STRN Newsletter

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Newsletter 53– September 2024

Content

About

The STRN newsletter is published four times a year in March, June, September & December

Cover picture: Close-up Photo of Wood, Ali Arapoğlu

Editorial

by *Daniel Rosenbloom & Aline Scherrer*

In this editorial, we would like to take the opportunity to briefly introduce ourselves as the new additions to the steering group (SG) and outline some focus areas we deem important for the advancement of the community. We are both 'new-old' members in the sense that we've held positions on the SG in the past and are now returning members. But before delving into this further, we would like to take this opportunity to thank outgoing SG member Wisdom Kanda for his contributions over his term of service.

I – Aline - have already been a part of the SG in the past as a NEST representative. Giving a voice to the newcomers in the field has been a great pleasure. It gave me insights into both the diverse nature of our network, its potential future directions, and of course the challenges and opportunities that a growing and newly institutionalized STRN brings to all of us. In my applied and interdisciplinary research at the Fraunhofer Institute for Systems and Innovation Research ISI in Karlsruhe, Germany, I am also continuously active in bridging research communities and translating concepts– from transitions, energy social science, and psychology to modelling, and policy evaluation. I have found that the more exchange and understanding there is between the different approaches, the more comprehensive and innovative the research can be.

Building on this experience, I want to use my time on the Steering Group to make knowledge about transitions more widely available. First, to the outside, by enhancing the content of our website for a wider audience from different disciplines and outside academia. And second, on the inside, through connecting people within the community who work on the same or converging research frontiers to foster discussion and knowledge growth. I believe that reflecting and improving our overview of what we already know will help not only newcomers to the field, but also ourselves in deciding which research directions to focus our efforts on in the future.

I - Daniel - am delighted to return to the SG. I am no stranger to the governance of the network, having served for three years on the SG and then the Board prior to the pandemic. I am an Assistant Professor and the Ivey Research Chair in Sustainability Transitions at Carleton University in Canada. This chair is the first of its kind in Canada to be dedicated to the field of sustainability transitions. Prior to taking up this chair, I spent nearly three years engaging in climate policy leadership with the federal public service, translating transition insights for policymaking. Leveraging my academic post and experience in policy leadership, not only do I plan to act as an ambassador for sustainability transitions research in Canada but also to advance a conversation on the role of the network in enhancing the policy impact of the field.

Sustainability transitions is a solution-oriented field and has always engaged in both understanding processes of system change but also implementing those insights to respond to sustainability crises. There is now a window of opportunity in the policy world that has made prominent actors (from the OECD to the IPCC) receptive to transition ideas. Indeed, the conventional ideas that have oriented policy for decades have thus far failed to place us on a trajectory capable of addressing sustainability challenges. The field is responding, with many scholars now actively engaging with policymakers to translate and mobilize their work for real world impact.

Despite this, the role of the network in enabling, coordinating, or driving work at the science-policy interface has yet to be deeply interrogated. And while the network's stated mission includes an 'outreach' pillar that would "[p]romote transition perspectives in policy and practice", questions remain about what exactly this function of the network entails. During my tenure, I hope to facilitate a conversation on these questions and to flesh out the community's role in this area. This connects with my research program on the governance of net-zero transitions, including on how to chart and accelerate pathways to net-zero.

We are excited to make contributions in the abovementioned areas along with the broader governance of the network. We invite all members to engage with us, share insights, and collaborate. We hope to meet you at an upcoming sustainability transition event.

EIST Journal

We are happy to introduce the most recent issue of EIST, published in Volume 52. The full list of papers is featured in the publication section of this newsletter.

Bernhard Truffer, Editor-in-chief

Upcoming STRN Events

STRN PhD School (February 3-7, 2025), Chalmers University

We are pleased to announce the first STRN PhD School, titled "Systems, Theories, Policies and Practices: An Introductory PhD Course in Sustainability Transitions Research," taking place at Chalmers University of Technology, Sweden, from February 3-7, 2025. This inaugural course, a collaboration between Chalmers and STRN, will provide participants with an introduction to key theories and emerging perspectives in sustainability transition research. The program includes six modules and opportunities for paper development and feedback from experienced faculty.

The call for applications – which is now closed - attracted 70 submissions, demonstrating a strong interest in this new STRN initiative. Feedback will be provided to applicants by late-October 2024, and we look forward to engaging with the participants in Göteborg at the beginning of next year.

More info here

Countdown to IST 2025 in Lisbon: Key Themes and Dates

The 16th International Sustainability Transitions Conference (IST'25) will explore tensions and trade-offs in structural changes for sustainability transitions. As global emissions rise and Sustainable Development Goals regress, rapid and deep transformation of production and consumption systems is more critical than ever. But empirical transitions research increasingly suggests that structural change involves tensions and trade-offs between scale, scope, and speed. Instances of rapid transitions (like solar-PV or electric vehicles) are often modular, but not necessarily deep or system-wide. This thus challenges the assumptions of early (and some ongoing) transitions research that structural change can be simultaneously fast, deep, and broad. Structural change may also have unintended consequences such as increased inequality and resource strain. The conference aims to deepen our understanding of these dilemmas, conflicts and possibilities of structural change and transitions in meeting climate and sustainability goals.

The call for track proposals will open by mid-October and run to mid-November.

Abstract submissions will be open mid-January to mid-February.

The conference will take place in Lisbon the week of June 23, 2025. We look forward to your participation!

Check the Conference Website for updates!

Past STRN Events

NEST/STRN Methodology School

The NEST/STRN Methodology School took place this year from July 8th to July 12th at Erasmus University Rotterdam in the Netherlands. Organised by the Design Impact Transition (DIT) Platform and the Dutch Research Institute for Transitions (DRIFT), the summer school attracted around 110 applications, out of which 36 participants were selected, representing diverse academic backgrounds from across the globe. The program was structured around the central question, "What is my role as a researcher in just sustainability transitions?" This theme was tackled through a series of lectures, interactive workshops, and dynamic discussions led by prominent scholars and practitioners in the field.

The organisers of this year's edition Julia Wittmayer and Marta Garcia Escobar would like to thank all the speakers that joined this edition of the STRN/NEST Summer School: Rene Kemp, Jonas Torrens, Josie Chambers, Bipashyee Gosh, Derk Loorbach, Marta Struminska-

Kutra, Saurabh Arora, Mapula Tshangela, Julia Wittmayer, Ying-Syuan (Elaine) Huang, Wouter Mulders, and specifically Bonno Pel, Floor Alkemade, Jonathan Köhler, and Anton Sentic, as well as Sophie-Marie Ertelt and a group from NEST for also supporting the design of the school. To read about impressions from participants please click here.

9th NEST Conference (September 5-7): Addressing Inequalities and Sustainability Transitions across three continents

This year, the NEST conference, under the theme "Addressing Inequalities and Sustainability Transitions," was organised in a hub format across three continents, involving over 100 participants.

9th NEST participants of the Australian hub

The African Regional Hub, hosted by the Centre for Sustainability Transitions at Stellenbosch University, featured a (Walking) Keynote by Prof. Mark Swilling, who guided participants through Lynedoch EcoVillage and the Sustainability Institute. Attendees engaged in transformative research workshops and peer review sessions on topics such as equitable housing transitions and food insecurity in Kenya, focusing on making transition research more inclusive for scholars in Africa.

In Melbourne, the Australian Regional Hub, hosted by the Monash Sustainable Development Institute, included a keynote by Dr. Saurabh Arora on decolonizing innovation and research presentations covering disaster resilience, climate policy, and circular economy. A pre-conference workshop on decolonizing research practices involved Indigenous weaving sessions, prompting commitments to rethink traditional research approaches.

The European hub, hosted by the Center for Research on Digitalization and Sustainability (CREDS) at Inland Norway University of Applied Sciences, brought together early career researchers for critical discussions and presentations. Keynotes included Øyvind Bjørnstad on corporate sustainability and Prof. Benjamin Sovacool on energy justice. Participants additionally explored the role of researchers in activism and shared reflections on addressing global inequalities, benefiting from both formal sessions and informal networking opportunities.

Please click here for the full reports from each hub.

9th NEST participants of the Arifican hub.

9th NEST participants of the European hub.

NEST Online Platform Kick-Off

We are pleased to announce the successful kick-off of the NEST online platform, a new space designed to connect early career researchers (ECRs) around key topics in sustainability transitions. This initiative has emerged from ongoing discussions within the NEST community about the need for a dedicated online space. As STR aims to broaden its global perspective on sustainability transitions, this platform offers an opportunity for more inclusive exchange between ECRs to complement in-person interactions.
The platform has already seen great interest, with over

100 members signed up. During the kick-off event, participants explored the platform and became familiar with its various features, sharing a range of ideas to help shape its future. Among the suggestions were a range of practical ideas, such as an online co-working time slot for collective concentrated writing, how to effectively communicate our research and how to better establish STR as a more global research community. Participants also discussed creating reading groups on diverse topics and developing a forum for methodological challenges. In addition, there were proposals for more specific content-oriented initiatives. However, these ideas remain in the early stages, and we hope to see them gain traction as the platform develops.
To ensure the platform works as a decentralized, community-driven initiative, we need voices and contributions. If you identify as an ECR (we use this term liberally!), we invite you to join us. You need to register with discord and then join the server by clicking "add server" and entering this invite link: https://discord.gg/9r5W9Kg9Sd.

Detailed sign-up instructions can be found here

For those who have already joined, keep checking in and make some contributions. Your participation will help drive these discussions forward and ensure the platform becomes a helpful resource for all members. If you have any problems, reach out to transitions.nest@gmail.com

News Thematic Groups

Transitions in Global South (TGS) thematic group

The Transitions in Global South (TGS) group continues to grow, with an increasing number of members in our Google group and participating at IST. We remain active on social media platforms such as X (@transitionsouth) and LinkedIn to keep our community informed and engaged.

AT IST 2024, 44 participants from 12 countries in Asia, Africa and Central and South America presented their research. TGS organised a lunch meeting which was attended by more than 20 participants who shared their research experience and ideas related to TGS themes. The track 'Innovation for Sustainability Transitions in the Global South: Towards a practice and research agenda', led by Patience Mguni and Wisdom Kanda, featured several insightful papers on various themes related to TGS issues, such as justice, decolonisation, or the roles of non-western, Indigenous knowledge in transitions. Presentations engaging with these topics were not limited to this track but were held in other tracks as well. Similar topics were also actively discussed at the NEST conference 2024, which was held in three different hubs in Australia, South Africa, and Norway.

Looking ahead, themes related to TGS will be discussed with the presence of members of the TGS community at the TIPC Engagement Week in Barcelona in September 2024 and the Indian Public Policy Network (IPPN) conference in December 2024. We are planning a research stocktake on TGS themes and members next year, along with an online workshop for our community.

More details about the thematic group are available on the STRN website

Call for New Thematic Groups

We are reaching out to the community to propose new Thematic Groups. Thematic Groups (TGs) are self-organized spaces to foster collaboration and knowledge pertaining to a particular theme related to sustainability transitions.

We seek to welcome emerging themes with which the transitions community wants to engage. Therefore, we intend to have a regular call for new thematic groups.

If you are interested in setting up a new TG, visit the STRN website for more information and the application procedure.
The application deadline this year is Friday, October 18th, 2024.

Other Events

Workshop on Staying with / Playing with Pain – The Role of Emotions in Sustainability Transitions

The role of emotions in deep transformative change is gaining increasing attention in sustainability transitions and transformations debates. To fully grasp the role of emotions in transformative change processes, we must do both: engage with scientific debates and literature and cultivate a greater understanding of emotions, not only as

a topic of study but as a way of knowing. In this workshop, we explore the crucial role of emotions in shaping and being shaped by transformative societal changes. We'll explore how different debates can inform our understanding of emotions in transformative change (Part I). We'll then dive deeper into 'feeling as knowing' by engaging in an experiential workshop that explores the emotions surrounding lost futures (Part II). Part I includes impulses by well-known emotions scholars Anna Durnová and Esha Shah and can be joined online.

Date/Time: November 14,2024
Venue: Utrecht, impulses in part I of the event online
Organizers: Kristina Bogner, Femke Coops, and Bas van den Berg

More information and application here
In case you have any open questions, feel free to reach out via email to k.b.bogner@uu.nl

The Port Transition Conference 13.-14. November 2024 in Trondheim

The port sector can play a crucial role in the transition to a zero-emission society, partly because it unites a number of actors and domains in the energy and transport system. This conference facilitates a meeting between academic and operational knowledge that together will promote a change of pace in the port sector's energy and sustainability transition. Here you will meet the Norwegian port sector, authorities, interest groups, users of the port and academia. Together, we will share knowledge and experience to realize the sustainable port sector of the future.

The conference is organized as part of the research project ACES, funded by the Research Council of Norway.

Day 1 of the conference will be in English. Project partners from the Dutch Research Institute for Transitions (DRIFT) will give a keynote on The need for action! How to engage and how to enact? Experiences from the port sector as driver in transitions.
In the plenary session Isabelle Ryckbost from The European Sea Port Organisation (ESPO) and Associate Professor René Poulsen from Copenhagen Business School will talk about the role of ports in driving energy and sustainability transitions in transport and society.

Senior Researcher Professor Marianne Ryghaug and researcher Lillian Hansen, from SINTEF, will moderate the academic session Towards Sustainable Port Systems: What are the drivers and barriers for new sustainable solutions, operations, technology and transition work in ports?

Call for abstract for this session is open and can be sent to Lillian.hansen@sintef.no by 30th of September.

For more information: The Port Transition Conference

We look forward to seeing you in Trondheim 13-14 November 2024. Registration deadline 20 October 2024.

CfP for Special Issue "Platform Organizations & Societal Change" in Organization Studies

The special issue aims to advance our understanding of the various ways through which platform organizations affect societal change – especially also sustainability transitions - and are shaped by new and established forms of organizing. To that end, we are seeking innovative submissions that theorize at all levels and that utilize wide range of qualitative and quantitative methodologies and methods, including mixed methods and novel approaches.
More details here
In case you have any questions, feel free to reach out via email to georg.reischauer@wu.ac.at

CfP Urban Experimentation and Learning. Green, Sustainable and Just Transformative Capacities?

Urban Transformation is calling for submissions to our Collection on Urban Experimentation and Learning. Green, Sustainable and Just Transformative Capacities? In recent years, *urban experimentation* has firmly entered the vocabulary of urban transformation research through an extensive body of literature on transition management, environmental policy and governance, human geography and planning as well as sustainability and real-world lab research.

You can find the complete call and the submission guidelines here

If you would be interested in contributing to the Collection or if you have any queries, please reach out to the Managing Editor Anika Dacic via email at anika.dacic@springernature.com

Publications

PhD Theses

Deleye, M (2024)
The Sustainable University : An exploration of how the sustainable university is conceptualized and takes shape
Uppsala University, Sweden
Link

Universities and other higher education institutions are generally considered to be crucial actors in a societal strive for sustainable development. In light of this, they are called upon to (further) embed sustainability (i.e. attention for socio-ecological issues) so that each of them might become a "sustainable university". This thesis develops knowledge on two central issues related to this topic: (1) how this notion of "the sustainable university" is conceptualized in research and in higher education practice, and (2) how change processes towards more sustainable higher education systems and practices take shape.
To do so, this thesis empirically analyzes the current higher education system in Flanders (Belgium), studies conceptions of the sustainable university in academic research, and investigates how both play a role within a micro-level practice aimed at embedding sustainability in an engineering bachelor program. This is achieved through the backbone of four empirical papers, by which the thesis builds upon three theoretical and analytical frameworks: the multi-level perspective on sustainability transitions, Laclau and Mouffe's discourse theory, and pragmatist theory of transaction. In using and building upon these varied frameworks, the thesis also develops and illustrates innovative methodological approaches.

Leendertse, Jip (2024)
Greening Pastures, Ecosystems for Sustainable Entrepreneurship
Utrecht University, The Netherlands
Link

Sustainable entrepreneurship entails starting novel ventures that combine developing a business (profit) with sustaining the social (people) and natural (planet) environment. These novel ventures are so called sustainable start-ups. In this dissertation I focus on those sustainable start-ups that address environmental sustainability. Sustainable start-ups introduce new sustainable technologies and business models to the market. They thereby can help with tackling grand environmental challenges. Regional governments are increasingly implementing policies to develop a supportive ecosystem for sustainable entrepreneurship in their region. For these policies to be effective, policy makers need to understand which regional factors influence the founding of sustainable start-ups by these entrepreneurs. The factors that promote entrepreneurship in a region are called entrepreneurial ecosystems. Examples of generic ecosystem characteristics are investment capital and human capital, while strong environmental regulations or knowledge about sustainability are specific characteristics. Until now, it was unknown whether the generic ecosystem or the specific sustainability elements are more important for the founding of sustainable start-ups in a region. In my dissertation I answer the research question: *How do entrepreneurial ecosystems influence the presence of sustainable start-ups?* My analyses show that sustainable start-ups are more dependent on the generic elements than on the sustainability-specific elements of entrepreneurial ecosystems. I also show that the quality of the generic ecosystem is more important for sustainable start-ups than for regular start-ups. Policymakers can use my results to develop policies aimed at building ecosystems for sustainable entrepreneurship in their region. I advise them to initially focus on building a strong generic entrepreneurial ecosystem

Ortiz-Moreno, Jorge A. (2023)
Infrastructure alternatives in an incomplete modernity: A case study on the re-emergence of rainwater harvesting in Mexico City.
University of Sussex
Link

Modern infrastructure networks make cities work by providing essential services such as water, sanitation and energy. However, what prevails across the Global South is an 'incomplete modernity' expressed in unequal, segregated and often decaying networks. In order to understand how new social and technological configurations are incorporated into contexts of incomplete modernity, the thesis addresses the recent emergence of rainwater harvesting (RwH) as an alternative infrastructure for household water supply in underserviced neighbourhoods of Mexico City. Data was collected through primary and secondary research (interviews, observations and documentary research) and analysed from a qualitative methodological approach. The results indicate that RwH has become a palliative niche for a dysfunctional socio-technical regime that systematically relegates marginalised populations from accessing adequate water services. The development of innovative RwH systems designed to address the needs of these populations has matched with concurrent narratives related to sustainability and social justice, contributing to the momentum of a niche that the state has supported through new policies and regulations. While these developments will not break the structural power arrangements behind the differential access to water in Mexico City, RwH has proven useful

as a decentralised infrastructure that enables underserviced populations to improve their autonomy by reducing the time, effort and stress that implies getting water in conditions of disadvantage. The findings of this case study provide a fine-grained account of a contingent socio-technical change process happening in a Latin American megacity, adding to the emerging literature on urban transitions and transitions in the Global South.

Tilsted, J. P. (2024)
Transforming a Synthetic World: The Political Economy of Petrochemical Transitions
Lund University, Sweden
Link

Reframing energy transitions as a matter of not only decarbonisation but of defossilisation, this thesis investigates the linkages between fossil fuels, chemicals and synthetic materials, and the material, institutional, and discursive power of petrochemical incumbents. Drawing on social network, document and narrative analysis, as well as field observations, interviews and ownership data, the thesis consists of five interlinked papers and a cover essay. Each paper takes up distinct research questions relating to the political economy of petrochemicals, looking at the past, present, and future of fossil-based synthetics. Taken together, I argue that the proclaimed forthcoming energy revolution faces intricate difficulties given the structural role of fossil fuels as feedstock, which confers material power upon the actors occupying the petroleum-chemical-synthetics nexus. This power enables incumbent actors to navigate growing transition pressures and pursue production growth. This insight underlines the substantial implications that arise for energy transitions research from understanding fossil fuels not only as energy carriers but as feedstock.

van Oers, Laura Maria (2024)
Unlearning unsustainability: Facilitating phase-out in sustainability transitions in the Dutch food system
Utrecht University, The Netherlands
Link

The thesis aims to contribute to scholarly debates on the governance of regime destabilisation and phase-out in sustainability transition studies. In particular, by suggesting to broaden the notion of phase-out in ways that account for “unlearning”. To this end, it introduces and develops the concept of unlearning for sustainability transition studies that involves distancing or discarding skills and practices; norms, values and beliefs; and mindsets and worldviews that perpetuate unsustainability. The empirical focus of this thesis is on the Dutch food system, studying how processes of unlearning unfold within agrifood “unlearning spaces” in which individuals are confronted with the limits of their habitual behaviours and beliefs. The unlearning spaces that are studied in this thesis are community-supported agriculture (CSA) initatives in which consumers and farmers collaborate as around local food. Additionally, this thesis explores how unlearning may be facilitated in agricultural education specifying a key role for teachers as “unlearning facilitators”.

Books

Geels, F.W., (2024)
Advanced Introduction to Sustainability Transitions
Edward Elgar, Cheltenham
Link

This book provides an insightful and evidenced introduction to one of the most important and dynamic topics in contemporary debates on how to address grand challenges like climate change and biodiversity loss. It outlines current theories and research avenues in the rapidly growing field of sustainability transitions. Using a diverse range of empirical case studies, the book emphasises the role of green innovations in relation to business, user, political, and cultural contexts in situated energy, mobility, and food systems. To capture this, the book shows how insights from mainstream disciplines have been integrated into the multi-level perspective, which has become the field’s central middle-range conceptual framework. The book has six chapters: 1) Introduction to sustainability transitions, 2) A synthetic theoretical framework, 3) Phases in sustainability transitions, 4) Actors in sustainability transitions, 5) Emerging and cross-cutting topics, 6) Concluding comments. Written in an accessible style, this Advanced Introduction is vital for students and scholars of development economics, innovation, environmental politics and policy, sustainability studies and human geography.

Papers

EIST Volume 52

Frauke Urban, Anissa Nurdiawati, Fumi Harahap, Kateryna Morozovska
Decarbonizing maritime shipping and aviation: Disruption, regime resistance and breaking through carbon lock-in and path dependency in hard-to-abate transport sectors

Annika Lonkila, Jani P. Lukkarinen, Laura van Oers, Giuseppe Feola, Minna Kaljonen
Just destabilisation? Considering justice in the phase-out of peat

Anna-Louisa Peeters, Nynke Tromp, Brit M. Bulah, Monique van der Meer, Lieke van den Boom, Paul P.M. Hekkert
Framing for the protein transition: Eight pathways to foster plant-based diets through design

Adriana Marotti de Mello, Paula Sarita Bigio Schnaider, Maria Sylvia Macchione Saes, Roberta Souza-Piao, Rubens Nunes, Vivian Lara Silva
Meso-institutions as systemic intermediaries in sustainable transitions governance

Hylke C. Havinga, H.Z. Adriaan van der Loos, Markus Steen
Collaboration or competition? Interactions between floating and fixed-bottom offshore wind in Norway

Anne M.C. Loeber, Kristiaan P.W. Kok
Exploring the functions of place-based intermediation in the governance of sustainability transitions

Marta López Cifuentes, Roberta Sonnino
Transforming the food environment: An assemblage-based research approach

Birgitte Nygaard
Phase-outs at the edge of the world: Interconnections between energy futures and place-making in the strategic outpost Longyearbyen, Svalbard

Alain Daou, Randa Salamoun, Crystel Abdallah
Institutional voids and business model convergence in the recycling industry

Florian Goldschmeding, Véronique Vasseur, René Kemp
Inertia and resistance to change in multi-actor innovation processes – Evidence from two cases in the Netherlands

D. Weckowska, D. Weiss, V. Fiala, F. Nemeczek, F. Voss, C. Dreher
Creating legitimacy for cultured meat in Germany: The role of social cohesion

Anjali Chandulal Lakum, Namrata, Hemant Kumar
Diffusion dynamics of the informal sector sustainable innovations: Exploring cases of grassroots innovations in India

Minna Kaljonen, Ari Paloviita, Suvi Huttunen, Teea Kortetmäki
Policy mixes for just transitions: A holistic evaluation framework

Matias Ramirez, Alejandra Boni, Imogen Wade, Rob Byrne
How does transformative innovation policy travel across physical and cognitive spaces? Exploring the role of mutable fluid space in experimental policy engagements

Richard Thonig, Johan Lilliestam
Cross-technology legitimacy feedback: The politics of policy-led innovation for complementarity in concentrating solar power

David Lazarevic, Saija Mokkila, Paula Kivimaa, Jani Lukkarinen, Anne Toppinen
Municipal experimental policy engagements in the built environment

Gesa Pflitsch, Nadja Hendriks, Lars Coenen, Verena Radinger-Peer
Get organized? Creating an organizational context for civil society activities in urban sustainability transitions

Harm Rienks, Aleksandra Miłobędzka
Lessons from European transformative policies

Martijn Wiarda, Tristan de Wildt, Neelke Doorn
Do transformer missions redirect values of mission-oriented projects? The case of the EU mission 'Restore our Ocean and Waters'

Henna Sundqvist, Maria Åkerman, Päivi Petänen, Jussi Lahtinen, Erwan Mouazan
From niche support to system building—Perceptions of the transformation potential of policy

measures on packaging reuse

Karoliina Isoaho, Pekka Valkama
Understanding circular city policies as a discontinuation strategy: Policy insights from circular construction

Review article

Lisa Scordato, Magnus Gulbrandsen
Resilience perspectives in sustainability transitions research: A systematic literature review

Special Section on Geographies of Missions

Benedikt Walker,
Place-based allocation of R&D funding: Directing the German innovation system for hydrogen technologies in space

Fergus Haswell, Oreane Y. Edelenbosch, Laura Piscicelli, Detlef P. van Vuuren
The geography of circularity missions: A cross-country comparison of circular economy policy approaches in the Global North and Global South

Håkon Endresen Normann, Silje Marie Svartefoss, Taran Thune
Behind the scenes: Politics and pragmatism in formulating mission-oriented innovation policies in a national context

Hugues Jeannerat, Pauline Lavanchy
Transformative social innovation in, of and by the city: Beyond mission-driven policy rationales

Max Priebe, Jeremias Herberg
Regioning mission-oriented innovation policy: The articulation of directionality between federal and regional arenas in the German High-Tech Strategy

Matthijs Mouthaan, Koen Frenken, Laura Piscicelli, Taneli Vaskelainen
Tipping the scales of the blue transition: Framing the geography of a Norwegian seafood mission

Dylan Henderson, Kevin Morgan, Rick Delbridge
Delivering micro-missions in public food transitions: Harnessing tensions for creative outcomes

Anna Butzin, Maria Rabadjieva, Judith Terstriep
Anchoring challenges through citizen participation in regional challenge-based innovation policies

Special Section on Household innovation and agency in sustainability transitions

Francesca Cellina, Evelyn Lobsiger-Kägi, Devon Wemyss, Giovanni Profeta, Pasquale Granato
Households in energy transition: Promoting household energy-sufficient routines via app-based peer-to-peer interaction

Gisle Solbu, Marianne Ryghaug, Tomas M. Skjølsvold, Sara Heidenreich, Robert Næss
Deep experiments for deep transitions – low-income households as sites of participation and socio-technical change in new energy systems

Gijs ten Berge
Mnemonic agency in the Dutch energy transition to gas and electricity

Ruth Lane, Annica Kronsell, David Reynolds, Rob Raven, Jo Lindsay
Role of local governments and households in low-waste city transitions

Hilda Wenander
Practices and politics of energy efficiency among householders in a low-energy building in Sweden

Rob Raven, Jo Lindsay, Ruth Lane, David Reynolds
Household niche experimentation in sustainability transitions and everyday life: A novel framework with evidence from low-waste living in Melbourne

Jani P. Lukkarinen, Runa R. Das, Senja Laakso, Mari Martiskainen
Using energy vulnerability framework to understand household agency in sustainability transitions: Experiences from Canada and Finland

Avelino, F., Wijsman, K., van Steenbergen, F., Jhagroe, S., Wittmayer, J., Akerboom, S., Bogner, K., Jansen, E. F., Frantzeskaki, N., Kalfagianni, A. (2024)

Just Sustainability Transitions: Politics, Power, and Prefiguration in Transformative Change Toward Justice and Sustainability

Annual Review of Environment and Resources, 49.
Link

Facing the world's ecological, economic, and social challenges requires us to connect the concepts of justice, sustainability, and transitions. Bridging and discussing heterogeneous fields, we argue that these concepts need to complement each other, and we present just sustainability transitions (JUSTRAs) to do so. To define JUSTRAs, we review the state-of-the-art literature, focusing on the understanding of these three concepts and their pairings in various disciplinary fields and empirical settings (e.g., environmental justice, just transitions, sustainability transitions, energy justice, food justice, urban justice). We center marginalized voices to highlight the processes of radical transformative change that JUSTRAs seek. We offer three analytical lenses that further the understanding of JUSTRAs: politics, power, and prefiguration. We argue that these complementary lenses are necessary to remake the world in both critical and pragmatic ways. Finally, we present a research agenda on JUSTRAs, foregrounding three complementary modes of inquiry: analyzing, critiquing, designing.

Ayoub, M. and Geels, F.W., (2024)

What happens after positive tipping points? A socio-technical analysis of acceleration and deceleration in solar-PV diffusion in Germany and the UK

Technological Forecasting and Social Change, 207
Link

This paper contributes to debates on positive tipping points in climate mitigation, which are relevant for accelerating low-carbon transitions. The first contribution is to draw attention to dynamics *after* the tipping point and criticise the determinism of existing approaches, which excessively focus on irreversible self-reinforcing processes. We conceptually extend Geels and Ayoub's socio-technical perspective on tipping points by adding potential negative feedback processes on political and socio-cultural dimensions that can decelerate further diffusion *after* the tipping point. The second contribution is to replicate Geels and Ayoub's framework with two new case studies and thus enhance its empirical validity. The case studies are solar-PV diffusion in Germany and the UK, which both first accelerated because of positive feedbacks and then slowed down because of negative feedbacks. We explain why solar-PV diffusion almost entirely halted in the UK but regained momentum in Germany after 2016. Our findings demonstrate the importance of analysing both positive and negative feedbacks in low-carbon transitions. Our findings also show that the strength of various feedback processes is shaped by broader economic and political contexts.

Bączyk, M., Frenken, K., Punt, M. B., Wanzenböck I. (2024)

International alliances and technology diffusion: A worldwide analysis of adoption of energy, railway and satellite technologies

PLOS Sustainability and Transformation
Link

This study analyzes the role of international alliances in the adoption of new technology at the national level. We look at the worldwide diffusion of six key infrastructure technologies during the past six decades among 161 countries: nuclear power, solar power, wind power, marine power, high-speed rail, and telecommunication satellites. Acknowledging that international relations are not solely structured by formal alliances, we further investigate the impact of neighboring states on technology diffusion, as neighbors tend to maintain strong economic and cultural ties. We further look at simple imitation effects between states with similar political systems. With our focus on international alliances as drivers of international technology diffusion, our study complements economic studies on technology diffusion. For most of the technologies, we find evidence for spillovers between allied states as well as between neighboring states, while no such evidence was found for institutionally similar states. These results confirm the important role that international alliances may play in technology diffusion.

Butt Huzaifa, Joyashree Roy, S Some (2024)

Policy as a catalyst in shaping mobility sector transition for developing countries

Environmental Research Letters
Link

This paper presents a modified technology innovation system (MTIS) approach applicable to developing countries. Evidence collected over three decades 1992–2022, shows how policy plays a catalytic role in managing multidimensional low-emission mobility transitions in developing countries such as Pakistan. This paper follows policy and the network of actors, institutions and technology in compressed natural gas (CNG)-based mobility transition in Pakistan. Event-based analysis helped in mapping the development of respective functions, which is later validated by expert consultation. Between 1992 and 2002, deliberate policies for early adoption were put in place to strategically manage a desired transition path. This

involved providing guidance and knowledge diffusion through demonstration to increase entrepreneurial activities and market formation. The accelerated diffusion during the take-off period during 2003–2012 was due to the entry of private businesses and multinational companies speeding up entrepreneurial activity and market-formation functions. However, there was a clear policy-driven roll-back and deceleration during 2013–2022. Policies designed to ban CNG licence issuance and renewal resulted in detrimental effects on market and entrepreneurial activities. Social struggle arising from roll-back is now caught in a dilemma if policy innovation will lead to re-emergence of CNG or will support a new transition cycle through the emergence and adoption of electric vehicles in the mobility space of Pakistan. Rapid shifts in the global landscape of innovation and market conditions are creating a need for the effective handling of cascading transition management in developing countries. This paper outlines how lessons learnt from Pakistan's CNG-MTIS can help in shaping electric vehicle MTIS not only in Pakistan, but also in many other developing countries. It is recommended that, in order to manage cascading transitions in developing countries, new approaches and strategies for reskilling, retraining and redirecting finances to address stranded assets be employed. This can mitigate the negative impacts on those affected by transformation and create an environment for a just transition that restores trust in policy and accelerates transformative change.

Chlebna, C., Mattes, J. (2024)
Regional Transition Fields - Exploring institutional dynamics of contestation and entrenchment in an energy transition case in Germany
Energy Research & Social Science
Link

In the context of regional energy transitions entrenched positions between involved actors are empirically observable but we lack a regionally specific theoretical foundation to grasp and explain them. The study suggests the concept of 'Regional Transition Fields' (RTF) which encompass all actors, activities and organisations in a region that share a concern for the energy transition. This approach allows consideration of both those actors that promote an energy transition towards more sustainable energy sources and those that oppose it as part of the same field. The study argues that, despite the apparent agreement on the issue at stake, conflicts and tensions arise within that field concerning the rules, regulations, and common reference frames against which behaviours are judged. The framework posits that processes of adaptation and delimitation continually re-shape the structure of the field. The framework is applied to a qualitative in-depth case study of Northern Hesse in Germany. Based on a content analysis of semi-structured interviews the study offers evidence of the existence of a regional transition field, briefly introduces the key actors and actor constellations in this field, and illustrates the regulative, normative, and cultural-cognitive dimensions of both adaptation and delimitation processes in this case. The study thus contributes a conceptual framework on how institutionalisation occurs in fields and thereby a more nuanced understanding of the emergence of entrenched positions in regional transition fields, which may inform future studies of regional energy transitions.

Coops, F., Bogner, K., & Hummels, C. (2024)
Letting go in sustainability transitions: designing spaces for the unavoidable companion of change.
In Routledge Handbook of Sustainable Design (pp. 493-504).
Link

There is one thing, intrinsic to all life, unifying all beings around the globe, that all of us experience, but which, in many cultures, we try to suppress as best we can. That is: There is no life, there never will be, without death. When a loved-one dies, we need time and space to grieve and let go, while the everyday carries us along and urges us to pick up the threads, reshape life, build new relationships, and explore new avenues. But when our world collapses due to societal challenges, and we have to say farewell to practices, structures, and – in the end – certain ways of living, there hardly seems to be any consideration for grieving or letting go. Can we really embrace new futures regarding sustainability transitions, a small greener footprint, reduced consumption, etc., without any room for a process of mourning and releasing? In this chapter, we describe our vision on this often-overlooked part of designing for sustainability transitions. When talking about sustainability transitions, we refer to large-scale societal change processes in which radical changes challenge, alter and replace current dominant cultures, structures and practices to allow for and create more just and sustainable futures. In the following sections, we outline how design and transitions research, two disciplines addressing grand societal challenges, can become powerful partners is designing spaces for letting go.

de Gooyert, V., Awan, A., Gürsan, C., Swennenhuis, F., Janipour, Z., & Gonella, S. (2024)
Building on and contributing to sustainability transitions research with qualitative system dynamics
Sustainability Science
Link

This paper explores the novel connection between qualitative system dynamics and sustainability

transitions research. As the urgency for sustainable solutions intensifies, this interdisciplinary combination offers a promising avenue for addressing complex sustainability challenges. We reflect on recent research projects to establish the value of combining the two fields. We delve into the methodological and theoretical synergies, using examples to illustrate how the two fields can mutually benefit from each other. We find that qualitative system dynamics complements other sustainability transitions research approaches by encouraging (a) more inductive research that results in a broader system boundary than traditional sustainability transitions research frameworks and (b) higher endogeneity, which leads to a better appreciation of the feedback mechanisms that determine whether transitions succeed or not. This leads to an explicit reflection on assumptions that otherwise might remain hidden, and more explicit conceptualizations of the feedback mechanisms driving and hindering sustainability transitions and recommendations on navigating seemingly opposing interests that diminish when seeing the whole system. We also propose how future research can contribute to further cross-fertilization between the two fields, including the need for explicit positioning in terms of starting points, considering different philosophical paradigms, exploring combinations with other analytical approaches to foster change, and increasing reflection on the part of researchers, particularly in participative modes. We argue that the fusion of qualitative system dynamics with sustainability transitions research can significantly enhance our understanding and ability to manage complex sustainability issues, substantially contributing to both academic discourse and practical applications in sustainability transitions.

de Gooyert, V., de Coninck, H., & ter Haar, B. (2024)
How to make climate policy more effective? The search for high leverage points by the multidisciplinary Dutch expert team 'Energy System 2050'
Systems Research and Behavioral Science
Link

The Netherlands aims to have a climate-neutral society in 2050, for which a timely climate neutrality of the energy system is crucial. This is challenging as its geographical location with deep sea harbours and abundant low-cost natural gas have led to a relatively high energy intensity of its economy as well as vast accumulation of fossil assets in industry. The energy system is strongly intertwined with other systems, and relevant knowledge is spread across scientific disciplines including finance, innovation, geography, governance, economics, and psychology. This is why the Dutch minister for Climate and Energy asked a team of experts from across all these disciplines for advice on how to achieve a climate-neutral energy system. This study reports on the results of a participative modelling exercise with these experts that was organized to foster a shared understanding of the complexity of the Dutch energy system. The multidisciplinary approach identifies governance, fairness, and trust as high leverage points, and we propose policies that intervene in these variables. We contribute to the literature around climate policy by exhibiting the relevance of understanding the interrelations between the disciplines, leading to recommendations for climate policies that are more effective because they acknowledge and do justice to the interrelated nature of the energy system. Although other articles have proposed similar policies, our study is different because we suggest how the structure of the system can lead to tipping dynamics, thereby providing a new logic of why these policies deserve more attention.

De Koning, J., Lavanga, M., & Spekkink, W. (2024)
Exploring the Clothing Overconsumption of Young Adults: An Experimental Study with Communication Interventions
Journal of Cleaner Production
Link

The increase in clothing consumption per capita in the last decades presents substantial environmental and societal challenges. Young adults, heavily influenced by advertisements and new trends via social media, emerge as substantial contributors to the escalating issue of clothing overconsumption. This research aims at better understanding the drivers of clothing consumption for young adults and the policy interventions that can be designed to change clothing overconsumption behaviour. This study employs a survey experiment with communication interventions using different framing strategies. In doing so, the study focuses on the potential impact of communication interventions on the clothing consumption rates of young adults. The study showed that a communication intervention can motivate young adults to purchase less clothing and gives an initial insight into how to implement this type of intervention. Moreover, it provides initial evidence that intervention strategies inspired by sufficiency can be effective. This research calls for more transformative policies to stimulate sustainable consumption that go beyond promoting sustainable alternatives.

Fahimi, A., Upham, P., Pflitsch, G. (2024)
Building energy institutions in a conflict zone: Interventions by international organisations in Afghanistan
Energy Research & Social Science 116:103711
Link

How do international development organisations develop institutional capacity in conflict zones? Here we take a descriptive, topological perspective on the question, using the case of Afghanistan. For twenty years prior to

the capture of Afghanistan by the Taliban in August 2021 the international community directed substantial resources to Afghanistan, seeking to build a democratic state. Here we examine selected, energy-related aspects of those institution-building processes, taking the country as a case study of institutional development for energy and other transitions that is explicitly driven by particular values. We use the transition topology approach to map energy-related institutional development over two decades. We find that this institutional development can be categorized in terms of three main themes: development of a regulatory framework for the energy sector; privatisation of energy systems; and women's empowerment in terms of knowledge, skills and engagement in energy sector provisioning. The case contributes to an understanding of the types of institutional changes that transnational actors seek to induce, how they do this, and what types of outcomes can be achieved.

Führer, K., Jittrapirom, P., d'Hont, F. M., Rouwette, E. A. J. A., & Kwakkel, J. H., (2024)
Modeling with a municipality: Exploring robust policies to foster climate-neutral mobility
Transportation Research Interdisciplinary Perspectives
Link

Many European cities are investigating how to transition to climate-neutral transport systems. Due to the transport system's complexity and uncertainty about the future, identifying drivers and choosing effective policies to make the city more sustainable is challenging. Additionally, the chosen policies need to be supported by relevant actors. This study aims to support the municipality of The Hague in generating robust policies supported by and within the municipality. We build on participatory modeling and decision-making under deep uncertainty to create a novel approach to address this goal. In two workshops, the participants formulated goals and objectives, created Causal Loop diagrams, and identified potential interventions. Using a set of possible futures, the interventions were then stress-tested to evaluate their robustness. By explicitly linking, for the first time, participatory modeling and decision-making under deep uncertainty approaches, the participants could understand the system better and deal with uncertainty. Participants gained insight into systemic complexity and methods to deal with it, the inter-relatedness of interventions and their effects, and a shared understanding of the problem and its scope. This study demonstrates the potential of a novel approach to generate supported robust interventions to achieve the goal of a climate-neutral transport system.

Gonella, S., & de Gooyert, V. (2024)
What are sustainable plastics? A review of interrelated problems and solutions to help avoid unintended consequences
Environmental Research Letters
Link

Plastics are affordable and versatile, but there is a growing awareness that they are unsustainable in a number of ways, including concerns about climate, health and biodiversity. A number of solutions are being explored that could enable a more sustainable plastics system. So far, most research has focused on isolated technical solutions that address only one specific sustainability challenge posed by plastics, such as end-of-life management or feedstock alternatives to fossil fuels. Some interventions might mitigate one problem but contribute to another at a different stage of the plastics life cycle. This study is based on a literature review and adopts qualitative system dynamics to analyse the unsustainability of plastics with a holistic, integrative approach. The review shows that there is still no agreed definition of sustainable plastics, so the authors propose one based on inputs from the literature. The paper provides an overview of the impacts of potential solutions on the plastics system, highlighting how some interventions could end up having unintended consequences, perhaps even overshadowing the benefits. The results highlight the need for improved communication transparency between plastics stakeholders and a more vertically integrated, harmonised value chain to effectively implement a sustainability transition in the plastics system.

Guibentif, T. M. M., Patel, M. K. . (2024)
Spare or Transform? Agency Frames in Transition Intermediaries
Journal of Cleaner Production
Link

Climate emergency is widely acknowledged. However, our institutions are struggling to find new intervention types to accelerate the transition. This paper analyses this struggle by combining agency theories and discursive approaches to study transition intermediaries, i.e, organizations seeking to foster the transition activities of others. The internal meaning structures of intermediaries are described as interlocking shared action frames, i.e., beliefs and meanings underpinning their activities. These frames are characterized through the definition of pairs of contrasting frame elements along eleven framing dimensions. This conceptualization allows for a semi-quantitative mapping of internal structures. The method is developed and illustrated with the in-depth case study of a Swiss regional utility department running an energy efficiency programme. Analysing a series of exploratory workshops, we find that established frames revolve around technology-oriented, managerial approaches to the transition, ultimately narrowing the range of imaginable interventions. While

these are well-studied shortcomings of energy efficiency centred approaches, further observations suggest that these frames underpin the perception of intervention impacts, helping keep staff and recipients involved. To strike a balance between energy saving targets and transformative ambitions, this paper suggests revising programme evaluation logics and reframing technological solutions as responses, rather than substitutes, to practice changes.

Gürsan, C., de Gooyert, V., de Bruijne, M., & Raaijmakers, J. (2024)
District heating with complexity: Anticipating unintended consequences in the transition towards a climate-neutral city in the Netherlands.
Energy Research & Social Science
Link

District heating systems are considered a feasible heating alternative to replace natural gas to mitigate emissions in cities. However, urban transitions are very complex because energy systems often operate in densely populated areas, which gives rise to all kinds of interdependencies in cities. These interdependencies can result in unintended consequences which can indirectly help or hinder urban energy transitions. Understanding these influences the transition to climate neutrality. This research investigates the lessons learned from a project conducted in Rotterdam: a high-density city in the Netherlands which is expanding its district heating systems. We use qualitative system dynamics models to explore the underlying complexity and to recognize indirect consequences of policies. Our results cover both technologically oriented and policy-oriented insights, contributing to the literature on transition governance in cities. On the one hand, the national and urban strategies in the Netherlands activate mechanisms that support cities with district heating systems such as Rotterdam. On the other hand, the same strategies could also lead to a potential rivalry between energy efficiency and energy security, which are both crucial goals in urban transition governance. Participative modeling provides policy-makers with an analytical tool to detect systemic dependencies which can be used to identify synergies and barriers among different energy policy objectives. This helps avoiding potential unintended consequences including the use of carbon-heavy systems and displacing investments from energy efficiency and renewable heating systems

Hadfield, P., Prescott, M., Holden, J., Novalia, W., Suwarso, R., Marthanty, D.L., Priadi, C., Kirana, K.H., Endyana, C., Hardesty, B.D., Taufik, F.D., Zurbrügg, C., Josey, B., Astuti, N., Wong, T., Ramirez-Lovering, D., Raven, R.P.J.M., (2024)
Citarum Living Lab: Co-creating visions for sustainable river revitalisation.
PLOS Water
Link

Integrative transdisciplinary approaches to watershed management are critical for addressing intersecting social, economic, and ecological processes that shape planetary health outcomes for humans, animals, and ecosystems. These challenges are acute in watersheds like the Citarum River in West Java, Indonesia, which suffers from severe pollution due to inadequate waste management infrastructure, and is worsened by rapid urbanisation and a changing climate, which further degrades the river ecosystem and threatens lives and livelihoods. Developing a unified approach to addressing these complex problems, and responding to real world social, governance, and biophysical conditions through integrated water management, is difficult to achieve in practice. Responding to this challenge, living labs have emerged as a mode of transdisciplinary research and implementation that incorporates the expertise of diverse stakeholders in real-world settings to learn and develop solutions to complex challenges, like those faced in the Citarum River. While living lab approaches have been used widely in Western cities, there is little research that investigates its usefulness in informal peri-urban settlements. This paper presents a case study of the Citarum Living Lab, a live action research program that aims to co-develop, test, and learn from socio-technical experiments in real-world settings in collaboration with an interdisciplinary international research consortium, government, NGOs, businesses, community leaders, and residents. With the ultimate aim of revitalising the Citarum river and its surrounding environments and communities, the program engages with community experiences, existing institutional frameworks, and changing environmental conditions. This paper identifies the conditions and factors that enable and constrain a living lab approach in a vulnerable peri-urban watershed from the perspective of the research team by employing a reflexive participatory action research methodology. Place-based, transdisciplinary responses to planetary health imperatives in this context require navigation of complex, multi-level governance contexts and novel resourcing models to support applied research, implementation, and learning.

Huber, A., Heinrichs, H., & Jaeger-Erben, M. (2024)
Promoting neighbourhood sharing: infrastructures of convenience and community
Buildings and Cities
Link

Against the background of high levels of energy and resource demand in the residential sector, this paper investigates one potential way of making housing more sufficient: sharing at the neighbourhood level. Evidence from French and German case studies of ‘collaborative

housing' and 'developer-driven neighbourhood sharing' is used to identify two types of popular sharing practices: community-oriented and convenience-oriented. The first group of sharing practices is underpinned by creating, maintaining and experiencing social ties with neighbours. The second group of practices is guided by getting day-to-day tasks done smoothly and efficiently. To support the establishment of such sharing practices, some infrastructural measures are suggested. Thus, convenience-oriented sharing practices may be promoted by infrastructures and associated services that optimise the availability of sharing facilities and minimise temporal stretches and consumption work involved in practice performances. Community-oriented sharing practices may benefit from infrastructural arrangements that enable chance encounters, privilege community spaces over private areas and create welcoming spatial atmospheres.

Hvitsand, C., Nicolaysen, A. M., Gjøtterud, S., Raanaas, R., K. (2024)
Piloting a co-created local and alternative food network involving professional buyers in Norway: Forces and tensions influencing viability
Journal of Rural Studies
Link

We can obtain knowledge about how sustainability transitions can take place through experimenting with niche-activities. An alternative food network (AFN) called *Green Parallel* was co-created through action research in an agri-food living lab and was piloted in 2019 and 2020. The purpose was to contribute to more organic produce in localized food systems and improve communication between producers and professional buyers (e.g. specialty stores, restaurants, chain retails, private and public canteens) in the Vestfold region in Norway. This paper analyses the occurring forces and tensions that support or hinder the viability of the AFN. The methods of data collection were interviews, reflection notes and participants' notes from the participatory processes. We utilized perspectives from field theory and institutional economy to understand individual behaviors in relation to internal and external forces and tensions in a multi-level perspective (MLP). A strong supportive force was the initial motivation participants in Green Parallel had to collaborate. In addition, we identified seven forces and tensions affecting the viability of Green Parallel. These forces and tensions worked through complex interdependencies within individuals and actor types and across actor types, as well as across internal and external niche spans. The study can inform further development of organic and local agri-food systems.

Löhr, M.; Markard, J., Ohlendorf, N. (2024)
(Un)usual advocacy coalitions in a multi-system setting: the case of hydrogen in Germany
Policy Sciences
Link

Grand sustainability challenges span multiple sectors and fields of policymaking. Novel technologies that respond to these challenges may trigger the emergence of new policy subsystems at the intersection of established sectors. We develop a framework that addresses the complexities of 'multi-system settings.' Empirically, we explore belief and coalition formation in the nascent policy subsystem around hydrogen technologies in Germany, which emerges at the intersection of electricity, transport, heating, and industry and is characterised by a broad range of actors from different sectoral backgrounds. We find two coalitions: a rather unusual coalition of actors from industry, NGOs, and research institutes as well as an expectable coalition of gas and heat sector actors. Actors disagree over production, application, and import standards for hydrogen. However, there is widespread support for hydrogen and for a strong role of the state across almost all actors. We explain our findings by combining insights from the advocacy coalition framework and politics of transitions: Belief and coalition formation in a nascent subsystem are influenced by sectoral backgrounds of actors, technology characteristics, as well as trust and former contacts. Our study contributes to a better understanding of early stages of coalition formation in a multi-system setting.

Patterson, J.J., Feola, G., Kim, R.E. (2024)
Negotiating Discord in Sustainability Transformations.
Proceedings of the National Academy of Sciences
Link

Policy action for sustainability transformation faces inherent and ever-present sources of conflict, pushback, and resistance (i.e., discord). However, conceptual frameworks and policy prescriptions for sustainability transformations often reflect an undue image of accord. This involves simplified assumptions about consensus, steering, friction, discreteness, and additiveness of policy action, conferring an unrealistic view of the potential to deliberately realize transformation. Instead, negotiating discord through continuously finding partial political settlements among divided actors needs to become a key focus of policy action for sustainability transformations. Doing so can help to navigate deeply political settings through imperfect but workable steps that loosen deadlock, generate momentum for further policy action, and avoid complete derailment of transformation agendas when discord arises.

Patterson, J., Paterson, M. (2024)
Embracing the politics of transformation: Policy action as "battle-settlement events".
Review of Policy Research
Link

Societal transformations for addressing climate change are intensely contested and at risk of resistance and backlash to ambitious policy action. But they are frequently modeled through heuristics such as S-curves which abstract from such conflicts, assuming increasing returns to scale as a driver of transformations. This is the case even while scholars accept the presence of political conflict in transformation processes. Within political science and allied disciplines, the notions of policy feedback and policy coalitions have been deployed to understand how such political conflicts may be understood. But these approaches risk gravitating toward an instrumental design impulse that inadvertently downplays conflict. We argue that policy action for societal transformations should be re-conceptualized as an unfolding series of *battle-settlement events* whereby heated episodic political struggles over a certain policy object or issue play out and eventually settle in ways that structure future debates while nonetheless remaining indeterminate and open to challenge or reversal. Such an approach reflects the varied empirical experiences of climate policy action to date which include both accumulation and reversal. It also helps explain trajectories of change that are discontinuous and lurching in contrast to common images of transformation as progressive and cumulative. We illustrate this approach through two cases of unfolding societal transformation on climate change: coal phaseout in the United Kingdom and renewable energy uptake in Australia.

Pinheiro, Anita, and Madhav Govind (2024)
Urban Home Gardening and Agri-Food System Transitions Toward Sustainability in Kerala
In Sustainable Urban Agriculture, pp. 62-84. CRC Press
Link

Urban home gardens are social–ecological–technological systems that act as key nature-based solutions for urban and agri-food system transitions by offering multiple functions, including social–ecological–economic benefits. Yet, they do not get adequate attention from the policymakers primarily because these are private practices. Using multi-level perspectives of sustainability transition theory, this chapter explores how urban home gardening contributes to agri-food system transitions and sustainability in Kerala. A strong regime resistance and recent shifts in beliefs and value systems of some of the state actors act as barriers to the further development of the urban home gardening niche, resulting in the taking up of neither a 'fit and conform' pattern nor 'stretch and transform' patterns of transitions. However, with the solid and continued involvement of social actors who try to fill the gaps in government interventions, niche innovation is unlikely to fail. Unlike other studies in agri-food system transitions that focus on significant socio-technical changes, this chapter focuses on 'soft' transitions in practices and policies built upon traditional practices with local-specific relevance. It also highlights the relevance of urban home gardening in the Global South, which has been hugely overlooked in the urban agriculture and sustainability transitions research.

Steen, M., Andersen, A. D., Finstad, J., Hansen, y., Hanson, J., Jordal, K., Mäkitie, T., Nordholm, A., Ryghaug, M., Santoalha, A. (2024)
CCS technological innovation system dynamics in Norway
International Journal of Greenhouse Gas Control
Link

CO2 Capture and Storage (CCS) is today seen as a key technology to cut carbon emissions in many hard-to-abate sectors such as energy-intensive processing industries and the waste sector. Although CO2 capture is technically possible, key challenges for realizing CCS persist. Over the past decade, CCS has taken a new direction with more focus on application in energy-intensive industries rather than the energy sector. For CCS value chains to materialize, innovation and implementation thus needs to occur amongst an array of actors, with different innovation modes, institutions, and policy regimes, and with varying sectoral capacities for adaptation and change. There has so far been limited social science research on CCS innovation dynamics, which we suggest approaching as a socio-technical change process. To better understand this process, we draw on the sustainability transitions research field and employ the Technological Innovation System (TIS) framework to study the CCS innovation system in Norway. We find that, overall, the Norwegian CCS TIS displays systemic weaknesses for example in the form of market formation and resource mobilization, yet recent developments suggest a relatively positive momentum for this technological field which is key to meeting Norwegian and global climate mitigation targets.

Swennenhuis, F., de Gooyert, V., & de Coninck, H. C. (2024)
Socio-technical dynamics of carbon dioxide capture and storage: A systems view on enablers and barriers at North Sea Port
International Journal of Greenhouse Gas Control
Link

Carbon dioxide capture and storage (CCS) is considered an option for energy-intensive industry to reduce its greenhouse gas emissions. Although it is well known that

CCS faces technological, economic and societal challenges, how these challenges interact in a real-life industry has not yet been investigated collectively in a place-specific context. This study fills that gap by looking at the dynamic interactions between technological, economic and societal aspects, with the aim of clarifying enablers for and barriers to the implementation of industrial CCS in the North Sea Port industrial cluster, and identifying a course of action. The analysis was based on literature, interviews and group model building. By using group model building, expert stakeholders were brought together from industry, government and environmental non-governmental organizations. The participants built a qualitative model of the system dynamics of the implementation of industrial CCS in the North Sea Port industrial cluster jointly and on the spot. Enablers and barriers, such as costs, government's decisiveness and public support, are strongly interrelated. Public support plays a key role in multiple feedback loops in the system of industrial CCS implementation. The interdependence of societal and techno-economical elements needs to be acknowledged and responded to. There is need for transparent public engagement to build public support for CCS, and decisiveness and commitment from industry and government to transform that public support into successful and responsible CCS implementation.

Velasco, D.; Ghosh, B.; Boni, A.; Schiller, K.; Winkler, L, (2024)

Building a knowledge infrastructure for Transformative Innovation Policy (TIP). An analytical approach based on the experimental TIP conference 2022

Environmental Science and Policy

Link

Tackling social and environmental challenges requires communities that can create, integrate, use, and contextualise diverse knowledges. The Transformative Innovation Policy (TIP) seeks to respond to these challenges through collective action enabled by experimental and inclusive approaches. This paper focuses on examining the kind of knowledges, structures and practices required to build a knowledge infrastructure (KI) for TIP, taking the TIP Conference 2022 as a case study. The conference aimed at building a sustainable and inclusive KI for systemic transformation pathways, providing the basis for a TIP KI framework. The framework includes tangible and intangible infrastructures that support broadening and deepening networks, learning, unlearning, and aligning visions. These are the constituent elements to build communities of practice that can integrate knowledge towards transformation pathways. Furthermore, the paper explores how conferences can contribute towards transdisciplinary and action- oriented research as part of their developing strategies.

Wittmayer, J. M., Huang, Y. S. E., Bogner, K., Boyle, E., Hölscher, K., von Wirth, T., Boumans, T., Garst, J., Hendlin, H. Y., Lavanga, M., Loorbach, D., Mungekar, N., Tshangela, M., Vandekerckhove, P., Vasques, A. (2024)

Neither right nor wrong? Ethics of collaboration in transformative research for sustainable futures

Humanities and Social Sciences Communications

Link

Transformative research is a broad and loosely connected family of research disciplines and approaches, with the explicit normative ambition to fundamentally question the status quo, change the dominant structures, and support just sustainability transitions by working collaboratively with society. When engaging in such science-practice collaborations for transformative change in society, researchers experience ethical dilemmas. Amongst others, they must decide, what is worthwhile to be researched, whose reality is privileged, and whose knowledge is included. Yet, current institutionalised ethical standards, which largely follow the tradition of medical ethics, are insufficient to guide transformative researchers in navigating such dilemmas. In addressing this vacuum, the research community has started to develop peer guidance on what constitutes morally good behaviour. These formal and informal guidelines offer a repertoire to explain and justify positions and decisions. However, they are only helpful when they have become a part of researchers' practical knowledge 'in situ'. By focusing on situated research practices, the article addresses the need to develop an attitude of leaning into the uncertainty around what morally good behaviour constitutes. It also highlights the significance of combining this attitude with a critical reflexive practice both individually and collaboratively for answering questions around 'how to'as well as 'what is the right thing to do'. Using a collaborative autoethnographic approach, the authors of this paper share their own ethical dilemmas in doing transformative research, discuss those, and relate them to a practical heuristic encompassing axiological, ontological, and epistemological considerations. The aim is to support building practical wisdom for the broader research community about how to navigate ethical questions arising in transformative research practice.