economic realities will play a role in the transition to low-carbon economies and impact financial stability. Key objectives of the paper will be to help us understand not only climate futures adoption and the global climate commitments to get there but also to clarify the implications for socio-economic impacts for different regional financial sectors in meeting global climate objectives.

860

Transitioning to sustainable post-growth futures in a Small Island Developing States context: An investigation of a complex blue economy system in the island of Barbados

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There is a need for scientific study into post-growth futures that prioritise ecological and social sustainability. The concept of sustainability brings together complex socioecological systems that prove difficult for stakeholders to implement. In Barbados and many other Small Island Development States, coastal and marine spaces are of ecological, economic, social, and cultural importance and yet face major environmental, climate and anthropological threats. Moreover, the COVID-19 pandemic has exacerbated fiscal constraints, inflated debt levels and elevated unemployment in tourism-based island economies such as Barbados. Therefore, economic growth has been prioritised particularly by way of coastal and marine resource exploitation. If not counterbalanced with ecological viability and social well-being, this could lead to overexploitation and degradation. The tensions arising from intensified economic interest within the coastal and marine spaces requires a greater understanding of the actors, components, relationships, and functions that coexist. The blue economy has been posited as a viable sustainable development pathway for Barbados, yet how the various factors in the marine environment interact to achieve sustainability is ambiguous. This case study uses the cross-impact balance method for scenario analysis to establish a defined complex blue economy system by which sustainable equilibria are determined by post-growth economic principles. Systemic interrelationships are explored to identify plausible transition pathways.

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Exploring climate resilient futures by expanding scenario boundaries: Participatory cross-impact balances in the Red River Basin

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The long-term resilience of river basins around the world is influenced by highly uncertain social and ecological drivers of change. As actors attempt to establish more “resilient” river basin systems, questions remain about what systems are being made more resilient, which conditions we are becoming resilient to, and who resilience is for. Such questions reflect the transformative changes that underlie such resilience-building efforts, requiring more exploratory and reflexive means for anticipating and imagining the future than are currently mainstream in the water sector.

In this participatory scenario modelling study, I evaluated the potential for semi-quantitative scenario methods like cross-impact balances (CIB) to expand boundaries of plausible and desirable future conditions considered relevant in decision making about water. To do so, I facilitated a participatory scenario development process exploring how diverse drivers of change interact with efforts to build resilience.

I partnered with the Red River Basin Commission and the International Institute for Sustainable Development to co-develop a CIB model that characterizes how critical social and ecological uncertainties in the Red River Basin (RRB) influence efforts to build resilience to climate change, and vice versa (to 2050). The RRB is a transboundary basin shared by Minnesota, North Dakota, South Dakota (United States), and Manitoba (Canada). The model depicts the future as emergent from systemic interactions among many critical uncertainties, each of which can evolve into a handful of end-states and can be represented by traditionally incompatible forms of data (e.g., qualitative, and quantitative).

Qualitative analysis of 45 interviews with experts and opinion leaders in the RRB fed directly into the CIB model, generating 15 interacting critical uncertainties, each with multiple possible end-states, ranging from climate change and water quality to Indigenous water rights and agricultural markets. An analysis of these drivers, their outcomes, and their interactions revealed dozens of “internally consistent” or plausible scenarios for the future of the RRB. Sensitivity analysis of the model to both scientific uncertainty and ambiguity (i.e., multiple frames) revealed the implications of divergent assumptions about the system and different perspectives on what constitutes a desirable resilient future. These results will be shared and explored with experts and opinion leaders in the RRB in April of 2022, generating insights into the ability of such methods to systematically and usefully expand the boundaries of the future considered in decision making about water.

862

Using artifacts from the future of land change to orchestrate sustainable operational strategies in the present

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Land use includes sectors such as food and forestry. Land also provides habitat for biodiversity and performs the ecosystem service of drawing down carbon dioxide, a greenhouse gas, from the atmosphere. Historically, land use has not been optimized across such sectors and purposes, so the idea of using land in a concerted fashion is new. This paper summarizes the findings of a Canadian workshop held over the summer to bring together diverse actors in land-use sectors for the purpose of developing a shared vision, especially under a changing climate while pursuing sustainable development. Spatially

explicit scenarios (i.e. maps of the land uses of alternative futures) produced by the Food, Agriculture, Biodiversity, Land-use, and Energy (FABLE) Consortium, along with storylines contrasting the lifestyles of alternative futures based on the Shared Socio-economic Pathways used by the Intergovernmental Panel on Climate Change, focused stakeholder discussions. In the workshop, such ‘artifacts from the future’ supported an arena for stakeholders to reflect more concretely on step-wise changes to operational strategies that they could make. Ultimately, the aim of such changes within and across sectors is to accelerate the speed, scale, and depth of change needed to uphold Canadian commitments to the UN Conventions on climate change as well as biodiversity.



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