Beijer Institute of Ecological Economics

Annual report

2024/2025

Beijer Institute
OF ECOLOGICAL ECONOMICS

KUNGL. VETENSKAPS-AKADEMIEN
THE ROYAL SWEDISH ACADEMY OF SCIENCES

The Beijer Institute of Ecological Economics is an international research institute under the auspices of the Royal Swedish Academy of Sciences. The major objectives of the Beijer Institute are to carry out research and stimulate scientific cooperation to promote a deeper understanding of the interplay between ecological systems and social and economic development.

Director's column

Amid geopolitical turbulence, climate change, and intersecting crises, it is easy to feel despair. Neil Young, a favourite artist throughout my life, declares on his recent album 'Talkin' to the Trees': *"Big change is coming, big change is coming – it could be bad, and it could be good!"*

I have been fortunate to work with sustainability issues since the early 1980s, and with the Beijer Institute at the Royal Swedish Academy of Sciences since 1991, initially as Deputy Director, and since 2007 as Director. Over the years, I have witnessed significant change: in science, in society, in culture. Much has changed – and much of it for the better, pointing towards a brighter future. There is hope!

climate- and nature-related risks into their strategies. Multilateral banks are recognising the importance of nature's services in their projects, and new conventions, collaborations, and initiatives are addressing biodiversity loss and promoting nature-positive approaches in policy, practice, and business.

Nothing like this existed just a few decades ago. I would even argue that large parts of the globalised world are now undergoing a fundamental paradigm shift. A shift from viewing humans and nature as separate, to recognising that people, communities, societies, cultures, and civilisations are embedded within the biosphere, and that progress and prosperity depend on a healthy planet. This is a hopeful development!

> "Much has changed – and much of it for the better, pointing towards a brighter future. There is hope!"

There may be bumps along the road to a net-zero, fossil-free world, but the green energy transition has already passed a tipping point. It is underway across the globe, not only in Western countries but also in major nations such as India and China. More than 100 central banks are now integrating

The Beijer Institute, with the support of the Academy, has undoubtedly contributed to these developments through curiosity-driven, collaborative science aimed at understanding the systemic interactions between people and nature on our intertwined planet, now increasingly within the context of the Anthropocene. It is exciting to see that our joint Stockholm platform, comprising the Beijer Institute, the Stockholm Resilience Centre, the Global Economic Dynamics and the Biosphere Academy programme, and the Anthropocene Laboratory, serves as a world-leading foundation for advancing science in support of sustainability.

It is also exciting to know that the scientific path and progress we have made will be nurtured, revitalised, and enriched with fresh perspectives under the leadership of our wonderful new Director, Professor Emily Boyd. I, along with the entire Beijer family, am delighted that the Academy has appointed Emily to this role. She joins the Beijer Institute with outstanding expertise in sustainability science and extensive experience in leading collaborative research institutions. We share a long history of inspiring interaction and collaboration, and I am confident that the Beijer Institute will continue to thrive under her guidance. Emily will formally take up the role of Director on 1 September 2025. A very warm welcome, Emily!

And of course, my deepest thanks go to Anders Wall and the Beijer Foundation for more than 30 years of truly remarkable, warm, thoughtful, and trust-based collaboration and support. It is a unique partnership, one that makes new discoveries possible, creates meaning, and provides the space to explore bold ideas in advancing the common good in uncommon ways. It stands as a powerful example of what trust between people can achieve. Genuinely gratifying!

Photo: Hans Malm

Stockholm, 19 June 2025

Carl Folke
Director of the Beijer Institute

Research programmes

Work at the Beijer Institute strives to create research frontiers at the interface of ecology, economics and related disciplines, to promote a deeper understanding of the interplay between ecological systems and social and economic development in relation to sustainability.

Our research framework recognises that economies and societies are components embedded within the Earth's biosphere, the thin layer around our blue planet where life exists, resulting in biosphere dependence. Today, the globalised human world is shaping the functions of the biosphere at planetary level in truly intertwined systems of people and nature.

In dialogue with the Institute's scientific advisory board, we discuss, assess and modify our research programmes to better capture and understand this intertwined world. There are currently four research programmes at the Beijer Institute, all combining important theoretical insights with novel and grounded empirical research. The focus and progress of each are presented under this section.

Aquaculture and sustainable seafood

Programme director Max Troell

The current UN Ocean Decade places ocean science and knowledge at the heart of global ocean action. This programme contributes important insights into more sustainable ocean economies and food systems. Blue food, food derived from aquatic animals and plants, plays a central role in food and nutrition security for billions of people, and constitutes a cornerstone for many livelihoods, economies, and cultures. However, blue foods are highly diverse and supported by a wide range of ecosystems, cultural practices, and production methods. This diversity presents both opportunities for enhancing food system resilience and challenges, raising questions related to sustainability: "what, how, why, and for whom?"

The role of trade for aquatic systems

Aquatic foods are traded on a large scale. In 2020 about 60 million tonnes were exported, making up 11% of the total value of global agricultural trade. However, it's hard to know key details about this trade, such as which species are being traded, their origin, or whether they are farmed or wild caught, since current trade data only partially include this information.

In a study published in *Nature Communication*[1] researchers presented results from a new database on species trade, "The Aquatic Resource Trade in Species (ARTIS) database", which tracks trade in both farmed and wild aquatic foods from 1996 to 2020. It connects data on production, trade, and processing to estimate actual consumption. The ARTIS database covers over 2,400 species or species groups, 193 countries, and over 35 million trade records.

The data show that, over time, aquatic food trade has become increasingly global, with some regions growing more dependent on imported seafood. The ARTIS database enables greater understanding of the role of trade for shaping aquatic food systems and how it can affect food security, resilience, equity and sustainability globally.

> "Redirecting feed ingredients that people can eat directly, rather than using them as fish feed, can improve overall resource use and boost the global food supply."

Diverse perspectives on sustainable seafood

A study published in *Ambio*[2], explored how different stakeholders perceive the concept of "sustainable seafood," emphasizing that sustainability carries different meanings depending on societal, environmental, and economic priorities. The study captured views of 29 key actors across the seafood supply chain in Sweden and Japan, including government, NGOs, retailers, producers, and industry bodies.

Using novel applications of Q-methodology, participants ranked and sorted a series of statements. Country-specific patterns emerged: Sweden tended to emphasise green consumer behaviour, while Japan highlighted community-focused sustainability models such as *satoumi*. The study underscores the importance of recognising diverse values and perspectives in the global pursuit of sustainable seafood systems.

Antibiotics use in aquaculture

The food-animal production sector is the largest user of antibiotics and therefore contributes to the risk of selecting antimicrobial-resistant (AMR) microorganisms. The *Aquaculture and sustainable seafood* programme continues to research antibiotic use in aquaculture and its associated risks. Preliminary estimates indicate that the industry represents 6% of global antibiotic usage. Ongoing work is examining if the aquaculture sector requires special consideration for AMR governance from a One Health perspective.

In a collaboration within SeaBOS (read more on page 27), a paper published in *Aquaculture International*[3], presented a global overview of existing national regulations for antibiotic use in aquaculture.

Additionally work led by Monterey Bay Aquarium involved 56 world experts from academia, NGOs, business, international agencies and governmental institutions. Through a series of workshops they evaluated the current state of knowledge on antimicrobial use in aquaculture production. The study, published in *Antibiotics*[4], highlighted key ecological indicators and thresholds for environmental impact, outlined governance tools needed for monitoring, offered insights into how antibiotic use drives resistance, and suggested possible tools for tracking antibiotics.

A further study, published in the journal *Science of the Total Environment*[5] in collaboration with the University of Stirling, showed that aquaculture is underrepresented in National Action Plans and associated national policy guidance. In the article, the team elaborates on why it is essential that aquaculture is included, and they suggest ways to improve AMR policies. This study is presented in detail on page 19.

The feed challenge

Feed sustainability has long been a key focus of the programme, and this critical topic received notice at the World Aquaculture Symposium 2024 in Copenhagen where the Aquaculture Stewardship Council (ASC) hosted a special panel on feed sustainability. Programme director Max Troell delivered a plenary presentation, setting the stage for discussions with representatives from feed companies.

The presentation drew on recent research shedding light on the feed-food competition limiting global food production efficiency. The study, published in the journal *Food Security*[6], analysed ten different tilapia production systems across eight countries. It highlighted that redirecting feed ingredients that people can eat directly, rather than using them as fish feed, can improve overall resource use and boost the global food supply. However, what is considered "edible" by humans can vary depending on the local context.

While efficient in producing protein, the study found that much of the omega-3 fatty acids and essential micronutrients – such as vitamin B12, calcium, iron, and zinc – are lost during the feed-to-fish conversion process.

SeaBOS Science team meets at the Royal Swedish Academy of Sciences to summarise the 2025 Marholmen Working meeting, 1–4 April.

Back row: Henrik Österblom; Max Troell; Oskar Nyberg; Liz Selig; Madelen Sobkowiak; Robert Blasiak; Shinnosuke Nakayama.

Front row: Vanessa Jaiteh; Jean-Baptiste Jouffray; Colette Wabnitz; Cora Cunningham. Photo: Max Troell.

1 Gephart, J. G. et al. 2024. Globalization of wild capture and farmed aquatic foods. *Nature Communications* 15:8026

2 Blandon, A. et al. 2025. What does "sustainable seafood" mean to seafood system actors in Japan and Sweden. *Ambio* 54:1010–1025.

3 Luthman, O. et al. 2024. Global overview of national regulations for antibiotic use in aquaculture production. *Aquaculture International* 32:9253–9270.

4 Farías, D. R. et al. 2024. Towards Sustainable Antibiotic Use in Aquaculture and Antimicrobial Resistance: Participatory Experts' Overview and Recommendations. *Antibiotics* 13(9):887.

5 Desbois, A. P. et al. 2025. Aquaculture requires special consideration in National Action Plans for Antimicrobial Resistance. *Science of The Total Environment* 958:177785

6 Chary, K. et al. 2025. Competition for human edible feed resources in aquaculture – looking at tilapia farming. *Food Security* 17: 57–72.

Behaviour, economics and nature (BEN)

Programme directors John M. Anderies, Therese Lindahl

The *BEN* programme continues to produce cutting edge research that explores the intricate connections between biosphere dynamics and human behaviour. By linking individual motivators and actions to emergent large-scale behavioural patterns, institutions and sustainability outcomes, BEN research explores alternative pathways toward a sustainable future. Efforts have resulted in some high-quality journal publications this year, along with successful applications, fieldwork, policy interactions and new collaborations.

Stories in the Anthropocene

People tell stories to communicate facts more comprehensively, to persuade others about their opinions, to justify their behaviours, or simply to entertain, to name a few reasons. People pay attention to stories because they can give meaning to events, they signal what is considered acceptable and unacceptable behaviours and they create social bonds. Over the course of human history, shared stories have helped rationalise behaviour, process emotions, and legitimise social structures and institutions. But what can the role of shared stories be, including their plots, the storytellers and the platforms on which they are told, for sustainable development?

> "Over the course of human history, shared stories have helped rationalise behaviour, process emotions, and legitimise social structures and institutions."

To explore this question in an open, vigorous and creative environment, *BEN* hosted an international workshop in June 2025 with invited scholars with different perspectives and expertise on the topic. The meeting format was arranged around informal presentations and discussions and resulted in several ideas and potential collaborative projects that we are eager to continue working with in the year to come.

Cooperation in a complex and adaptive world

The 2024 Askö meeting (see page 37) delved into the topic of collective action. Often advocated as both a problem and a solution to serious sustainability challenges, it has engaged various scholars from different disciplines over decades. For instance, economists and psychologists usually study how people make choices based on what they think they'll gain – like money or social approval. But from a complex adaptive systems (CAS) point of view, collective action develops from the way people and groups interact. Whether it helps or harms the biosphere depends on how these people, their communities, and the rules they follow are connected to the world around them.

A scientific paper was initiated bringing together insights from a CAS perspective on collective action and perspectives of other theoretical frameworks, particularly of traditional and behavioural economics and of psychology. By balancing these different perspectives, the core writing team, led by Beijer Institute chair of the board Elke Weber (Princeton University), aims to explore how we can design environments and share information in ways that make it easier for groups to act together for sustainability.

Emotions, AI and the planet

A recent perspective piece[1], led by Beijer Institute programme director Victor Galaz, and co-authored by *BEN* researcher Caroline Schill and Therese Lindahl, highlights and discusses how digital social networks and advances in AI, may affect the way people perceive and engage emotionally on climate change. Read more on page 20.

In a related collaborative project between *BEN*, the *Governance, Technology and Complexity programme* and the medical university Karolinska Institutet, a team is analysing a pilot study from an experimental investigation. The study aims to explore how different types of emotional content related to climate change commonly found on social media are perceived, who shares them, and whether they can lead to pro-environmental behaviours. After analysing the pilot, the plan is to launch a full experiment.

Avoiding a meltdown of trust

Although trust is essential for economic success and good governance, interconnected mechanisms inherent in weakly governed market economies tend to undermine trust. As a result, people may become alienated and untrusting of fellow citizens and of institutions.

In a recent article in *PNAS*[2], BEN Programme director John M. Anderies with Beijer fellows Stephen Polasky and Marten Scheffer discuss ways in which well-functioning democracies can design institutions to help avoid this social trap, and the much harder challenge of escaping the trap once in it. Read more on page 22.

Community perspectives on climate change in the Arctic

Drastic environmental change is a reality in the Arctic but how local communities experience and respond to these changes is still poorly understood. In January 2025, *BEN* researcher Caroline Schill travelled with Simon West (Australian National University) and PhD candidate Kinga Psiuk (Stellenbosch University) to the Iñupiat community of Wainwright (also known as Ulġuniq in the local language Iñupiaq), located on the Arctic Ocean in Alaska (USA).

Together with the community of Wainwright, the team seeks to identify key environmental concerns and how people are adapting, using a novel combination of methods from interpretive and behavioural social science. In a first fieldwork[3] period in June 2023, using participatory photography, photo elicitation, and interviews (see previous reports) they explored the environmental changes that matter most to the community and the effects these changes are having on subsistence lifestyles. These included thinner and more distant sea ice, shifts in hunting seasons, warmer winters with more frequent storms, and an increase in sick animals. Additionally, they have noticed the effects of erosion, permafrost melting, rising water levels, and pollution.

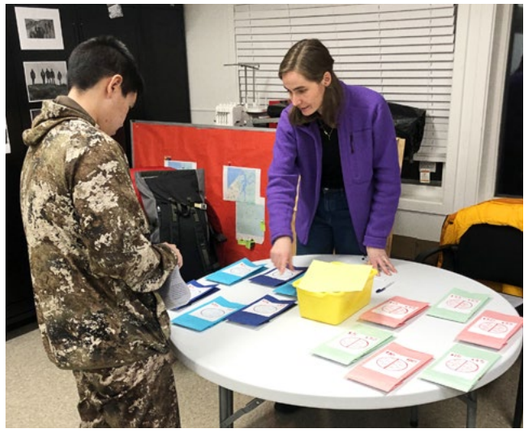
The second phase of fieldwork in January 2025 built on these insights and now 60 community members were engaged. Through a survey experiment, interviews and a risk and ambiguity game, the team further explored concerns about environmental changes, and how different governance scenarios around hunting regulations might impact Wainwright's ability to adapt. This material is now being analysed, and preliminary findings will be shared and discussed with the Wainwright Tribal Council before being submitted to an academic journal.

Read more about this project on page 29. An Instagram story is available at the Stockholm Resilience Center profile.

Participants at the BEN workshop Stories in the Anthropocene. From left to right: Michael Roos, Juan Camilo Cárdenas, Caroline Schill, David Tàbara, Diego Galafassi, Marco Janssen, Maja Schlüter, Anne-Sophie Crépin, Noah Linder, John M. Anderies, Tatiana Filatova and Therese Lindahl.

Good news for the food science-policy interface

The Beijer Institute's partner, the Stockholm Resilience Centre (SRC) at Stockholm University, will host a new Swedish research centre for resilient meals, named PLATE. PLATE will conduct research and foster collaboration to explore the role of meals in enhancing Sweden's preparedness, sustainability, and competitiveness. PLATE is funded with SEK 60 million over four years by Formas, a Swedish government research council for sustainable development.



Caroline Schill conducting fieldwork in Alaska with Wainwright community members. Photo: Kinga Psiuk.

One work package will be led by the Beijer Institute through programme director Therese Lindahl. It will examine the difference between the changes needed and the changes people are currently willing to make in their food consumption habits to align with sustainability, resilience, and contingency planning. The team will explore Swedish consumers' willingness to change dietary habits, accept policy interventions, and contribute personally to contingency planning, for example, by keeping food stocks.

In collaboration with the food industry and policy partners, the team will co-create, implement, and test interventions, aiming to support private and public food sector actors in driving the desired changes.

The work in PLATE builds on previous and ongoing work in the programme Mistra Food Futures (see last year's annual report) with some results published[4,5,6] during the past year.

1 Galaz, V. et al. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4:23.

2 Polasky, S., M. Scheffer, and J. M. Anderies. 2025. Meltdown of trust in weakly governed economies. *Proceedings of the National Academy of Sciences* 122(14):e232052812.

3 The project "Living with the new normal" is funded by Formas with additional funding from Hierta Retzius Foundation Fund for Scientific Research and the Beijer Foundation.

4 Hansson, H. et al. 2024. Mistra Food Futures – Final report phase one. *Mistra Food Futures Report* #25.

5 Lindahl, T., and N. Linder. 2024. What factors influence choosing fish over meat among grocery shoppers? Insights from an unsuccessful nudge intervention. *Ecological Economics* 224:108297.

6 Ran, Y. et al. 2025. Effectiveness of governance interventions in achieving environmentally sustainable dietary behaviours: a review of the evidence. *Environmental Research: Food Systems* 2(3): 032001.

Governance, technology and complexity

Programme director Victor Galaz

The conversation around the role of artificial intelligence (AI) for sustainability and climate action has shifted rapidly over the past year. While earlier discussions in the public domain and media largely focused on AI's positive potential, the past year has seen increasingly critical reporting and debate about the material footprint of the growing AI industry. As we have communicated in the programme explicitly, the use of AI should not be likened to an immaterial "cloud", but instead to a "mine" that requires significant manual labour, water, energy, and mineral resources.

AI for better or for worse

The impacts of increased AI use on our living planet are not only direct, but also indirect and secondary. Digital technologies and platforms infused by AI, such as social media platforms, profoundly influence consumption patterns and the flow of information. What you see online, and who you connect with virtually, is largely shaped by decisions made by opaque AI systems.

But that is only one aspect. As we continue to explore in the programme, together with colleagues from around the world, AI methods are rapidly advancing in development of scientific methods, enabling researchers to analyse vast amounts of data in new ways. This includes not only measurements such as of temperature and land use change, but also video, sound, and text material. It is difficult to predict how AI's influence will shape the prospects for sustainability. The programme has addressed these considerably more complex secondary effects through a range of new publications and collaborations.

As we have outlined in previous years, digitalisation and the growing use of AI have a range of impacts on the spread of misinformation about climate change. More recently, we have explored how the increasing capabilities of generative AI models such as ChatGPT and Gemini, combined with the vast reach of social media, are influencing how people feel about the planetary crisis, which in turn influence action at an unprecedented scale[1]. Read more about this work on page 20. This is a case of highly complex interactions that require further research, a task we are pursuing through our ongoing work on emotions, digital media, and sustainability.

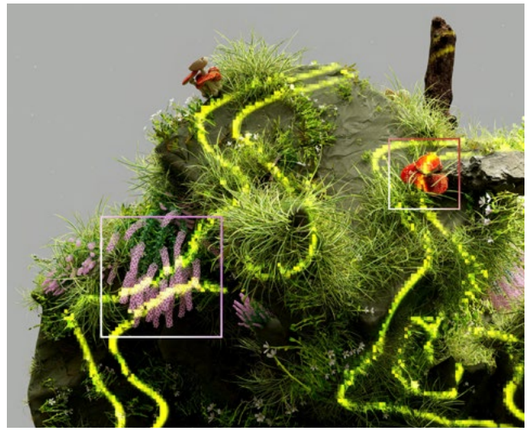


Photo: Nidia Dias, Google DeepMind.

Drew Purves of Google DeepMind, presenting at the January workshop. Photo: Marcus Lundstedt.

Can AI help advance sustainability science?

In January 2025, the programme co-hosted an international workshop in Stockholm to explore the potential of AI to accelerate sustainability research. The workshop was organised in collaboration with Stockholm Resilience Centre at Stockholm University, the Potsdam Institute for Climate Impact Research (PIK), Germany, and Google DeepMind. The outcomes of the workshop will be presented in a synthesis report, to be launched in Brussels in mid-September 2025. Our ambition is to provide an informed and balanced perspective on the extent to which different AI methods can support inter- and transdisciplinary research that benefits people and planet.

1 Galaz, V. et al. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4:23.

2 Galaz, V. 2025. *Dark Machines: How Artificial Intelligence, Digitalization and Automation is Changing our Living Planet*. Routledge.

3 Gaffney, O. et al. 2025. The Earth alignment principle for artificial intelligence. *Nature Sustainability* 8:467–469.

4 UNDP (United Nations Development Programme). 2025. *Human Development Report 2025: A matter of choice: People and possibilities in the age of AI*. United Nations Development Programme, New York, USA.

As part of the collaboration with the ClimateIQ project at New York University, programme researchers are also continuing to explore the ethical dimensions of using AI models to predict and adapt to urban climate risks. Our research in this area aims to unpack the practical implications and develop recommendations for the responsible use of tools such as Large Language Models to communicate climate risks in ways that are both effective and robust.

Regulating AI

A critical challenge lies in the regulation of AI. In a new book[2], programme director Victor Galaz argues that this will likely require polycentric and adaptive approaches, that is, connecting actors and institutions across multiple levels of society, while accounting for the evolving nature of both AI technologies and our planet. Read more about the book on page 23.

The topic of regulation is also explored in an article in *Nature Sustainability*[3], where programme researchers joined a call to guide the development and use of AI through "Earth alignment" principles, designed to support, rather than undermine, sustainable development for all. As AI becomes increasingly embedded in technologies, economic activity, and people's everyday lives, the need to provide clear and responsible direction becomes ever more urgent.

The proposed principles include:

1. Accelerating the transition to sustainable production and consumption in ways that respect planetary boundaries or at least do not obstruct them.
2. Ensuring equitable access to AI tools for global sustainability, while preventing the concentration of power, particularly in low-income regions.
3. Fostering social cohesion and trust and ensuring access to reliable information for planetary stewardship.

This work is a key outcome from programme participation in the Nobel Symposium *Truth, Trust, and Hope* held in 2023 at the National Academy of Sciences in Washington D.C.

Technological acceleration and the rising nuclear arms threat

The programme has also begun to explore another technological development that poses multiple risks to both people and planet – the use of nuclear weapons. The year 2025 marks the 80th anniversary of the atomic bombings of Hiroshima and Nagasaki. There is growing recognition among both policymakers and scholars that the risks of nuclear weapons use have increased in recent years, driven by escalating geopolitical tensions in Europe following Russia's invasion of Ukraine, shifts in foreign policy during the second Trump administration, and heightened tensions between the nuclear powers India and Pakistan.

The growing threat of nuclear weapons use is often viewed as separate from the challenges of the Anthropocene and the risks associated with climate change. We are keen to explore this interface and, on 12 May 2025, organised our first international workshop at the Royal Swedish Academy of Sciences in collaboration with the Stockholm International Peace Research Institute (SIPRI) and the Anthropocene Laboratory. The hybrid workshop, *Converging Risks – Unpacking the Interplay Between Climate Change and Nuclear Weapons Risks*, brought together colleagues from Japan, the United States, the Marshall Islands, Fiji, and Australia. Our ambition is to publish a perspective article examining the interconnections between technological change, nuclear weapons risks, and biosphere-based sustainability.

We are also pleased to have received funding from the foundation *Till Bröderna Jacob och Marcus Wallenbergs minne* to host a larger international symposium on this topic in 2026.

Informing global policy

We are delighted that our work has contributed to the 2025 *Human Development Report*[4] – a key global agenda-setting publication by the United Nations Development Programme. This year's report focuses on how AI may reshape the prospects for human development across the world. Victor Galaz was invited to present the programme's research to the report's author team, a further indication that the programme's work is making an international impact on critical societal issues.

> "As AI becomes increasingly embedded in technologies, economic activity, and people's everyday lives, the need to provide clear and responsible direction becomes ever more urgent."

Castle Bravo nuclear test, conducted by the United States at Bikini Atoll, Marshall Islands in 1954. Photo: Royal Astronomical Society.

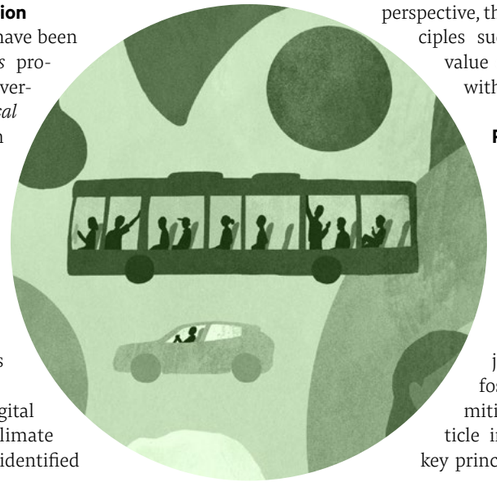
Urban social-ecological systems

Programme director Johan Colding

The role of urban form in enhancing the social-ecological resilience of cities has attracted significant attention in recent years. The *Urban social-ecological systems* programme contributes to the emerging discourse on urban resilience, specifically focusing on how elements such as urban form, institutions, new digital technologies and green urban infrastructure, can foster human well-being and contribute to the development of resilient cities. The programme recognises the importance of considering not only physical aspects but also social and institutional dimensions to create sustainable and resilient urban environments.

Elements of a fair climate transition

Over the past year, key activities have been carried out within the *Fairtrans* programme, coordinated by the University of Gävle. *Urban social-ecological systems* programme director Johan Colding leads a work package focusing on promoting a fair climate transition through inclusive digitalisation, collective action, and public acceptance. The research primarily addresses three core areas: digital inequalities, the emergence of Community Climate Commons, and attitudes toward behavioural change.



Building on earlier work on digital divides that hinder inclusive climate governance, a systematic review[1] identified equity, participation, social capital, and well-being as the four most central aspects of building social sustainability in urban areas. While these factors may shift over time in response to external events, they remain essential considerations in the governance of social-ecological systems.

> "people's willingness to accept changes in areas such as energy use, travel, and food, depends significantly on their perceptions of fairness, the presence of compensation mechanisms, and their level of trust in institutions"

To deepen the understanding of *fairness* in climate transitions, a Fairtrans research circle brought together scholars to explore issues of distributive and procedural justice. Their work resulted in a report[2] where a key insight was the importance of transformation narratives that frame lifestyle changes as a form of liberation rather than sacrifice, which encourage democratic participation from the ground up. From a policy perspective, this aligns well with resilience principles such as self-organisation and the value of involving diverse stakeholders with different knowledge systems.

Paths to get there

A key innovation within the Fairtrans work package has been the development of the concept *Community Climate Commons* (CCC). CCCs refer to locally organised initiatives, such as collectively managed solar and wind parks, urban greening projects, or coworking hubs, that foster civic engagement in climate mitigation and adaptation. In an article in *Sustainable Development*[3] four key principles were identified for effective climate commons: democratic leadership, small-scale organisation, social capital, and external support.

The authors propose that such commons be integrated into national and international climate policies, as they provide valuable arenas for strengthening social-ecological community resilience, grounded in democratic values.

Researchers in the work package have also examined public attitudes toward climate policy through two surveys – one international (Ipsos) and one national (Skop). The results revealed that people's willingness to accept changes in areas such as energy use, travel, and food, depends significantly on their perceptions of fairness, the presence of compensation mechanisms, and their level of trust in institutions. The surveys also explored attitudes toward wind and nuclear energy, particularly in relation to proximity and compensation. These findings, published in the journal *Climate*[4] offer new insights into how socially acceptable transitions can be effectively designed.

Strategies to reduce energy use in industry

An article *Nature Communications*[5] examined the social construction of energy management in industry, expanding the programme's research scope. While energy efficiency is essential for mitigating climate change, the study emphasizes that effective energy management depends not only on technical solutions but also on social dynamics.

The article outlines nine socially constructed approaches to energy management, highlighting the need to address operational practices, industrial processes, and knowledge sharing. By adopting these broader strategies, both corporations and policymakers can significantly reduce industrial energy use, potentially lowering global industrial fossil CO_2 emissions by at least 5%.

Research collaborations

Over the years, the *Urban social-ecological systems* programme has fostered new cross-disciplinary partnerships, particularly between social science and sustainability science. It has also formed national collaborations with institutions at Uppsala University, the University of Gothenburg, Chalmers, and KTH Royal Institute of Technology. On an international level, the research has involved co-authorships with researchers including MIT (USA), ISGlobal (Spain), Shanghai Jiao Tong University (China), Indiana University (USA), and the University of Tokyo (Japan).

One outcome of these collaborations is an anthology on the principles of social-ecological urbanism, which is under development, co-edited by researchers within the *Urban social-ecological systems* programme. The goal is to share ongoing work in urban sustainability with a new generation of scholars in sustainability science.

The programme also hosted two major symposia in December 2024: a national event focused on "energy communities" and an international conference on social mobilization for a fair transition (ISUS), both held at the University of Gävle.

Award-winning research

A paper highlighted in last year's annual report – *Contribution of Prioritized Urban Nature-Based Solutions Allocation to Carbon Neutrality*, published in *Nature Climate Change* – has been honored with the prestigious Frontiers Planet Prize for its impact in advancing planetary solutions. The paper offers actionable insights for policymakers and urban planners working to integrate nature-based solutions (NBS) into effective climate action strategies. Read more on page 23.

Programme director retires

After many years of dedicated leadership, Johan Colding, founder and director of the *Urban Social-Ecological Systems Programme*, has retired. Johan extends his heartfelt thanks to the Beijer Institute, the University of Gävle, and the Stockholm Resilience Centre for years of support, collaboration, and a shared vision.

Photo: Eryk Piotr Munk, Unsplash.

1 Nilsson, C. et al. 2024. Navigating Complexity with the Four Pillars of Social Sustainability. *Sustainable Development* 32(6):5929-5947.

2 Sjöberg, S. et al. 2024. Vad är en rättvis klimatomställning? (What is a fair climate transition?) *Fairtrans Report*, University of Gävle.

3 Nässén, N. et al. 2025. Community climate commons for collective climate action. *Sustainable Development* 33(2):2078–2095.

4 Lindvall, D. 2024. The Role of Fairness for Accepting Stricter Carbon Taxes in Sweden. *Climate* 12:170.

5 Thollander, P. et al. 2025. Advances in the social construction of energy management and energy efficiency in industry. *Nature Communications* 16:4075.

Some areas of research at the Beijer Institute are conducted outside the research programmes. This may occur for instance when the research is relevant for several research programmes or is in the form of early investigations into a new field that may develop into a research programme in the future. To highlight these and how they fit within our general research agenda, they have been collected under the section Topics.

Anthropocene

In the Anthropocene – the age of humankind – the magnitude, speed, scale, and connectivity of the human dimension are unprecedented in Earth's history. Humanity and our actions have become the dominant force shaping the evolution of life on the planet. All aspects of our lives, including social conditions, health, culture, democracy, power, justice, inequality, and security, are intertwined with the Earth system and embedded within its biosphere, forming a complex and dynamic web of local, regional, and global interactions and dependencies.

Climate migration calls for global cooperation

Migration, mainly from the Global South to the Global North is likely to increase in the wake of climate change in combination with geopolitical turbulence, as worsening conditions, not least for agriculture, drive people to seek better opportunities. According to the IPCC, entire populations risk becoming permanent climate migrants. At present, international cooperation in addressing distress migration is insufficient, prompting growing calls for reform.

In a *Commentary* published in *One Earth*[1] by Beijer Fellow Marten Scheffer and colleagues, including Carl Folke and several other Beijer Fellows, argue that the time is ripe for global collaboration on mobility. They stress that smoother integration will require a comprehensive revision of the food system, mobility policies, and social integration strategies.

Gastronomy in service of the Biosphere

The importance of biosphere stewardship for human wellbeing in the context of food system stewardship was the focus of a paper in *Global Food Security*[2], led by Amanda Jonsson (Stockholm Resilience Centre). Using the lens of gastronomy, the authors explore how culinary craftsmanship and innovation can play a pivotal role in promoting biosphere stewardship. They argue that gastronomy holds the potential to foster more biocultural, diverse, and resilient landscapes. This is yet another example of the dynamic and productive collaboration between Stockholm Resilience Centre (SRC) and the Beijer Institute in addressing the pressing challenges of the Anthropocene.

> "Humanity and our actions have become the dominant force shaping the evolution of life on the planet."

Crises in the Anthropocene

The role of shocks in the Anthropocene is the focus of two special issues currently in progress. The first, *Natural Disasters and Resilience* in the journal *Ecological Economics*, is edited by the Beijer Institute. The second, *Polycrisis in the Anthropocene*, is

1 Scheffer, M. et al. 2024. Anticipating the global redistribution of people and property. *One Earth* 7(7):1151-1154.

2 Jonsson, A. et al. 2024. Nurturing gastronomic landscapes for biosphere stewardship. *Global Food Security* 42: 100789.

Arctic char, Greenland.

forthcoming in *Global Sustainability*, with Carl Folke serving as one of the editors. The concept of polycrisis is also central to the work of the fourth cohort of Beijer Young Scholars, as reported on page 24.

Collaboration with the Anthropocene Laboratory

Naturally, the close collaboration with the Academy's Anthropocene Laboratory is highly significant in the context of the challenges of the Anthropocene. Researchers from the Beijer Institute and Beijer Fellows contribute actively to mentoring post-docs, workshops and publications centred on the two current meta-themes: *Empirics of Hope* and *Intertwined Biosphere*.

Biosphere economics

Biosphere economics focuses on the intertwined dynamics between nature and society at the interface between the biosphere and the economy. Biosphere economics is pervasive to most of the research undertaken at the Beijer Institute. Here we highlight activities where these aspects were prominent this year.

Social-ecological systems in the Arctic

The Beijer Institute is engaged in two projects with a shared systemic focus: both aim to develop methods for describing and analysing social-ecological connections in the Arctic, to inform decision-making under high uncertainty. One project examines the impacts of climate change on fish, shellfish, and their fisheries in the Atlantic and Pacific Arctic shelf seas, with an emphasis on systemic interactions. Led by Sturla Kvamsdal of Samfunns- og næringslivsforskning (Norwegian School of Economics) and funded by the Norwegian Research Council, it recently featured at the European Association of Environmental and Resource Economists conference in Bergen, Norway (June 2025).

At the conference, Xiurou Wu presented a manuscript on methods for social-ecological systems analysis and management in Arctic and sub-Arctic seas (lead author Anne-Sophie Crépin), a collaboration with the MARAT project led by former Beijer Young Scholar Juan Rocha (SRC). Kvamsdal presented research on Barents Sea crab prices, co-authored with Crépin and Wu.

Economics and regime shifts

The EAERE 24, the 29th Annual Conference of the European Association of Environmental and Resource Economists, took place in Leuven, Belgium, in July 2024. Deputy Director Anne-Sophie Crépin delivered a keynote on managing the risks of abrupt environmental change while sustaining long-term wellbeing. Drawing partly on a paper in *International Review of Environmental and Resource Economics*[3], she discussed the management of ecological and Earth system tipping points, from coral bleaching and fishery collapse to the loss of the Amazon rainforest, Greenland ice sheet, or Indian summer monsoon.

Crépin examined how to model such thresholds, the management challenges they pose, and whether they warrant a precautionary approach. She also presented behavioural experiments on people's responses to tipping points, highlighting the need for innovative strategies to protect ecosystem and societal resilience.

While tipping points and spatial heterogeneity have attracted considerable attention in economics, research combining these two complex phenomena remains limited. At a modelling workshop at the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria (November 2024), Anne-Sophie Crépin presented work modelling spatial links between ecosystems providing services such as pollution absorption or natural resource production. This project with Juan Rocha and Beijer Institute researcher Amare Hailu, examines how these connections might mitigate or exacerbate regime shifts, and the options for management interventions.

The talk prompted a new collaboration with Florian Wagener (University of Amsterdam) on managing weakly connected ecosystems. Surprisingly, such cases appear easier to manage despite the general complexity of the problem. Crépin presented this new manuscript at the EAERE conference in Bergen, mentioned above.

3 Li, C.Z., A-S. Crépin, and T. Lindahl. The economics of tipping points some recent modelling and experimental advances. *International Review of Environmental and Resource Economics* 18(4):385-442.

Project member Maike Hamann presenting at the *Inequality and the Biosphere* seminar in May 2025.

Inequality and the biosphere

Initiated within the second Beijer Young Scholars group in 2016, the *Inequality and the Biosphere* project starts from the premise that reducing societal inequalities and maintaining healthy marine and terrestrial ecosystems are both vital for sustainable development. The project, funded by Formas, seeks to identify synergies and trade-offs between reducing inequalities and safeguarding the biosphere.

On 12 May 2025, the project held a public seminar at the Royal Swedish Academy of Sciences on the intertwined nature of inequality and the biosphere, in collaboration with the Beijer Institute and the Stockholm Resilience Centre at Stockholm University. The purpose of the seminar was to discuss and encourage a deeper understanding of inequality, not only as a socio-economic issue, but as one entangled with the climate and ecological crises we face.

Keynote speaker Lucas Chancel (Sciences Po; Co-Director, World Inequality Database) presented global evidence showing inequality as a driver, not just a consequence, of environmental harm. This was followed by a panel discussion, moderated by Tracie Curry, with project team members Juan C. Rocha (Stockholm Resilience Centre) and Yolanda López-Maldonado (Indigenous researcher), Anna Jöborn (CEO, Mistra), and Lucas Chancel. They further explored the relationships between inequality and biosphere stewardship, with a particular focus on the connections between prosperity, inequality, and environmental challenges. A full recording is available at kva.se.

Panel discussion at the *Inequality and the Biosphere* seminar in May 2025.

Following the seminar, the project team hosted two related roundtable dialogues engaging public and private stakeholders, including WWF, Oxfam, and corporate representatives. These sessions encouraged reflection on the links between inequality and the biosphere and promoted collaborative learning across sectors.

At the third conference of the Programme on Ecosystem Change and Society (PECS) – *Pathways to Sustainability* – in Montréal, Canada, in August 2024, project member Maike Hamann (University of Exeter) presented an overview of the project. She highlighted work carried out at different scales – from tracing the effect of palm oil certification on local mills in Indonesia, to exploring patterns of the sustainability trilemma at the global level (see highlighted publication in last year's report).

Digitising aerial photographs to study global environmental change

For many developing countries, reliable sub-national economic data only exist from 1990, while measures of environmental change are widely available only since the advent of modern satellite imagery. A project led by Beijer Institute economist Anna Tompsett, in collaboration with Andreas Madestam at Stockholm University, Solomon Hsiang at Stanford University, and Hannah Druckenmiller at Caltech, is digitising, processing, and making accessible 1.7 million aerial photographs from the developing world, dating back to the late 1930s, assembled by the former British international mapping agency, the Directorate of Overseas Surveys.

Beyond assembling georeferenced mosaics that can be straightforwardly compared to modern imagery, the team is developing new machine learning approaches to convert the images into structured analysis-ready datasets that measure land use change, urbanisation, population density and wealth. Overall, the project extends the time span for studying global environmental change in remotely-sensed data by more than 30 years (over 50%).

All outputs, including mosaicked, georeferenced imagery and data, will be freely available for non-commercial users under Creative Commons licensing. These unique data will help answer unresolved questions on the drivers of long-run growth and the links between development and the environment, with applications ranging from geology and archaeology to ecology and climatology. Academic publications from the project are expected in the coming year.

Aquaculture is overlooked in plans combating antimicrobial resistance

Antimicrobial resistance (AMR) is a global health crisis that threatens humans and animal wellbeing and with unknown environmental effects. Despite this, aquaculture is excluded from a third of the National Action Plans (NAPs) that countries are developing to address the problem. Researchers now argue that the aquaculture sector should, in fact, receive extra attention, as it differs from other forms of food production in ways that could pose a greater risk of spreading AMR.

NAPs outline the approaches each country will take to tackle AMR and are developed under the joint guidance of the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the World Organisation for Animal Health (WOAH), and the UN Environment Programme (UNEP). They specify that all antimicrobial users and sectors should be included and promote a "One Health" approach, which recognises the interconnected health of humans, animals, and the wider environment, and emphasises collaboration across disciplines and sectors to address health threats such as AMR.

> "Aquaculture poses a particular challenge, as its location in and use of water increase the risk of spreading resistance to humans"

Yet, according to a new paper in *Science of the Total Environment* by Andrew Desbois (University of Stirling, UK) and colleagues, including Beijer Institute affiliated researcher Patrik Henriksson (Leiden University) and programme director Max Troell, aquaculture remains underrepresented in many NAPs despite its rapid growth, diversity and significant antibiotic use. The antibiotic use in aquaculture is estimated to 6% of the world's total and with per biomass usage for some species exceeding that of terrestrial livestock.

"Aquaculture poses a particular challenge, as its location in and use of water increase the risk of spreading resistance to humans, a risk that is more prevalent in regions with many small-scale farms embedded in densely populated landscapes," explains Max Troell. Water, medicated feed, contaminated organic fertiliser, all forms of waste, and fish used as feed or food can all be sources of residues and genes. Rivers and seas provide open pathways for their transmission over potentially vast distances.

The paper identifies several reasons for this underrepresentation: the complexity and diversity of the aquaculture sector, with more than 450 species farmed globally, in systems ranging from open ponds to closed recirculation facilities. Other reasons are rapid evolution outpacing regulatory oversight, and limited capacity in aquatic animal health services. Data collection is also patchy, with large gaps in usage and resistance monitoring.

"Impacts and risks of AMR in aquaculture have generally received less attention than in human health care and farmed terrestrial animals, partly because fewer zoonotic species affect aquatic animals, and terrestrial food animals provide a more direct route for resistant microorganisms to harm humans." argues Patrik Henriksson, adding: "However, this organism-focused view overlooks the role of the environment in AMR, where resistance genes can be transmitted through horizontal gene transfer, that is, between organisms other than by the 'vertical' transmission of DNA from parent to offspring."

International trade further increases the stakes. In 2020, around a third of global aquatic animal production was exported, with products often crossing continents. This means that resistant bacteria and resistance genes selected in one location can be disseminated worldwide.

Aquaculture in Vietnam.

Desbois and colleagues call for the next generation of NAPs to integrate aquaculture fully and effectively. This would mean recognising the diversity of species and systems, engaging stakeholders across the value chain – from farmers and veterinarians to feed suppliers and processors – and aligning national policies with international monitoring and biosecurity standards. They also advocate improved data collection, targeted biosecurity measures, and well-resourced interventions tailored to different production contexts.

Desbois A. P., L. A. Brunton, P. J. G. Henriksson, O. Luthman, M. Troell, and D. M. Green. 2025. Aquaculture requires special consideration in National Action Plans for Antimicrobial Resistance. *Science of The Total Environment* 958:177785.

AI and social media can influence how we feel about climate change

Emotions set humans apart from the increasingly human-like AI and robots we have created, perhaps a reassuring thought as technological development accelerates. However, AI and digital social networks still influence our emotions, impacting how we tackle one of the defining issues of our time: climate change. New research explores how these technologies may shape our emotional responses, perceptions, and actions on the climate crisis.

A perspective piece, published in *npj Climate Action*, highlights that AI-driven recommender systems, generative AI, and social bots play a growing role in shaping emotional responses to climate issues. Social media, powered by AI, rapidly spreads climate-related information, such as news about extreme weather events, leading to heightened collective emotions like fear, anger, and hope. These emotions can spur action, such as protests and policy advocacy, but can also contribute to polarisation, the spread of misinformation, and the reinforcement of climate denial, according to the team behind the study, which includes several Beijer Institute researchers.

Photo: Jezael Melgoza, Unsplash.

Amplifying emotions with AI

"Emotions shape everything from public support for climate policies to individual actions like reducing carbon footprints or support to climate policies" says lead author Victor Galaz, programme director at the Beijer Institute and Associate Professor at Stockholm Resilience Centre at Stockholm University.

Feelings do not develop in isolation, they are shaped by social interactions and cultural norms, embedded in a changing socio-technological context. For example, social media has altered the scale and nature of social networks, allowing emotions and the behaviours they induce to spread rapidly in large social groups.

"With AI infused digital social networks, these emotions can now be amplified or manipulated at an unprecedented scale." Victor Galaz adds.

Moreover, AI-powered tools, such as recommender systems and social bots, amplify emotionally charged content, potentially reinforcing biases or fuelling misinformation. Generative AI adds another layer by creating personalised and emotionally engaging synthetic content, raising concerns about emotional manipulation and the ethical implications.

Research frontiers

The authors call for further research into the long-term psychological and social effects of AI-driven climate emotions, identifying three key areas:

First, there is a need to further explore if and how emotions induced or amplified by digital media translates into climate strategies and actions, and how long these behavioural effects last.

> "Emotions shape everything from public support for climate policies to individual actions like reducing carbon footprints or support to climate policies"

Second, there is an urgent need to advance new methods and multidisciplinary approaches to unpack the complex connections between emotions and behaviour mediated by AI technologies, as algorithmic effects are far from straightforward to isolate.

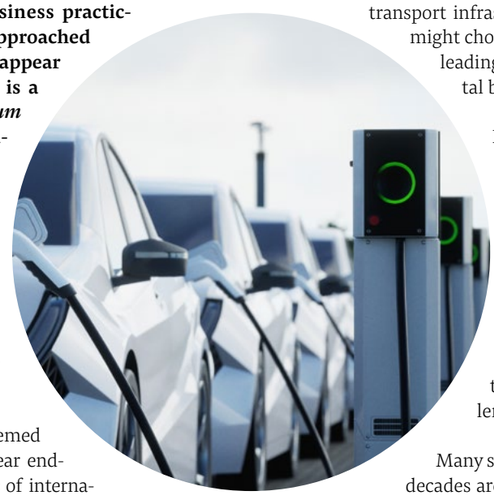
Third, any attempt to leverage emotional AI technologies to support climate action must carefully consider their complex legal and ethical implications, as it could be seen as a form of psychological manipulation, particularly if individuals are not aware of the technology's use.

"Seeing that the technologies capable of affecting our emotions are developing rapidly, we hope that this overview offers new entry points into why this is both an important and urgent undertaking, as well as identifying new, unexplored research areas", concludes co-author Therese Lindahl, Beijer Institute programme director.

Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A.J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4:23.

Government subsidies may lock in unsustainable practices

Government subsidies for business practices and processes should be approached with caution, even when they appear environmentally friendly. This is a central message in a *Policy Forum* in the journal *Science*. The authors argue that subsidies can alter market forces in ways that may lead to unintended consequences.



Harmful subsidies risk persisting over time and can undermine the effectiveness of those intended to promote environmental sustainability.

Therefore, when subsidies are deemed necessary, they should include clear end-dates, advise the authors, a group of internationally leading economists, ecologists, geographers, psychologists, and other scientists who convened for the Beijer Institute's annual Askö meeting in 2022, in Sweden.

"We've got this odd juxtaposition of trying to get rid of subsidies in some sectors, and then ramping up subsidies in others", says lead author, Beijer Fellow Kathleen Segerson, Professor of Economics at the University of Connecticut. "The question that interested me was: is this a good thing or a bad thing?"

> "Subsidies are often viewed as quick solutions, but they can entrench unsustainable practices if not carefully designed."

Money well spent?

Subsidies can be powerful tools for advancing environmental and sustainability goals, the authors argue. They can also offer a more politically feasible route to change than introducing new legislation or taxes. However, the authors caution that some subsidies, while appearing to promote sustainability, may have unintended negative spillover effects.

Take the case of electric vehicles (EVs). Transitioning from petrol-powered cars to EVs does reduce greenhouse gas emissions. However, when subsidies make EVs and their associated technologies more affordable, the market tends to expand, resulting in more cars being produced and increased traffic. If, instead, subsidies were directed towards improving public transport infrastructure and access, more people might choose to give up their cars altogether, leading to a far greater net environmental benefit.

Beijer Institute Director Carl Folke, co-author of the article, emphasises the long-term implications of subsidies: "Subsidies are often viewed as quick solutions, but they can entrench unsustainable practices if not carefully designed. The real challenge is to ensure they promote genuine resilience and sustainability, rather than locking us into the very problems we are trying to solve."

Many subsidies that have been in place for decades are widely recognised by economists and environmentalists as actively contributing to climate change and biodiversity loss. For example, G20 leaders pledged more than ten years ago to phase out inefficient fossil fuel subsidies, yet estimates suggest that global subsidies still amounted to $1.3 trillion in 2022. This is largely due to vested interests and political pressure from corporations that benefit from such subsidies.

How to avoid drawbacks

From an economic efficiency perspective, it's often better to tax activities that generate negative effects, such as a carbon tax, but such measures can be politically challenging to implement.

Still, subsidies can be useful tools, and the authors advice policy makers to incorporate strategies to prevent the lock-in of unsustainable practices when designing and applying subsidies. This includes regular evaluations and the use of clear time limits or phase-out mechanisms. Additionally, subsidy policies should consider the impacts on vulnerable groups to minimize resistance to change.

Co-author and Beijer Institute programme director Therese Lindahl concludes:

"The pressing need to tackle climate change and protect biodiversity highlights how crucial it is to have smart subsidies that can be adjusted or ended when needed. This approach can drive the transformative changes we need without getting stuck in inefficient practices."

Segerson, K., S. Polasky, M. Scheffer, U. R. Sumaila, J. C. Cárdenas, K. Nyborg, E. P. Fenichel, J. M. Anderies, S. Barrett, E. M. Bennett, S. R. Carpenter, B. Crona, G. Daily, A. de Zeeuw, J. Fischer, C. Folke, N. Kautsky, C. Kremen, S. A. Levin, T. Lindahl, M. L. Pinsky, A. Tavoni, B. Walker, and E. U. Weber. 2024. A cautious approach to subsidies for environmental sustainability. *Science* 386(6717).

Trust keeps the economic wheels turning, but must be nurtured

A well-functioning society requires well-functioning institutions that ensure prosperity, fair distribution of wealth, social participation, security, and informative media. Such institutions are built on a foundation of trust. A study in *PNAS* warns that weakly governed market economies risk a "meltdown of trust" that can destabilise societies, undermine prosperity, and make solving global challenges nearly impossible.

The paper, by Beijer Fellows Stephen Polasky (University of Minnesota), Marten Scheffer (Wageningen University), and Beijer Fellow and Institute programme director John M. Anderies (Arizona State University), argues that trust is essential for economic success and effective governance.

> "For example, as consumers, we trust that we will receive the goods and services we are paying for."

"We are all so highly dependent on the performance and cooperation of others, and this dependence is so basic to the functioning of the economic system, that the deep level of trust this requires goes almost unseen", they write.

For example, as consumers, we trust that we will receive the goods and services we are paying for. Similarly, vendors trust that there is money behind the payment method consumers are using.

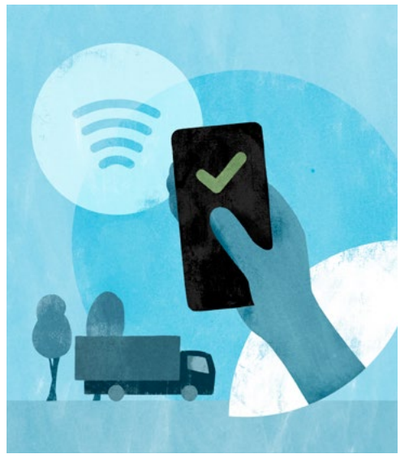
"Absent of such trust, modern economies, built on exchange among countless individuals, most of whom do not know each other, would seize up and cease to function", the authors claim.

"Moreover, trust is important in promoting collective action and providing shared infrastructures. Trust is the lubricant that enables people to collaborate and cooperate", says John M. Anderies and continues: "There's a virtuous cycle there that you can get into when society says, 'Hey, we have a win here. We got together, and we fixed this problem. Let's do it again.'"

While collaborative action thrives on trust, inequality can erode even a perceived strong foundation. According to the authors, governed market economies are prone to several factors that undermine the trust that they depend on: the intrinsic tendency for inequality to arise, modern media's (with emphasis on social media's) inclination to incite reactions by amplifying perceived inequalities, and the incentive to gain financial reward at the expense of others.

These processes instead risk triggering a "vicious cycle" of distrust, political polarisation, and declining economic performance. Nordic democracies are put forward as examples of how inclusive institutions and equitable prosperity can maintain high trust over decades.

"There's this interplay between trust and the economy, and it's a feedback structure. A loss of trust leads to a decline in the quality of governance, less capacity for collective action, collaboration and providing public infrastructure, which then decreases economic performance, which further erodes trust", Anderies elaborates.



The paper warns that once trust collapses, recovery is slow and politically difficult, as entrenched elites resist reforms. On a positive note, past experiences show that broad-based reform movements can reverse such decline. One example being the "progressive era" in the USA, referring to the period around 1890–1920 characterised by social and political reform efforts.

The authors call for deliberate governance strategies: reducing inequality, promoting social cohesion, ensuring fact-based media, and rewarding prosocial behaviour. Without such interventions, they caution, weakly governed economies risk locking into low-trust traps that threaten democracy, economic stability, and the ability to address existential crises like climate change.

Acknowledgement: Parts of this text are borrowed from a web news piece by Arizona State University, written by O'Hara Shipe.

Polasky, S., M. Scheffer, and J. M. Anderies. 2025. Meltdown of trust in weakly governed economies. *Proceedings of the National Academy of Sciences* 122(14):e232052812.

AI, digitalisation and the planet

In a new book, programme director Victor Galaz explains how Artificial Intelligence (AI) and digitalisation are shaping our planet and the risks posed to society and environmental sustainability.

"I felt that the discussions on AI and sustainability were highly simplistic – it lacked a proper systems view, it failed to acknowledge the deep influence of power and politics, and the discussions did not include the living planet in all its complexity", says Victor Galaz, who is also associate professor at Stockholm Resilience Centre at Stockholm University.

As the pressure of human activities accelerates on Earth, so too does the hope that digital and artificially intelligent technologies will be able to help us deal with dangerous climate and environmental change. The book *Dark Machines* explores why such an assumption is naïve and dangerous, exploring why AI and associated digital technologies instead may lead to accelerated discrimination, automated inequality, and augmented diffusion of misinformation, while simultaneously amplifying risks for people and the planet.

Galaz elaborates: "We are already seeing the material footprint of a growing AI-industry, of hardware, and the energy and water costs of AI-compute. We should also be concerned about how generative AI, with its ability to create highly convincing synthetic images, video and sound, is contributing to the increased diffusion of false climate information."

The book conveys the message that of a profound challenge: either allow AI to accelerate the loss of resilience of people and our planet or act forcefully in ways that redirects its destructive direction.

"Steering technological change will always be a matter of combining technological, political and social ingenuity," says Victor Galaz: "There are technical ways to reduce harm, like energy efficient AI, or better recommender systems or filtering misinformation. But in the end, steering AI towards biosphere-based sustainability will require moving from self-regulation to legal and economic measures that push the industry to measure and cut its ecological and carbon footprint."

Working with the book, mainly aimed at students and the broader research community, made him even more aware of how deeply affected all aspects of our lives are influenced by digital technologies:

"There is an urgency for sustainability scientists to engage critically with AI – as a research method, as a growing industry, and as new political actors shaping policy all over the world", concludes Galaz.

Galaz, V. 2025. *Dark Machines: How Artificial Intelligence, Digitalization and Automation is Changing our Living Planet.* Routledge.

Frontiers Planet Prize 2025

The article *Contribution of prioritized urban nature-based solutions allocation to carbon neutrality*, published 2023 in *Nature Climate Change* and co-authored by Beijer Institute programme director Johan Colding has been awarded the Frontiers Planet Prize 2025.

The motivation reads: "As cities continue to grow and face escalating climate challenges, embracing Nature-Based Solutions offers a pathway to sustainable urban development that benefits both people and the planet."

Nature-based Solutions (NBS) are actions to address societal challenges through the protection, sustainable management and restoration of ecosystems.

The winning article shows how cities can leverage NBS as a core strategy to meet environmental targets, not only by carbon sequestration, but importantly by promoting pro-environmental habits.

The awarded article was an interdisciplinary group effort by researchers from China and Sweden. The Frontiers Planet Prize is awarded to research with the greatest potential to address the ecological crisis, and co-ordinating author Zahra Kalantari, professor in Environmental Science and Engineering at KTH Royal Institute of Technology, was awarded one million dollars for continued research.

"I am deeply honoured to be part of this award", says Johan Colding. "It sheds light on a crucial issue: how we design our cities truly matters. We will never achieve climate-neutral cities through technology alone. Nature must be part of the equation."

"It's not just about how much carbon dioxide trees, parks, and other nature solutions can capture. It's also about all the other benefits nature gives us: cooler streets, cleaner air, greater well-being, and better public health."

Pan, H., J. Page, R. Shi, C. Cong, Z. Cai, S. Barthel, P. Thollander, J. Colding, and Z. Kalantari. 2023. Contribution of prioritized urban nature-based solutions allocation to carbon neutrality. *Nature Climate Change* 13:862–870.

A network for collaboration

The Beijer Young Scholars (BYS) Programme was started in 2012 with the aim of creating international network of early-career researchers and stimulating the emergence of new research paths and new ways of interdisciplinary collaboration on global sustainability topics. Conducting collaborative, integrative and interdisciplinary research is a time-consuming endeavour that is not always well recognised in the academic incentives system. One important aim of the BYS programme is to facilitate and provide space for such research.

19–23 May 2025, the fourth cohort of Beijer Young Scholars reconvened for their second annual retreat, reuniting for five days of collaboration, reflection, and renewed momentum. Below Louis Delannoy share his experience of the workshop:

"The meeting began at the Beijer Institute in Stockholm with an introduction from Carl Folke and the unveiling of the *Shock Tracker*, an innovative new tool developed by BYS IV member Emmy Wassénius (Stockholm Resilience Centre). The group then returned to the island of Idöborg in the Stockholm Archipelago, now a familiar setting, for four days of intensive discussion, creative exchange, and deepening relationships."

A central theme of the retreat was the evolving nature of transdisciplinary science. Since the group's first workshop in May 2024, BYS's Louis Delannoy (GEDB, Royal Swedish Academy of Sciences), together with BYS fellows Bernardo A. Bastien-Olvera and Felipe Benra, and colleagues at GEDB and Stockholm Resilience Centre, have worked on a paper on polycrisis dynamics, published in *Global Sustainability*[1].

Considering the growing number of crises, they examined the temporal trends, distribution, and co-occurrences of shocks – sudden events with significant impacts – across 175 countries from 1970 to 2019. The findings show that shocks have not followed the same path everywhere: from 1970 to 2000 they became more likely to occur together, but since then patterns have shifted in region-specific ways. This highlights that regional differences are not incidental but central to polycrises dynamics, and that understanding, anticipating, or responding to them requires accounting for this variation.

Inspired by this work the BYS group reflected on the distinction between creeping changes and shocks, and how science can better navigate and inform a turbulent world.

Additionally, the cohort built on the momentum of the previous year through an in-depth synthesis session on modelling interacting shocks. The session sparked rich discussion on the role of models in understanding slow variables such as values, language, and inequities, and how these interact with sudden shocks to shape system trajectories.

An excursion took the group to the nearby island of Bullerö where a local story about the intertwined dynamics of seal populations, fishing livelihoods, climate change, and pollution resonated with ongoing group discussions about attribution, feedbacks, and shifting baselines in social-ecological systems.

The retreat concluded with renewed energy and a strengthened sense of collective purpose. The scholars expressed gratitude to the Beijer Institute and its staff for its generous support, to their families and colleagues who made their participation possible, and to one another, for the time, care, and commitment that continue to shape this unique collaboration.

Back row: Adam Wiechman (Arizona State University), Noah Linder (GEDB), Nic Choquette-Levy (Boston University), Sarah Redicker (University of Exeter), Louis Delannoy (GEDB), Felipe Benra (Leuphana University), Emmy Wassénius (Stockholm Resilience Centre, Stockholm University), mentor Anne-Sophie Crépin (Beijer Institute).

Front row: Jordana Composto (Princeton University), Giorgio Dini (University of Bologna), Bernie Bastien-Olvera (National Autonomous University of Mexico), Amanda Manyani (Stellenbosch University), Zoë Kitchel (Occidental College in Los Angeles, California), Mari Kawakatsu (University of Pennsylvania), Jaqueline Hamilton (McGill University).

1 Delannoy, L., A. Verzier, B. A. Bastien-Olvera, F. Benra, M. Nyström, and P. S. Jørgensen. 2025. Dynamics of the polycrisis: temporal trends, spatial distribution, and co-occurrences of national shocks (1970–2019). *Global Sustainability* 8:e24.

Jacob Mühlrad receives applause from audience and orchestra at the première of the full orchestra version of *RESIL I*, with the Royal Stockholm Philharmonic Orchestra.

A symphonic exploration of Earth's complex systems of life

Beijer Director Carl Folke has collaborated with one of Europe's leading contemporary music composers, Jacob Mühlrad, in deep conversations about the biosphere, resilience, panarchy, and the evolution of life. The result was heard at the Swedish Concert Hall on November 28, where the Royal Stockholm Philharmonic Orchestra performed Mühlrad's symphonic work *RESIL I*.

RESIL is a symphony in two parts. Part one is a meditation on the history of life on Earth, inspired by Folke and colleagues' concept of panarchy, an idea that our planet is a nested system of interdependent processes, from the smallest biological interactions to the vast forces of global ecosystems.

It portrays the rise of the biosphere, from the sound of gas, through periods of dramatic change. The music mirrors panarchical systems – complex systems of life across space and time – and the predictable and unpredictable.

RESIL II, which will be premiered in 2026, envisions a sustainable future in the Anthropocene, the current geological epoch shaped by significant human impact on Earth's systems.

The collaboration was initiated by Cecilia Wikström, CEO of the Beijer Foundation, which is a core funder of the Beijer Institute. The Beijer Foundation also commissioned the piece. Jacob Mühlrad and Carl Folke quickly found that, despite their different backgrounds, they communicated easily.

"Carl's ability to explain the symbiosis of life captivated me, especially the idea that existence is an exception, fragile and improbable, starting with green algae producing oxygen as a byproduct, which made current life possible", says Mühlrad.

Folke's concepts of interconnected systems directly informed Mühlrad's entire composition, reflecting the biosphere's physical laws in music.

Mühlrad's music draws on nature's own frequencies, including the Earth's "inherent tone" of 7.83 Hz, transposed into an abstract yet grounding motif. The symphony's overtone series reflects the physical laws that govern sound and life alike, emphasizing interconnectedness.

"For me, creating this project has been a deeply reflective process. And I hope it will be for audiences too", Mühlrad says.

Atomic pasts, atomic futures

Eighty years after the atomic bombings of Japanese cities Hiroshima and Nagasaki at the end of the Second World War, policymakers and scholars alike are voicing concern that recent geopolitical tensions and the erosion of the international non-proliferation framework are increasing the risk of nuclear warfare. The use of nuclear weapons, and nuclear testing around the world, has also been suggested as one of the key features of the Anthropocene era.

Against this backdrop, a conversation on the legacy of nuclear weapons use in Japan and at the Soviet nuclear testing site Polygon in Kazakhstan was held on 13 May 2025 at Accelerator, Stockholm University's exhibition hall for contemporary art.

Author and nuclear politics expert Dr Togzhan Kassenova (Centre for Policy Research, SUNY Albany), Dr Keiko Nakamura (Research Centre for Nuclear Weapons Abolition, Nagasaki University) and Professor Henrik Österblom (the Anthropocene Laboratory, Royal Swedish Academy of Sciences) discussed questions such as: What is the political legacy of the horrifying bombings of Hiroshima and Nagasaki? What does life look like today in the Polygon and its surrounding areas? And what lessons can we draw from these histories as we face a future marked by intensifying global change, geopolitical tensions and the heightened risk of nuclear weapons use?

The conversation which highlighted the interplay between our changing climate and biosphere, human agency, and nuclear technologies, was moderated by Beijer Institute Programme Director Victor Galaz and organised by the Beijer Institute together with the Anthropocene Laboratory and the Stockholm Resilience Centre at Stockholm University.

Arctic challenges and resilience visualised

Research on global warming and its impact on Arctic ecosystems and communities was visualised through a collaboration between students at Beckmans College of Design, researchers at the Beijer Institute and its partners, and the design firm Svenskt Tenn.

In the exhibition *What Happens in the Arctic Does Not Stay in the Arctic*, held from 25 April to 4 May 2025 at the Svenskt Tenn store in Stockholm, seven works were presented, offering new perspectives on current research.

The temperature in the Arctic is now rising three to four times faster than the global average, and large ice sheets are melting both on land and at sea. Climate change in the Arctic not only affects the global climate but also severely impacts the region's ecosystems and local populations.

About the collaboration

Since 2017, second-year students from the Visual Communication programme at Beckmans College of Design have collaborated with researchers at the Beijer Institute and its partners, as well as staff at Svenskt Tenn. The aim is to develop new ways of communicating research, conveying knowledge both rationally and emotionally.

> "The aim is to develop new ways of communicating research, conveying knowledge both rationally and emotionally."

Stephanie Holmén (student), Caroline Schill (tutor Beijer Institute), Olle Svensson (student), with their piece *A Step Outside Your Comfort Zone* at the opening of the exhibition. Photo: Jonatan Modin.

Why the Arctic Blooms **by students Ida Ädling and Tyra Östlund. Photo: Jonatan Modin.**

"The collaboration with the students has been incredibly rewarding. It's exciting to see how our research inspires works of art that evoke emotions in the viewer", says Anne-Sophie Crépin, Deputy Director of the Beijer Institute, who participated in the project.

I Spy: a Bird, a Fish, and a Collapse **by Mika Hyvönen and Albab Rahman. Photo: Jonatan Modin.**

Illustrating change in ecological and social systems

The works include a carpet shaped like a shoreline, emphasising the role of the Little Auk bird as an ecological engineer. The birds transport nutrients from the marine environment to land, fertilising otherwise barren areas with their droppings. Another piece uses mirrors to explore the albedo effect, illustrating how snow and ice reflect sunlight and help cool the Earth, while one group created a board game exploring the journey of stepping outside one's comfort zone, symbolising a step towards the change that is needed.

The design firm Svenskt Tenn is owned by the Beijer Foundation, which in turn provides core funding for the Beijer Institute and other research institutions.

"For us, this represents an inspiring exhibition format which, over the years, has also gained attention in various contexts, both in Sweden and internationally", says Thommy Bindefeld, Senior Advisor at Svenskt Tenn.

Book launch

To mark its centenary in 2024, Svenskt Tenn published *Svenskt Tenn Interiors* by Nina Stritzler-Levine. The book was launched at the Nationalmuseum (Sweden's museum of art and design) in Stockholm on 3 April 2025, with a day of five panel discussions exploring different aspects of the design firm's history and mission, all to a full house.

Beijer Programme Director Therese Lindahl took part in a panel entitled *Design, Craftsmanship and Research*, alongside the author and Cecilia Wikström, CEO of the Beijer Foundation. During the hour-long conversation, Lindahl highlighted the importance of the Foundation's unrestricted funding in enabling the development of broad networks of collaborators and supporting truly independent research – a necessity, she noted, in this age of misinformation.

Lars Galtung (Cermaq), Hiroyuki Sato (Maruha Nichiro) and Max Troell (Beijer Institute) at an implementation workshop within the SeaBOS project in April 2025. Photo: Pelle T. Nilsson/SPA.

Beijer Institute research featured at Sweden's largest exhibition hall

As part of the centenary celebrations, the exhibition *A Philosophy of Home* was held from 27 September 2024 to 12 January 2025 at Liljevalchs, Sweden's oldest and largest exhibition hall. The exhibition was the most extensive of its kind to date on Svenskt Tenn, its founder Estrid Ericson, and the architect and designer Josef Frank.

Spread across 13 themed galleries, it featured unique objects, loans from international museums and private collections, as well as pieces rarely shown before. Among them was *Invisible Urban Services*, a work from the first collaboration between the Beijer Institute and Svenskt Tenn, the exhibition *Patterns of the Biosphere* in 2015. Created by artist Eric Ericson, the piece conveys the importance of urban ecosystem services in a humorous way.

Seafood Business for Ocean Stewardship

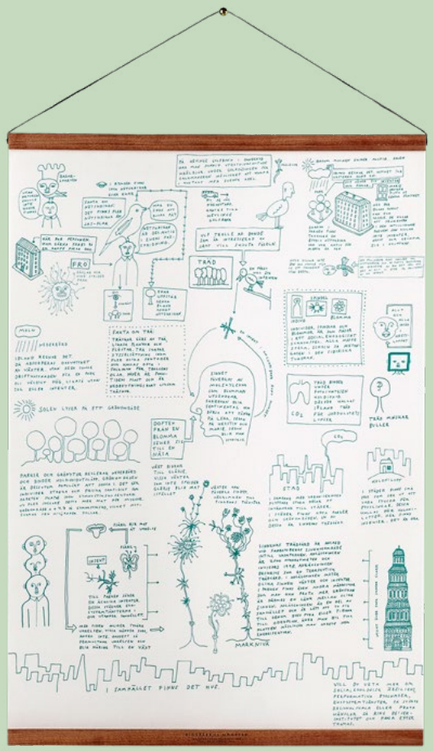
Seafood Business for Ocean Stewardship (SeaBOS) is a collaboration between leading scientists and CEOs of global seafood companies, driving a science-based transformation towards sustainable seafood production and a healthy ocean. SeaBOS members operate in 65 countries through 465 subsidiaries and account for around 19% of global seafood production, catching and farming more than 500 species.

The initiative was launched in 2016 by the Stockholm Resilience Centre, with the Beijer Institute serving on the scientific and organising team from the outset. At a Keystone Dialogue in Évian, France, in October 2024, SeaBOS CEOs agreed on further joint action within five task forces on ocean stewardship:

- Illegal, Unreported, and Unregulated (IUU) Fishing & Modern Slavery
- Biodiversity & Ecosystems
- Antimicrobial Resistance
- Climate Resilience
- Ocean Plastic Reduction

The CEOs also reaffirmed cross-company collaboration on the *Keystone Project on Antimicrobial Resistance in Aquaculture* and the *West Coast Africa Keystone Project on IUU and Modern Slavery*. They discussed a potential new project on the *Financial Risks of Climate Impacts on Seafood Production*.

In April 2025, company representatives and scientists met at Marholmen, north of Stockholm, to plan the implementation of these agreed actions.



Top: Professor Johan Rockström

Bottom: Maria Veerasamy, CEO of Svenskt Tenn, Beijer Institute's Victor Galaz and Caroline Schill and Benjamin Verbeek, Uppsala University, in conversations with Lisen Schultz, SRC. Photos: Richard Andersson.

Opera singers Rebecka and Johanna Wallroth.

Humans and the Biosphere – Pathways to a Sustainable Future

2024 marked the 50th anniversary of the Beijer Foundation, celebrated on 22 October with a seminar at the Academy focusing on the Beijer Institute's research areas, as it is the foundation's single largest beneficiary. The keynote speakers were Professor Jane Lubchenco, senior adviser on climate and environmental issues in President Joe Biden's administration, and Professor Johan Rockström, a member of the Royal Swedish Academy of Sciences.

Jane Lubchenco, who, like Johan Rockström, is a Beijer Fellow, shared insights from working under two US presidents, Barack Obama and Joe Biden. She emphasised the importance of integrating environmental and social considerations into political directives to bring about change.

Johan Rockström, Director of the Potsdam Institute for Climate Impact Research (PIK), gave an update on the state of the planet based on the Planetary Boundaries framework, first published in 2009. The picture he painted was sobering:

"I can now say without the slightest doubt that we are jeopardising the planet's stability, resilience, and life-support systems."

He highlighted the shockingly high sea surface temperatures of the past two years as a major cause for concern.

Both speakers praised the Beijer Foundation's long-term commitment to free and independent research, and the Beijer Institute's pioneering research programmes. Jane Lubchenco stressed the human dimension:

"One of Beijer's greatest achievements is bringing together world-leading economists and ecologists, creating the conditions for them to truly influence one another."

The programme concluded with a panel discussion and performances by opera singers Johanna and Rebecka Wallroth.

A recording of the event is available at Beijer Foundation's website beijestiftelsen.se

50 years of learning

To further mark the anniversary, the Beijer Foundation published the book *Beijerstiftelsen. 50 år av bildning* (*Beijer Foundation: 50 Years of Learning*), a book that tells the Foundation's story and highlights its achievements in science, education, and culture.

In the anniversary book, co-founder and Chair Anders Wall and the Foundation's Director, Cecilia Wikström, reflect on its work to date and several recipients of the Foundation's support

Presentation by Professor Jane Lubchenco.

share their own stories and explain what that support has meant for them. One of them is Beijer Institute's Director Carl Folke, who was interviewed in a chapter about the development, progress, significance, and worldwide impact of the Beijer Institute since the start of the ecological economics focus in 1991.

Guided by the firm belief that scientific research, education, and culture are the cornerstones of a good society, the book is infused with a strong sense of optimism for the future.

Photo exhibition exploring environmental change in Alaska

In January 2025, an exhibition of the participatory photography study from the *Living with the New Normal* (read more on page 11) project was shown in the Community Centre Wainwright, Alaska.

The study, conducted in June 2023 with the Iñupiat community of Wainwright, North Slope, Alaska (USA), explored the environmental changes most affecting the community and their impacts on subsistence lifestyles (see last year's report). The exhibition featured high-quality prints of photographs taken by participants, along with photos they already had, each accompanied by captions reflecting thoughts and feelings shared during the research. Several photographs by field researcher Kinga Psiuk, with captions based on conversations with participants, were also included. Together, the images tell a story of environmental change, lifestyle, and concerns, set in the context of past, present, and future.

The *New Normal* project team together with the collaboration partners of the Tribal Council of Wainwright, January 2025.

The launch coincided with a community meeting where the team shared project insights, reflections, and next steps. At the end of the trip, the prints were gifted to the Tribal Council and the City of Wainwright, close collaborators who made the fieldwork possible. The images will be permanently displayed in local public spaces, including the school.

The exhibition was first shown in December 2024 at the Stockholm Resilience Centre curated and hosted by Beijer Institute researcher Caroline Schill and PhD candidate Kinga Psiuk (Stellenbosch University), supported by research intern Karoline Hermansson.

A virtual version is available at newnormal.science/photovoice. Some photographs also appear in the exhibition brochure *What Happens in the Arctic Does Not Stay in the Arctic* (see page 26).

© Isabel Bodfish <2023> | New Normal project | Wainwright, Alaska | Isabel Bodfish is a mum, wife, and a hunter. She and her family go hunting for birds in the winter. They dig snow into snow blinds so the birds will not see them. They also wear white for the camouflage.

Legendary radio programme hosted by director Carl Folke

The radio programme *Sommar* ("Summer") is a Swedish institution that has been running for over 60 years. Every day during the summer months, a chosen host is given 90 minutes to talk about a subject of their choice and play their favourite music.

This year, on 25 July 2025, Beijer Institute Director Carl Folke hosted the programme. He took the opportunity to speak about humanity's fundamental dependence on the biosphere and the interconnectedness of economies, societies and ecosystems. He struck an optimistic note in presenting the institute's research in these areas over the years, its many interactions with artists, policymakers and processes, and, more recently, its engagement with the business sector and the positive changes now emerging.

The programme, often described as Sweden's last cultural "campfire", is also available as a podcast, which in 2024 reached an audience of 1.6 million individual listenings per week. Over the years, *Sommar* has been hosted by a wide range of prominent figures, including former prime ministers such as Carl Bildt, former NATO Secretary General Jens Stoltenberg, cultural icons like film director Ingmar Bergman, opera singer Birgit Nilsson and pop star Robyn, as well as celebrated athletes such as ice hockey player Mats Sundin and skier Anja Pärson.

Photo: Mattias Ahlm

The Global Economic Dynamics and the Biosphere (GEDB) Academy Programme

The GEDB Academy Programme – *New Approaches to the Grand Challenge: Global Finance, Global Health and the Biosphere* – focuses on two broad areas of research.

The first, *Biosphere Finance*, explores the relationship between finance, capital markets, and cutting-edge research on Earth as a complex, interconnected system. This emerging field is growing rapidly, with increasing engagement from companies and financial actors. Over the past year, GEDB researchers have collaborated with a wide range of stakeholders, including banks, pension funds, asset owners, and investment firms. GEDB plays a key role in the Vinnova-funded *Sustainable Finance Lab* and in the *Finance and Biodiversity* (FinBio) Mistra-funded programme at the Stockholm Resilience Centre. GEDB researchers do research on green funds and how to inform corporate reporting and disclosure developing a set of *Essential Environmental Impact Variables* (EEIVs) and a new metric called *Earth System Impact* (ESI) to help inform environmental reporting.

The second research area focuses on *Global Health and Biosphere Stewardship*. This work involves collaborations with medical professionals, psychologists, behavioural economists, and actors in the food system to address complex challenges – from antibiotic resistance to human health, habitat degradation, and food production. One major focus over recent years has been the emergence of new diseases and agricultural pests, referred to as *emerging pests and pathogens* (EPPs). Chemicals and biotechnology is another research topic, as is the role of biodiversity in human health. Additionally, a range of exciting work on polycrisis dynamics is currently underway.

GEDB serves as a vital platform for research, synthesis, and collaboration between the Beijer Institute, the Stockholm Resilience Centre, and our broader network. The programme is led by Executive Director Beatrice Crona, with Peter S. Jørgensen as Deputy Executive Director

GEDB is funded by the Erling-Persson Foundation.

gedb.se

The Anthropocene Laboratory

The Academy's Anthropocene Laboratory is developing well under the leadership of Henrik Österblom. Acting as both a think tank and a collaborative meeting place, virtually and in person, the Laboratory brings together leading international researchers to explore pressing global issues, with strong involvement from early-career scientists. It unites perspectives and insights from the natural and social sciences, the humanities, and other fields of knowledge. The Laboratory aims to foster a holistic understanding of the Anthropocene biosphere, helping to meet the growing demand for science-based knowledge that support pathways towards sustainability.

Beijer Institute researchers and Fellows are actively engaged in workshops and publications related to the Laboratory's two current meta-themes: *Empirics of Hope* and *Intertwined Biosphere*. Beijer Fellows also serve on the Scientific Advisory Committee. Peter S. Jørgensen (GEDB), Juan Rocha (SRC), Caroline Schill (Beijer Institute), and Lan Wang Erlandsson (SRC) play central roles as mentors to postdoctoral researchers and research assistants. Beijer Institute Director Carl Folke chairs the Scientific Advisory Committee.

The Anthropocene Laboratory is funded by the Marianne and Marcus Wallenberg Foundation, and the Marcus and Amalia Wallenberg Foundation.

anthropocenelab.se

Stockholm Resilience Centre

The close collaboration with the Stockholm Resilience Centre (SRC) continues to be highly productive, generating numerous synergies and benefits through joint projects, research grants, workshops, and publications. SRC researchers are actively involved in the Beijer Institute's research programmes, while Beijer Institute researchers contribute to SRC's themes and research programmes. They also engage in seminars, teaching, supervision, and collaborative projects. The Beijer Institute's communication, outreach, and policy engagement efforts are significantly amplified through its interplay with the SRC.

Advancing the Research Frontier of Biosphere Stewardship

The collaborative work under the major grant *Advancing the Research Frontier of Biosphere Stewardship*, funded by the Marianne and Marcus Wallenberg Foundation, is progressing well. This initiative underscores the strong partnership between the Beijer Institute, SRC, and Stanford University. The grant provides a dynamic platform for developing new theory, analysis, and synthesis around the stewardship of natural capital and the biosphere, supporting social-ecological resilience, human wellbeing, and sustainability.

The project builds on a long-standing history of collaboration between Beijer Institute and Stanford researchers, while also nurturing new links within the Beijer/GEDB/SRC research cluster. Carl Folke and Beijer Fellow Gretchen Daily (Stanford University) serve as project leaders.

stockholmresilience.org

Centre for Applied Research (SNF), Norwegian School of Economics (NHH)

SNF is the coordinator and our collaborator in the project *Winners and Losers in the Climate Casino: Arctic Marine Resources under Climate Change*. The primary aim of the project is to investigate the effects of climate change on various fisheries in Arctic and sub-Arctic waters. The fisheries under study include cod fisheries in both the Barents and Bering Seas, pelagic fisheries for herring and mackerel in the Nordic Seas, and crab fisheries in several locations across the region. These fisheries are analysed using a shared theoretical framework, which helps to trace the main impacts of climate change across both the ecological and societal dimensions of the marine environment, as well as the economic activities they underpin. The project, which involves Beijer Institute Deputy Director Anne-Sophie Crépin, is led by Sturla Kvamsdal and is funded by the Research Council of Norway.

snf.no

HiG Urban Studio, University of Gävle

The *Urban social-ecological Systems* programme at the Beijer Institute collaborates with the HiG Urban Studio at the University of Gävle. Programme director Professor Johan Colding also leads the research at the HiG Urban Studio, which aims to support urban development that remains within the Earth's carrying capacity, while maintaining a focus on human well-being.

A key mission of the HiG Urban Studio is to foster collaboration with other leading research institutions in Sweden focused on sustainable urban development. These include the SMOG group at Chalmers University of Technology, a world leader in research on architecture and urban morphology, as well as environmental psychology groups at Aalto University (Finland) and Uppsala University (Sweden).

hig.se

Key collaborators on seafood

The Beijer Institute's research programme *Aquaculture and Sustainable Seafood* maintains strong collaborations with the School of Aquatic and Fishery Sciences at the University of Washington and the Harvard T.H. Chan School of Public Health, at Harvard University. These partnerships have deepened understanding of global seafood trade and its implications for resource use, equity, and food security. This progress has been enabled by the innovative integration of two global databases, recently developed at these institutions, one focused on seafood trade and the other on seafood nutrition.

Research on circular food systems within the programme has also led to fruitful collaborations with Wageningen University and the French Agricultural Research Centre for International Development in Paris (CIRAD). In addition to several published collaborative papers, current efforts are focused on securing funding through the EU-funded COST Actions funding organisation.

Moreover, Stanford University and WorldFish have partnered with the programme on a project funded by the Gordon and Betty Moore Foundation. This initiative aims to evaluate the potential of blue foods in climate adaptation and mitigation strategies. It also explores how policymakers can ensure that blue foods contribute to climate-resilient food systems while safeguarding livelihoods and food security.

Emily Boyd takes the helm

On 1 September 2025, Professor Emily Boyd assumes the role of Director of the Beijer Institute, following the retirement of Professor Carl Folke.

Emily Boyd is currently Professor of Sustainability Science at Lund University, where she has led the Lund University Centre for Sustainability Studies (LUCSUS) for seven years. With an international career spanning leading universities in Sweden and the UK, she brings with her extensive expertise in sustainability research, leadership, and collaboration.

"Growing up between Sweden, the UK, and France gave me an early appreciation for different cultures and ways of thinking," Boyd reflects.

"I studied International Development with a focus on sustainability, and my career has included positions at Stockholm, Oxford, Leeds, Reading, and now Lund University. This has allowed me to develop research at the intersection of environmental change, societal responses, and justice."

Climate loss and damage – home and across the globe

Her current research centres on climate loss and damage, an area that is rapidly gaining attention in global policy and practice.

"My research focuses on climate loss, particularly loss and damage, looking at it both as a policy process and as an experienced phenomenon," she explains.

"I pay special attention to non-economic loss and damage, and I study how people respond – through mobilisation, resistance, or legal understanding. I also explore emerging work on empathy and immobility – why people choose to stay despite changing climate and human conditions."

Her team's work in Falsterbo, Sweden, exemplifies this focus.

"We are studying how climate extremes affect citizens, especially those who wish to stay, and what kinds of loss and damage they experience – a topic that's still new and not fully integrated into daily conversations about adaptation justice: what counts as fair adaptation?" Boyd adds.

This local research is complemented by comparative projects in Africa, Colombia, Southeast Asia, the Caribbean, and Europe, providing a rich global perspective.

At the heart: Ecological change and social justice

When asked what drives her, Boyd highlights her commitment to justice and lived experience.

"I'm driven by a desire to address critical, often overlooked questions at the intersection of environmental change and social justice. Understanding how people experience and respond to environmental change is both scientifically fascinating and socially relevant."

This commitment underpins her vision for the Beijer Institute. "I want to lead the Beijer Institute because it's a unique place where ecological science, economics, and social justice come together. The institute has a global reputation for excellence, and I see an opportunity to guide its future growth while nurturing collaborative, high-impact research," she says.

Boyd sees the Beijer Institute's role as both scientific and societal.

"The Beijer Institute brings together ecology, economics, and society, pushing excellent science forward while mentoring the next generation. It connects with policymakers, practitioners, communities, and financiers, making sure that research actually meets the real world."

Visions for the Beijer Institute

Looking ahead, she envisions the Institute as a hub for transformative research.

"I see the Beijer Institute as a hub for innovative and policy-relevant research on ecological-economic challenges. I want to strengthen partnerships, mentor new researchers, and foster a research culture that balances curiosity-driven science with strategic impact. I also aim to create stronger linkages between Stockholm and Lund, which are both outstanding hubs of sustainability research, education and action."

In terms of research priorities, Boyd identifies several areas.

"There's so much to explore. One of my first tasks will be helping Beijer define its core priorities. In my work, I'd like to advance climate loss beyond the numbers, explore immobility and empathy in how we act individually and collectively, study how institutions adapt and see how AI can reshape ecological-economic research. I also hope to spark conversations across disciplines and, if there's interest, extend our work toward planetary wellbeing."

Grounded leadership inspired by nature

Her approach to leadership is both grounded and aspirational.

"Sometimes, being a leader means stepping back and letting people just get things done. Other times, it's about being present, encouraging, guiding, helping others reach their potential. For me, leadership is about holding both together with care: grounded and inspirational."

For Boyd, connection to nature is also central, personally and professionally.

"I connect with landscapes, forests, coasts, urban coasts, and historical mountains and rivers – places that encompass both ecological and cultural stories. Nature, like art, gives us room to be ourselves, to reflect, to imagine, and to learn. These spaces inspire and ground me."

She sees today's most pressing challenge as both profound and urgent.

"At the core, the breakthrough question is simple but huge: how do we build systems – economic, social, ecological – that stay within the limits of the biosphere, support people and nature, and respond justly to global change? That's what's pushing sustainability research forward today."

Appendix

Scientific advisory board meeting in September 2025. Back row: Francisco Alpízar, Carl Folke, Alessandro Tavoni. Front row: Eli Fenichel, Karen Seto, Belinda Reyers, Anne-Sophie Crépin, Tatiana Filatova, Emily Boyd, Rashid Sumaila and Elke Weber.

Scientific advisory board

Board members of the Beijer Institute of Ecological Economics are appointed by the Royal Swedish Academy of Sciences for a three-year period and may not be re-elected more than once, according to the standing instructions for the Beijer Institute approved by the Royal Swedish Academy of Sciences on 5 June 1991.

The 34th annual board meeting was held at the Royal Swedish Academy of Sciences on 13 September 2024. This meeting was the first for Professor Emily Boyd, Lund University, Sweden, and Professor Francisco Alpízar, Wageningen University, The Netherlands, who were welcomed as new members of the board. In the spring of 2025, Professor Maria Lemos, University of Michigan, USA, professor Line Gordon, Stockholm University, Sweden and Professor Yadvinder Mahli, University of Oxford, UK, were elected as new members of the board. At the end of 2024, Professor Elke Weber reached the end of her term. The Beijer Institute wishes to express its warmest gratitude for her great effort for the institute as a member of the board.

Chair

Elke Weber
Professor, Princeton University, USA (until 31 December 2024)

Ex-officio members

Anne-Sophie Crépin
Associate Professor, Deputy Director of the Beijer Institute

Hans Ellegren
Professor, Permanent Secretary of the Royal Swedish Academy of Sciences

Carl Folke
Professor, Director of the Beijer Institute

Members

Francisco Alpízar
Professor, Wageningen University, The Netherlands

Emily Boyd
Professor, Lund University, Sweden

Eli Fenichel
Professor, Yale University, USA

Tatiana Filatova
Professor, Delft University, the Netherlands

Line Gordon
Professor, Stockholm Resilience Centre, Stockholm University, Sweden

Claire Kremen
Professor, University of British Columbia, Canada

Maria Lemos
Professor, University of Michigan, USA

Yadvinder Mahli
Professor, University of Oxford, UK

Malin Pinsky
Associate Professor, Rutgers University, USA

Belinda Reyers
Professor, University of Pretoria, South Africa

Karen Seto
Professor, Yale School of the Environment, USA

Rashid Sumaila
Professor, University of British Columbia, Canada

Alessandro Tavoni
Professor, University of Bologna, Italy

Staff members

Carl Folke
Professor, Director

Anne-Sophie Crépin
Professor, Deputy Director

Gustav Engström
Associate Professor, Researcher

Johan Gars
PhD, Researcher

Marie Huss
Operations Manager

Malin Jonell
PhD, Researcher

Sofia-Kristin Kokinelis
MSc, Finance and HR Administrator

Therese Lindahl
PhD, Programme Director

Oskar Nyberg
PhD, Researcher

Caroline Schill
PhD, Researcher

Agneta Sundin
Communications Officer

Amare Teklay
PhD, Researcher

Anna Tompsett
PhD, Researcher

Max Troell
Associate Professor, Programme Director

Dineke Verkleij
Research Assistant

Affiliated researchers

John M. Anderies
Professor, Programme Director (Arizona State University, USA)

Johan Colding
Professor, Researcher, Programme Director (University of Gävle, Sweden)

Stefan Daume
PhD, Researcher (Stockholm Resilience Centre, Stockholm University)

Victor Galaz
Associate Professor, Programme Director (Stockholm Resilience Centre, Stockholm University)

Patrik Henriksson
Assistant Professor, Researcher (Leiden University, the Netherlands, Stockholm Resilience Centre, Stockholm University)

Chuan-Zhong Li
Professor, Researcher (Uppsala University, Sweden)

Timon McPhearson
Professor, Researcher (The New School, USA)

Belinda Reyers
Professor, Researcher (University of Pretoria, South Africa)

Visiting researchers

Klaus Eisenack
Professor, Humboldt University of Berlin, Germany. 24 February–15 April 2025.

Xiurou Wu
PhD, Centre for Applied Research at Norweigan School of Economics. August–November 2024.

Staff news

Professor **Johan Colding**, who has been with the Beijer Institute since 1997, and who has successfully led the research programme on *Urban Social-Ecological Systems*, is now retiring. Director Carl Folke offers a personal reflection on his research achievements and his many contributions to the Beijer Institute and to the wider field of resilience.

"I first met Johan while I was lecturing. He sat in the front row, and when I began to speak about social taboos in traditional societies, he put on his glasses and listened intently. Afterwards, he asked if he might write his Master's thesis with me. Since then, more than thirty years ago, we have worked together with inspiration and deep friendship. Johan has been with the Beijer Institute ever since, and throughout that time he has been a deeply valued colleague and an outstanding researcher.

Johan Colding.

With a background that includes working with the filmmaker Roy Andersson, Johan brought curiosity and creativity to entirely new terrain, exploring social-ecological systems. Those were exciting times, full of discoveries and new insights. Johan's research on social taboos as informal institutions of importance for ecosystem stewardship is truly groundbreaking. Together with Professor Fikret Berkes (University of Manitoba, Canada), we explored the connections between social-ecological systems, complexity, and resilience. Our paper on traditional ecological knowledge and adaptive management was recognised as one of the most notable publications in the journals of the Ecological Society of America during its Centennial celebration in 2015. Johan also co-edited two major volumes with Cambridge University Press. both very well received, widely cited, and central to the founding of the Stockholm Resilience Centre. His doctoral work was honoured by HM King Carl XVI Gustaf's Foundation for Science, Technology and Environment.

Producing rigorous, high-quality research has always been Johan Colding's hallmark. He is a pioneer in international research on urban social-ecological systems, uncovering the role of informal institutions and how people in cities collaborate to manage the commons and act as stewards of ecosystem services and biodiversity. This not only as a way of conserving nature, but with measurable benefits for human health and wellbeing in urban settings. These important findings have been taken up in urban planning, policy, and practice, from small towns in Sweden to major cities around the world.

Johan's work is characterised by his ability to see what is really happening, often questioning established perceptions and pre-analytic visions. Consider, for example, his findings from the Stockholm urban parks and region: golf courses functioning as stepping-stones for keystone species, their ponds hosting amphibians, including endangered species, or the insight that the only major green spaces remaining around Stockholm are the King's land and areas preserved under the special property rights system of fideicommissum. His research has acted as a catalyst for collaboration, easing conflicts and tensions between conservation and development, remarkable achievements indeed.

Johan has ably led the Beijer Institute's urban theme for many years, making vital contributions to its progress, milestones, and successes. We were all delighted when he was appointed Professor at the University of Gävle, where he has more recently been working part-time. And this year, Johan was part of a research group awarded the Frontiers Planet Prize for their research on urban nature-based solutions and carbon neutrality.

Johan's legacy is not only his outstanding scholarship. His humour, tricks, jokes, and warm personality live on in the corridors of the Beijer Institute, filling them with endless amusement, laughter, and joy."

Carl Folke receiving the medal from His Majesty King Carl XVI Gustaf. Photo: Jonas Borg.

In February **Carl Folke** received the HM The King's Medal 12th size with the ribbon of the Order of the Seraphim presented by His Majesty King Carl XVI Gustaf.

In May 2025, **Carl Folke** received an honorary doctorate from the University of Helsinki, Finland, in the Faculty of Biological and Environmental Sciences. The citation read: *"Folke is a pioneer in multidisciplinary research on sustainability challenges, focusing particularly on the capacity of ecosystems to adapt to and regenerate from disruptions."*

At the University of Helsinki, the title of honorary doctor is conferred in recognition of internationally distinguished researchers representing the various disciplines of the faculty, as well as influential figures in society and cultural life.

Oskar Nyberg joined the *Aquaculture and sustainable seafood programme* in November 2024 on a short-term contract, leading the scientific team in the SeaBOS Keystone Project on Antimicrobial Resistance until the end of June 2025. Oskar holds a PhD in ecotoxicology from Stockholm University, where his research focused on the environmental dimension of antimicrobial resistance (AMR) development.

Oskar Nyberg.

Beijer Fellows

John. M. Anderies
Professor, Arizona State University (USA)

Scott Barrett
Professor, Columbia University (USA)

Elena Bennett
Professor, McGill University (Canada)

Reinette "Oonsie" Biggs
Professor, Stellenbosch University (South Africa)

Fikret Berkes
Distinguished Professor Emeritus, University of Manitoba (Canada)

William "Buz" Brock
Professor Emeritus, University of Wisconsin, Madison (USA)

Juan Camilo Cárdenas
Professor, Los Andes University (Colombia)

Stephen R. Carpenter
Professor Emeritus, University of Wisconsin, Madison (USA)

Stuart "Terry" Chapin III
Professor Emeritus, University of Alaska Fairbanks (USA)

Kanchan Chopra
Professor Emerita, University of Delhi (India)

Gretchen C. Daily
Professor, Stanford University (USA)

Partha Dasgupta
Professor Emeritus, University of Cambridge (UK)

Paul R. Ehrlich
Professor Emeritus, Stanford University (USA)

Joern Fisher
Professor, Leuphana University (Germany)

Lance Gunderson
Professor, Emory University (USA)

Michael Hoel
Professor Emeritus, University of Oslo (Norway)

Terry Hughes
Professor, ARC Centre of Excellence for Coral Reef Studies, James Cook University (Australia)

Eric Lambin
Professor, Stanford University (USA), and Université Catholique de Louvain (Belgium)

Sander van der Leeuw
Professor, Arizona State University (USA)

Simon A. Levin
Professor, Princeton University (USA)

Jane Lubchenco
Professor, Oregon State University (USA)

Karine Nyborg
Professor, University of Oslo (Norway)

Rosamond. L. Naylor
Professor, Stanford University (USA)

Stephen Polasky
Professor, University of Minnesota (USA)

Johan Rockström
Professor, Potsdam Institute for Climate Impact Research (PIK) and Potsdam University (Germany)

Thomas Rosswall
Professor Emeritus, Member of the Royal Swedish Academy of Sciences (Sweden)

Marten Scheffer
Professor, Wageningen University & Research (The Netherlands)

Kathleen Segerson
Professor, University of Connecticut (USA)

Jason Shogren
Professor, University of Wyoming (USA)

David A. Starrett
Professor Emeritus, Stanford University (USA)

Thomas Sterner
Professor, University of Gothenburg (Sweden)

M. Scott Taylor
Professor, University of Calgary (Canada)

Jeffrey Vincent
Professor, Duke University (USA)

Brian Walker
PhD, Honorary Post-Retirement Fellow, CSIRO (Australia)

Elke Weber
Professor, Princeton University (USA)

Frances Westley
Professor Emerita, University of Waterloo (Canada)

James Wilen
Professor Emeritus, University of California, Davis (USA)

Anastasios Xepapadeas
Professor, University of Bologna (Italy) and Professor Emeritus, Athens University of Economics and Business (Greece)

Aart de Zeeuw
Professor Emeritus, Tilburg University (The Netherlands)

Fellow's Prizes and Awards

Gretchen Daily, Bing Professor of Environmental Science and professor in the Department of Biology, Stanford University, has been named a fellow of the American Association for the Advancement of Science *"For significant contributions to understanding humanity's dependence and impacts on nature, and to advancing a systematic approach for valuing nature in policy, finance, management, and practice around the world."* Daily is also co-founder and faculty director of the Stanford Natural Capital Project and senior fellow in the Stanford Woods Institute for the Environment.

AAAS names fellows to recognise their achievements across disciplines and their excellence in interpreting and communicating science to the public.

Administration

Office location

The Beijer Institute is located in a wing of the early 20th century building of the Royal Swedish Academy of Sciences at Frescati, a science and university area about 2 km north of Stockholm City. The area is situated in one of Stockholm's green belts, Ekoparken, which also includes some inlets of the Baltic Sea. Ekoparken has been declared a Royal National City Park by the Swedish parliament. The Institute's visiting address is Lilla Frescativägen 4A, Stockholm.

Organisation

The Institute's administration is partly carried out by, or coordinated with, the Royal Swedish Academy of Sciences, for example, accounting and maintenance of premises and computers. Other administrative procedures are performed independently by the Beijer Institute.

Funding

Core funding for the Beijer Institute is provided by the Kjell and Märta Beijer Foundation, founded in 1974 through a donation from Kjell and Märta Beijer. The Foundation's purpose is not only to support research and education, but also culture, including design, interior decoration, music and literature. The Beijer Institute is its single largest beneficiary, but the Kjell and Märta Beijer Foundation also makes large donations to research in genetic science, neuroscience and pharmaceutical research at Uppsala University and to dairy cattle research at the Swedish University of Agricultural Sciences.

Kjell Beijer was a Swedish businessman who met his wife Märta when she was working in the furniture and design store Svenskt Tenn in Stockholm, which is renowned for classical designs and high quality. This store was later bought by the Kjell and Märta Beijer Foundation and the profits go to the Foundation.

Funding for the Beijer Institute's research activities between 1 July 2024 and 30 June 2025 was also provided by:

- Energiforsk AB
- Formas
- Marianne and Marcus Wallenberg Foundation
- Mistra
- Stanford University
- Stichting IKEA Foundation
- The New School, New York
- The Research Council of Norway

Teaching and training

In addition to the courses described below, a number of Institute researchers give lectures within courses run by other institutions (see under staff members' individual activities).

Governance and Management of Social-Ecological Systems

Beijer Institute researchers are leading, coordinating and contributing to the Master's programme *Social-Ecological Resilience for Sustainable Development* offered by the Stockholm Resilience Centre (SRC) at Stockholm University. In particular, they contribute to the course *Governance and Management of Social-Ecological Systems*, coordinated by Beijer Institute researcher Caroline Schill. She also co-leads the module *Theories and Methods for Governance of the Commons*. In addition, Beijer Institute researcher Johan Gars leads the module *Economic Perspectives*.

Economic Perspectives
Beijer Institute researchers Gustav Engström, Johan Gars, and Therese Lindahl, along with David Collste from the SRC, taught the recurring module *Economic Perspectives* during the spring semester of 2025. This module introduces key economic concepts and methods relevant to sustainability issues. Topics include basic economic theory, various schools of economic thought, policy instruments, international trade, economic growth, income inequality, uncertainty, and behavioural economics.

Unlike a traditional course in environmental economics, this module places greater emphasis on foundational ideas rather than technical details, in recognition of the diverse academic backgrounds and interests of the students. Many students bring their own critical perspectives on economic theory and the global economic system, resulting in lively and thought-provoking classroom discussions.

Theories and Methods of Governing the Commons
In the spring semester of 2025, Caroline Schill and SRC researcher Nanda Wijermans taught the recurring module *Theories and Methods for Governance of the Commons*. The module introduces students to a range of theoretical and methodological frameworks for understanding the use and governance of shared resources. Special emphasis is placed on how these approaches, and their underlying assumptions, capture the complexity and dynamics of social-ecological systems.

The methods section focuses on behavioural and simulation experiments designed to study individual and collective behaviours in relation to the commons. A highlight of the module is a series of student-led seminars, where groups choose and explore topics of personal interest. This year's seminar topics included: 'commons grabbing' (a form of land grabbing), feminist approaches to studying the commons, and social norms and the commons.

Corporations and Sustainable Development in the Anthropocene II

Beijer Institute researcher Malin Jonell and GEDB researcher Peter Søgaard Jørgensen led the module *Sustainability Transformations: Business, Innovation and Systems Change*, part of the course *Sustainability Science II*. The course forms part of the Bachelor's Programme in Business, Ethics and Sustainability (Stockholm Business School) and Semester 3: *Science for a Sustainable Development*, led by the Stockholm Resilience Centre.

The module focuses on the role of business, finance, and large-scale coalitions in driving societal change towards sustainability. Key themes include innovation, corporate responsibility, partnerships between companies and NGOs, and the influence of financial systems.

Students are introduced to contrasting perspectives on transformation and explore where, whether, and how these perspectives may complement one another. Emphasis is placed on navigating uncertainty and recognising that multiple, sometimes competing, strategies may be required to support sustainable futures.

The Askö meetings

Since 1993, the Beijer Institute has organised an annual meeting each September for informal discussions between ecologists and economists at the Stockholm Centre for Marine Research on Askö, a Swedish island in the Baltic Sea, except for a few exceptions when it has been held elsewhere or online (during the pandemic). Over the years, the Askö meetings have generated unique cooperation between these disciplines, which has extended to include other disciplines. Each year, a pressing frontier issue is discussed, typically resulting in a full paper, often published in a leading scientific journal.

The 2024 meeting, held on 14–16 September 2024, was devoted to the topic of collective action. Read more on page 10.

Stockholm Seminars – Frontiers in Sustainability Science and Policy

The Stockholm Seminars are arranged by Albaeco, the Beijer Institute, Future Earth and the Stockholm Resilience Centre. They cover a broad range of perspectives on sustainability issues and focus on the need for a sound scientific basis for sustainable development policy. Over 200 Stockholm Seminars have been held since the series was initiated.

Stockholm Seminar with Jane Lubchenco. Photo: Johan Lundberg.

Four Stockholm Seminars were held during the past year:

The Honorable **Jane Lubchenco**, University Distinguished Professor of Ecology and Valley Professor of Marine Biology at Oregon State University, USA, and Deputy Director for Climate and Environment at the White House Office of Science and Technology Policy.
Aligning policy with scientific knowledge: integrating solutions for climate change, biodiversity loss, and inequity.
24 October 2024.

Eduardo S. Brondizio, Distinguished Professor of Anthropology, Indiana University-Bloomington and the University of Campinas, Brazil.
Tackling social challenges and supporting local solutions to avoid tipping points in the Amazon.
12 December 2024.

Klaus Eisenack, Professor in Resource Economics, Humboldt University of Berlin, Germany.
Mechanisms driving effective urban climate action.
27 March 2025.

Rich Wilson, CEO of the democratic innovation centre Iswe.
The potential of the new Global Citizens' Assembly.
22 May 2025 (At Stockholm Resilience Centre).

Staff members' publications and activities

John M. (Marty) Anderies
Professor, Programme Director, *Behaviour, Economics and Nature*

Research focus

Robust management and robust institutional design for coupled social-ecological-technical systems.

Publications

Journal article

- Polasky, S., M. Scheffer, and J. M. Anderies. 2025. Meltdown of trust in weakly governed economies. *Proceedings of the National Academy of Sciences* 122(14):e232052812.

- Segerson, K., S. Polasky, M. Scheff er, R. Sumaila, J.-C. Cardenas, K. Nyborg, E. P. Fenichel, J. M. Anderies, S. Barrett, E. M. Bennett, S. R. Carpenter, B. Crona, G. Daily, A. de Zeeuw, J. Fischer, C. Folke, N. Kautsky, C. Kremen, S. A. Levin, T. Lindahl, M. Pinsky, A. Tavoni, B. Walker, and E. U. Weber. 2024. A Cautious Approach to Subsidies for Environmental Sustainability? *Science* 386 (6717):28–30.

Conferences, workshops and presentations

- Workshop: *Behaviour, Economics, and Nature (BEN) Research Programme workshop "How will shared stories impact the prospects for human well-being in the Anthropocene?"* The Beijer Institute, Stockholm, Sweden, 2–4 June 2025. Co-organiser.

Johan Colding
Professor, Programme Director, *Urban Social-ecological Systems*

Research focus

Institutions, resilience, digitalization, climate change, social-ecological urban research.

Publications

Journal articles

- Nilsson, C., T. Levin, J. Colding, S. Sjöberg, and S. Barthel. 2024. Navigating complexity with the four pillars of social sustainability. *Sustainable Development* 32(6):5929–5947.
- Nässén, N., M. Lilja, S. Sjöberg, and J. Colding. 2025. Community climate commons for collective climate action. *Sustainable Development* 33(2):2078–2095.
- Thollander, P., M. Andrei, N. Jalo, P. Rohdin, J. Palm, A. Sannö, J. Colding, S. Barthel, G. Salah Uddin, and B. M. Xavier. 2025. Advances in the social construction of energy management and energy efficiency in industry. *Nature Communications* 16:4075.

Report

- Sjöberg, S., E. Alfredsson, J. Colding, T. Hahn, M. Malmaeus, and S. Barthel. 2024. Vad är en rättvis klimatomställning? (What is a just climate transition?). FAIRTRANS.

Conferences, workshops and presentations

- Workshop: *Samskapande i samhällsbygget (Co-creation in urban development)*. Centrum för idrott och kultur, Knivsta, Sweden, November 2024. Participant.
- Symposium: *Social mobilisering för en rättvis omställning till ekosocial hållbarhet (Social mobilisation for a fair transition to ecosocial sustainability)*. The 2nd international symposia on sustainable urban development, University of Gävle, Sweden, December 2024. Organiser, speaker.

Teaching and training

- Main supervisor of PhD student Caroline Nilsson (University of Gävle).
- Co-supervisor of PhD student Nessica Nässén (University of Gävle).

Commissions

- Co-director, Programme of Urban Commons, University of Gävle, Sweden.
- Steering board member, Swedish Knowledge Foundation's Research School: Future-Proof Cities.
- Course evaluation board member, University of Gävle, Sweden.
- Working group member, 'Smarta hållbara städer och samhällen' (Smart sustainable cities and societies), Region Gävleborg, Sweden.
- Founding member, the research consortium Social-Ecological Urbanism. Stockholm, Sweden. Since 2013.
- Member, Scandinavian Turfgrass Research Foundation (STERF), Sweden. Since 2009.

Anne-Sophie Crépin
Associate Professor, Deputy Director

Research focus

Modelling social-ecological systems, regime shifts and economics, decisions under uncertainty, global dynamics and resilience, complex system approach on the Arctic Ocean, behavioural responses to regime shifts.

Publications

- Li. C. Z., A. S. Crépin, and T. Lindahl. The economics of tipping points some recent modelling and experimental advances. *International Review of Environmental and Resource Economics* 18(4):385–442.

Preprint

- Sanches, V. H., R. Quiñones, J. Vivas, J. H. Guillaume, T. Iwanaga, J. Kwakkel, A. E. Quinlan, J. Rocha, A. S. Crépin, V. Dakos, and J. Donges. 2025. Integrating diversity and agency into social-ecological resilience metrics. *OSF preregistration*.

Conferences, workshops and presentations

- Conference: *Annual meeting of the European Association of Environmental and Resource Economics (EAERE)*. Leuven, Belgium, 4 July 2024 Keynote presentation: *Long-term Wellbeing and Risks of Abrupt Changes – A journey*.
- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. 14–16 September, Askö and Royal Swedish Academy of Sciences, Sweden. Participant.
- Workshop: *Winners and losers in the climate casino: Arctic marine resources under climate change*. Beijer Institute, Stockholm, Sweden, 30 September–4 October 2024. Co-organiser.
- Annual project meeting: *Marine Arctic Resilience, Adaptations and Transformations (MARAT)*. University of Quebec, 5–7 November 2024. Online participant.
- Workshop: *Mathematical models on Resilience and disruptive changes*. IIASA, Vienna, Austria, 28–29 November 2024. Presentation.
- Workshop: *Inequality and the Biosphere project*. Krägga Herrgård, Bålsta, Sweden, 2–4 April 2025. Participant and scientific advisor.
- Workshop: *Inequality and the Biosphere consortium meeting*. The Beijer Institute, Royal Swedish Academy of Sciences and Idöborg, Sweden. 12–16 May 2025. Participant and scientific advisor.
- Workshop: Beijer Young Scholars IV, Beijer Institute, Royal Swedish Academy of Sciences and Idöborg, Stockholm, 13–17 May 2025. Co-organiser and mentor.
- Workshop: *How will shared stories impact the prospects for human well-being in the Anthropocene?* Beijer Institute (Behaviour Economics and Nature Programme), the Royal Swedish Academy of Sciences, Stockholm Sweden, 2–4 June 2025.
- Annual project meeting: *Winners and losers in the climate casino: Arctic marine resources under climate change*. Samfunns- og næringslivsforskning AS, Bergen, Norway, 15–16 June 2025. Participant.
- Conference: Annual meeting of *the European Association of Environmental and Resource Economics (EAERE)*. Bergen, Norway, 16–19 June 2025. Presenter: *On the optimal management of weakly interacting natural resources with tipping points*.

Teaching and training

- Lecturer for the European Association of Environmental and Resource Economists (EAERE) winter school 20–24 January 2025, Annecy-le-Vieux, France on Biodiversity Economy.

Stefan Daume
PhD, Affiliated Researcher

Research focus

Exploring the connections between digital technologies and sustainability, with a particular focus on the promises and risks of AI and social media for public engagement with environmental challenges. Contributing to the research programme *Governance, Technology and Complexity*.

Publications

Journal article

- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.

Teaching and training

- Co-supervisor of PhD student Kate Björklund (Stockholm Resilience Centre, Stockholm University).
- Lecturer, PhD course *Data Science for Sustainable Development*, Stockholm Resilience Centre, Stockholm University, 2024/2025.

Gustav Engström
Associate Professor, Researcher

Research focus

Various economic aspects of global environmental change, in particular the economics of climate change and issues related to energy supply and tipping points in the climate system. Urban economics and other aspects of the economy and environment interaction.

Publications

Working papers

- Gars, J., D. Spiro, G. Engström, and S. J. Lade. 2025. Integrated assessment of biodiversity and agriculture. CESifo Working Paper No. 11814. SSRN.
- Li, C.Z. and G. Engström. 2025. Beijer Discussion Paper 282: Crop diversity, organic farming, and agricultural productivity: Evidence from European regions. *Beijer Discussion Paper Series*.

Conferences, workshops and presentations

- Workshop: *Technological change for strong planetary sustainability*. Uppsala University, Norrtälje, April 2024. Presenter.

Teaching and training

- Lecturer, Master's course *Governance and management of social-ecological: Economic perspectives*, Stockholm Resilience Centre, Stockholm University, spring 2025.

Carl Folke
Professor, Director

Research focus

Social-ecological systems, resilience, ecological economics, sustainability science, transformations, biosphere stewardship, Anthropocene biosphere.

Publications

Journal articles

- Jonsson, A., J. Haider, L. Pereira, A. Fremier, C. Folke, M. Tengö, and L. Gordon. 2024. Nurturing Gastronomic Landscapes for Biosphere Stewardship. *Global Food Security* 42:100789.
- Scheffer, M., J. Anderies, T. Bjordam, J. Bollen, S. Carpenter, T. Chapin, C. Folke, F. Gazitua, M. Holmgren, J. Marcone, S. Polasky, E. Weber, and F. Westley. 2024. A Heart Model of Earth Stewardship: Shaking up Science for Positive Futures. *Earth Stewardship* 1(1): e12019.
- Scheffer, M., W. N. Adger, S.R. Carpenter, C. Folke, T. Lenton, G. Vince, F. Westley, and C. Xu. 2024. Anticipating the Global Redistribution of People and Property. *One Earth* 7(7): 1151–1154.
- Segerson, K., S. Polasky, M. Scheffer, R. Sumaila, J.-C. Cardenas, K. Nyborg, E. P. Fenichel, J. M. Anderies, S. Barrett, E. M. Bennett, S. R. Carpenter, B. Crona, G. Daily, A. de Zeeuw, J. Fischer, C. Folke, N. Kautsky, C. Kremen, S. A. Levin, T. Lindahl, M. Pinsky, A. Tavoni, B. Walker, and E. U. Weber. 2024. A Cautious Approach to Subsidies for Environmental Sustainability? *Science* 386 (6717):28–30.
- Sobkowiak, M., J. Bebbington, R. Blasiak, C. Folke, and H. Österblom. 2025. Accountability in Collaborative Settings: Understanding Inter-Corporate Sustainability Initiatives. *Accounting Forum*. Published online.
- de Vos, A., A. Quinlan, R. Biggs, E. M. Bennett, B. Martín-López, A. V. Norström, G. Peterson, M. Schoon, C. R. Allen, E. Andersson, J. Baird, P. Balvanera, M. Berbés-Blázquez, F. Berkes, R. Calderón-Contreras, S. R. Carpenter, A.J. Castro, G. S. Cumming, M. Falardeau, W. L. Fick, C. Folke, E. I. N. Galang, S. Gelcich, L. J. Gordon, N.B. Grimm, J. Hamilton, J. Hodbod, C. Ifejika Speranza, L. Koch, A. Kosanic, R. Lembi, B. Locatelli, K. Malmborg, A. Manyani, A. Mathisonslee, A. Ocampo-Melgar, K. Psiuk, C. Queiroz, M. Riechers, L. Schultz, O. Selomane, K. Sherren, M. Spierenburg, M. Trimble, F. Turkelboom, and C. Wallington. 2025. Welcome home! Introducing SocSES: A Society for Inclusive and Impactful Social-Ecological Research. *Ecology and Society* 30(2):32.

Other

- Folke, C. 2024. Foreword. In: Raval, J. et al. *Financing Nature – How collaborative approaches can drive private-sector biodiversity actions*. WWF Denmark and Milkywire, Stockholm, Sweden.
- Folke, C. and C. Wickström. 2025. Collaborating with Science. In: Stritzler-Levine, N. (ed.). Svenskt Tenn: *Interiors*. Phaidon.

Conferences, workshops and presentations

- Workshop: *ERSI*. Organised by Princeton University, Stockholm Resilience Centre and Potsdam Institute. Stockholm, Sweden, 27–29 August 2024. Opening speech: *The Anthropocene biosphere: the intertwined planet*.
- Meeting of the International Scientific Advisory Council (ISAC), Stockholm Resilience Centre, 11–12 September 2024. Participant.
- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. 14–16 September 2024, Askö and Royal Swedish Academy of Sciences, Sweden. Chair.
- Course for company Summa Equity investors. 17 September 2024, Stockholm, Sweden, Presentation: *Resilience thinking to navigate transformations*.
- Workshop: *Solvable Summit*. Arranged by Gullspång, Grytsbergs Manor, Sweden, 25–26 September 2024. Speaker and participant.
- Conference: *How does ecological risk relate to commercial risk?* Royal Society, London, United Kingdom, 2–3 October 2024. Presentation: *Tipping points and biosphere stewardship*.
- CEO annual meeting SeaBOS. Evian, France, 8–11 October 2024. Participant.
- Sustainability day: *Transitions in numbers*. SEB bank annual sustainability day, Stockholm, Sweden, 13 October 2024. Speaker.
- Workshops: *Earth Commission*, Future Earth, Sigtuna, Sweden, 16–18 October 2024, and South Africa 19 February 2025 and 15 May 2025. Participant.
- Board meeting: International Advisory Board (IAB), Stockholm Resilience Centre, Stockholm University, 21 October 2024.
- Symposium: *Humans and the Biosphere – Paths Forward for a Sustainable Future, celebrating 50 years of the Beijer Foundation*. Royal Swedish Academy of Sciences, 22 October 2024: Presentation: *Collaborative research for human wellbeing and a resilient planet*.
- Seminar: *Nationalstadsparkens roll idag och i framtiden (the role of the National City Park, today and in the future)*. Stockholm, Sweden, 5 February 2025. Speaker and panellist.
- Launch: *The new scientific society on social-ecological systems SocSES*. Online, 20 March 2025. Presentation.
- Formal Assembly: *Högtidssammankomst*. Royal Swedish Academy of Sciences, 31 March 2025. Keynote presentation.
- Workshop: *SeaBOS 8th working meeting*. Marholmen, Sweden, April 2025. Participant.
- Workshop: *Empirics of Hope*. Anthropocene Laboratory, Royal Swedish Academy of Sciences, April 2025. Presentation.
- Launch: *The Stockholm Resilience Day*. Stockholm Resilience Centre, Stockholm, April 2025. Speaker
- Conference: *Ecosperity week*. Temasek, Singapore, May 2025. Participant.
- Workshop: Beijer Young Scholars IV, Beijer Institute, Royal Swedish Academy of Sciences, Stockholm. 13 May 2025. Presentation.
- Workshop: *How will shared stories impact the prospects for human well-being in the Anthropocene?* Beijer Institute (Behaviour Economics and Nature Programme), the Royal Swedish Academy of Sciences, Stockholm Sweden, 2–4 June 2025. Participant.

Commissions

- Founder, Chair of the Scientific Committee, The Anthropocene Laboratory, Royal Swedish Academy of Sciences, Stockholm, Sweden. Since 2007.
- Founding Director, Chair of the Board, Stockholm Resilience Centre, Stockholm, Sweden.
- Principal investigator (with Gretchen Daily, Stanford University), Research Collaboration program *Fundamental Research in Biosphere-based Sustainability Science*, funded by the Marianne and Marcus Wallenberg Foundation), Stockholm University, Sweden.
- Co-director (with Beatrice Crona) of the Erling-Persson Family Academy Programmes, *New Approaches to the Grand Challenge: Global Finance, Global Health and the Biosphere*, The Royal Swedish Academy of Sciences, Stockholm, Sweden. Since 2012.
- Member of the The Royal Swedish Academy of Sciences, Stockholm, Sweden.
- International Member, The United States National Academy of Sciences, Washington, United States of America.
- Member of the Royal Norwegian Society of Sciences and Letters (DKNVS), Trondheim, Norway.
- Member of the Royal Swedish Academy of Agriculture and Forestry (KSLA).
- Member of the High Council of Trustees of the Nobel Foundation (Nobelfullmäktige). Since 2012.
- Member of the Earth Commission, Future Earth.
- Member of the Editorial Board of Must Knows in Resilience Science, Stockholm Resilience Centre, Global Resilience Partnership, and Future Earth.
- Member of the Monaco Ocean Science Federation. Monaco Ocean Science Federation, Monaco, France. Since 2019.
- Member of the Earth Resilience and Sustainability Initiative, Princeton, United Kingdom, Potsdam Institute for Climate Impact Research, Stockholm Resilience Centre.
- Member of the Misum Center Board, Stockholm School of Economics. Stockholm, Sweden.

- Scientific Advisory Board, Max Planck Institute for Geoanthropology, Jena, Germany.
- Scientific Advisory Board of the Frontiers of Arctic and Global Resilience (FRONT), University of Oulu, Finland.
- Advisory Board of Ecological Regime Shifts and Systemic Risk in Coupled Social-Ecological Systems (ECORISK) project, Osnabruck University.
- Partnership Committee of the Natural Capital Project, Stanford University, United States of America.
- Lead Faculty of the Earth System Governance Project.
- Fellow of the Resilience Alliance.
- Honorary Fellow, South American Institute for Resilience and Sustainability Studies (SARAS), Maldonado, Uruguay.
- Founder and on the Board of the Stockholm Resilience Foundation.
- Member of the SeaBOS Steering Committee SeaBOS and Board of the SeaBOS Foundation. Since 2016
- Advisory board of EAT and EAT Forum, Oslo, Norway. Since 2014.
- Advisor Biosphere Intelligence, Stockholm, Sweden, Since 2022.
- Member of the Temasek Sustainability Advisory Panel (TSAP), Singapore, Indonesia. Since 2019.
- Core knowledge partner, Taskforce on Nature-related Financial Disclosures (TNFD). Since 2022.
- Member of the SEB External Sustainability Advisory Board (SESAB), Stockholm, Sweden. Since 2021.
- Member of international McKinsey Sustainability Advisory Council. Since 2023.
- Member Board of Directors WRLD Foundation
- Advisory Panel for the Economics of a Livable Planet report, The World Bank.
- Reference group for international climate collaborations, Energimyndigheten (The Swedish Energy Agency).
- Scientific steering committee of the Anthropocene Symposium 2025.
- Chair, scientific committee of the Volvo Environment Prize. Since 2012.
- Member of Jury 100, Frontiers Planet Prize, Frontiers Research Foundation.
- Advisory and editorial board member of *Proceedings of the National Academy of Sciences USA (PNAS)*, *Ambio*, *the Anthropocene Review*, *Anthropocene Science*, *Ecology and Society*, *Environment and Development Economics*, *Environmental Innovation and Societal Transitions*, *Geography and Sustainability*, *Global Sustainability*, *One Earth*, and *Sustainability Science*

Other

- Honorary doctorate, University of Helsinki, Finland, May 2025.
- HM The King's Medal 12th size with the ribbon of the Order of the Seraphim, 2025, February 2025.
- RESIL – a symphony on the Biosphere with Jacob Mühlrad, Swedish Chamber Orchestra, Örebro Concert Hall in October 2024, and Royal Stockholm Philharmonic Orchestra, Stockholm Concert Hall in November 2024.
- Video: interview as part of the Beijer Foundation 50-year celebrations, October 2024. www.beijerstiftelsen.se
- Interview with Carl Folke in the book Beijerstiftelsen: 50 år av bildning (The Beijer Foundation, 50 years of learning). Bokförlaget Langenskiöld, September 2024.
- Recognised as Highly Cited Researcher by Clarivate.

Victor Galaz
Associate Professor, Programme Director, *Governance, technology and complexity*

Research focus

The societal and political challenges created by rapid global change and accelerating technological change, including studies of AI an its relationship to climate and planetary change, and the sustainability implications of increasing nuclear weapons risks.

Publications

Journal articles

- Gaffney, O., A. Luers, F. Carrero-Martínez, B. Dignam, L. Bengtsson, M. Jonas, W. Steffen, J. Rockström, and S. E. Cornell. 2025. The Earth alignment principle for artificial intelligence. *Nature Sustainability* 8(5):467–469.
- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.
- Sanchez, P., V. Galaz, et al. Climate change, nature degradation, and financial stability: A review of domino-effects between finance, climate, and the biosphere. *Ecology and Society*. In press.

Book

- Galaz, V. 2025. *Dark Machines: How Artificial Intelligence, Digitalization and Automation is Changing our Living Planet*. Routledge.

Other

- Galaz, V., M. E. O'Brien, D. G. Rand, and J. W. Schoenholtz-Read, editors. 2024. The illusion of control. Global Perspectives Special Collection, University of California Press.

Conferences, workshops and presentations

- Workshop: *Seeing Earth through AI – Using AI to advance breakthrough discoveries for people and planet*. Hosted by Beijer Institute in collaboration with Google DeepMind, Potsdam Institute for Climate Impact Research (PIK) at Roserbergs Castle, Sweden, 15–17 January 2025. Organiser.
- Workshop: *Converging Risks – unpacking the interplay between climate change and nuclear weapons risks*. Hosted by Beijer Institute in collaboration with Stockholm International Peace Research Institute (SIPRI) at Beijer Institute, Royal Swedish Academy of Sciences, 12 May 2025. Organiser.
- Public event: *Atomic Pasts, Atomic Futures*. Accelerator, Stockholm University, 13 May 2025. Organiser.
- Symposium: *AI and Development Cooperation*. Läkarmissionen/LM International, Stockholm, 17 May 2025. Panellist.
- Conference: *Mistra 30 years jubilee conference*, Stcokholm, Sweden, 12 September 2024. Panelist.
- Symposium: *11th Annual Trottier Symposium on Sustainable Engineering, Energy, and Design*. McGill University, Montreal, Canada, 10 October 2024. Keynote speaker.
- Public Lecture: *Dark Machines – AI and our planet*. Princeton University, USA, 24 February 2025. Speaker.
- Book Talk: *Dark Machines*. Urban Systems Lab, New School, New York, 26 February 2025. Speaker.
- Book talk: *Dark Machines*. Swedish Consul General in New York, 4 March 2025. Speaker and panellist.
- Book talk: *Dark Machines*. United Nations Development Program, 4 March 2025. Speaker.
- Public lecture: *AI och energi*. Technical Museum, Stockholm, 12 March 2025. Presenter and panellist.
- Public Lecture: *When AI meets the climate crisis – threat or opportunity?* Nobel Prize Museum, Stockholm, Sweden, 8 October 2024. Presenter.

Teaching and training

- Lecturing, undergraduate and PhD-courses, Stockholm University.

Johan Gars
PhD, Researcher

Research focus

Economic aspects of environmental issues, energy, and natural resources.

Publications

Journal article

- Gars, J., D. Spiro, and H. Wachtmeister. Winners and Losers of a Russian Oil-Export Restriction. *Public Choice*. In press.
- Spiro, D., H. Wachtmeister, and J. Gars. 2025. Assessing the impacts of oil sanctions on Russia. *Energy Policy* 206:114739.

Report

- Gars, J., D. Spiro, and H. Wachtmeister. Västs oljesanktioner mot Ryssland och deras konsekvenser för Sverige (The West's oil sanctions against Russia and their consequences for Sweden). *Nepp resultatblad* 7/2025.

Conferences, workshops and presentations

- Workshop: *Economics of Planetary Boundaries*, Marholmen, Sweden, 7–8 May 2025. Co-organiser and participant.

Teaching and training

- Lecturer, Master's course *Management of Biological Resources*, Department of Economics, Swedish University of Agricultural Sciences, fall 2024.
- Lecturer and course leader, undergraduate course, *Environmental Economics*, The Swedish program, Stockholm School of Economics, fall 2024 and spring 2025.
- Lecturer and module leader, Master's course *Governance and Management of Social-Ecological Systems: Economic Perspectives*, Stockholm Resilience Centre, Stockholm University, spring 2025.

Commissions

- Journal Reviewer for *The B. E. Journal of Macroeconomics*

Patrik Henriksson
PhD, Affiliated Researcher

Research focus

Evaluating aquaculture production using life cycle assessment (LCA), positioning seafood in the global food portfolio, and evaluating use of antimicrobials in aquaculture.

Publications

Journal articles

- Chary, K., P.J.G. Henriksson, and M. Troell. 2024. Competition for human edible feed resources in aquaculture – looking at tilapia farming. *Food Security* 17:57–72.
- Desbois A. P., L. A. Brunton, P. J. G. Henriksson, O. Luthman, M. Troell, and D. M. Green. 2025. Aquaculture requires special consideration in National Action Plans for Antimicrobial Resistance. *Science of The Total Environment* 958:177785.

Working paper

- Delval, M., N. Thonemann, P. J. G. Henriksson, S. E. Tanzer, and P. Behrens. 2025. Life cycle assessment of ocean-based carbon dioxide removal approaches: A systematic literature review. *SSRN Preprint*. SSRN.

Conferences, workshops and presentations

- Conference: LCAFood 2024. Barcelona, Spain. 8–12 September 2024. Presentation: *Batch generation of agricultural LCIs: comparison of strategies*
- Workshop: *SeaBOS Keystone Dialogue*, Annecy, France. October 2024. Participant.
- Annual Meeting: *Inequality and the Biosphere* project. The Beijer Institute, Royal Swedish Academy of Sciences and Idöborg, Sweden. 12–16 May, 2025. Organiser and participant.

Teaching and training

- Main supervisor of MSc student Winston Cotgreave (Stockholm University).

Marie Huss
Operations Manager

Coordinates the Beijer Institute's operational activities. This includes planning and organising international research meetings and structuring the internal and operational work at the institute, administration of travel and meetings, archiving, and responsibility for the administration of an international environmental award. Duties during the period included:

- Responsible for the administration of the Board and Askö meetings in September 2024.
- Co-organiser of the symposium "Social sciences in an era of rapid global change" in October 2024 at the Academy.
- Co-organiser for Beijer Young Scholars IV in May 2025 at the Academy and the island of Idöborg.
- Provided practical support for the organisation of the BEN workshop held in June 2025 at the Academy *'How Will Shared Stories Impact the Prospects for Human Well-Being in the Anthropocene?'*

Malin Jonell
PhD, Researcher

Research focus

Food systems, sustainable aquatic production and the role of private regulatory mechanisms in transforming food production and consumption.

Publications

Journal articles

- Blandon, A., M. Jonell, H. Ishihara, and A. Zabala. 2025. What does "sustainable seafood" mean to seafood system actors in Japan and Sweden? *Ambio* 54:1010–1025.
- Herzon, I., R. Mazac, M. Erkkola, T. Garnett, H. Hansson, M. Jonell, M. Kaljonen, T. Kortetmäki, A. Lonkila, M. Niva, A. M. Pajari, T. Tribaldos, M. Toivonen, H. L. Tuomisto, K. Koppelmäki, and E. Röös. 2025. Both downsizing and improvements to livestock systems are needed to stay within planetary boundaries. *Nature Food* 5(8):642–645.
- Scharin, H., A. J. G. Sinner, E. Boyd, C. Cvitanovic, D. J. Dieleman, K. T. Fairbanks, B. P. Gillanders, M. Hamann, M. Harma, H. L. MacDonald, A. L. Schultz, C. A. Smith, and K. L. Nash. 2024. Designing equitable ocean governance. *Environmental Research: Oceans* 5:100121.

Reports and briefs

- Hansson, H., P.-A. Hansson, L. J. Gordon, M. Hellström, M. Jonell, T. Lindahl, Y. Ran, M. Persson, and E. Röös. 2024. *Mistra Food Futures*: Final report phase one #25.
- Hansson, H., P.-A. Hansson, G. Carlsson, C. Eriksson, L. Gordon, M. Hellström, M. Jonell, T. Lindahl, E. Röös, and U. Sonesson. 2024. Agriculture and food: improved preparedness with respect to food can be achieved through sustainable and resilient food systems – examples from Sweden. *Mistra Food Futures Policy Brief*.
- Ran, Y., U. M. Persson, T. Lindahl, M. Jonell, B. Macura, C. Cederberg, and E. Röös. 2024. Miljömässigt hållbar livsmedelskonsumtion – vad är det och hur når vi dit? *Naturvårdsverket Report* 7151.

Conferences, workshops and presentations

- Conference: *Future food – i en orolig tid (Future Food – in worrying times)*. Mistra Food Futures, Uppsala, 29 August 2024. Presentation.
- Seminar: *Hållbara matval – vems ansvar? (Sustainable food choices – who's responsibility?)*. Epok (Swedish University of Agricultural Sciences), Stockholm, Sweden, 18 September 2024. Panellist.
- EAT Community of Communities for Action, *Science-Based Actions to Achieve Healthy, Sustainable and Just Dietary Transitions Food Retail and Manufacturers Community for Action*, Dialogue#1 Mars 2025, Participant.
- Workshop: *Retail for sustainability project*. Arranged by Swedish University of Agricultural Sciences, Royal Swedish Academy of Sciences, Matlust, Axfoundation and Swedish retailers at Torsåkers manor, Sweden, March 2025. Co-organiser.
- EAT Community of Communities for Action, *Science-Based Actions to Achieve Healthy, Sustainable and Just Dietary Transitions Food Retail and Manufacturers Community for Action*, Dialogue#2 May 2025, Facilitator.

Teaching and training

- Course: *Sustainability perspectives on contemporary fisheries – Where Have all the Fishes Gone*, Swedish University of Agricultural Sciences (online), 26 September 2024. Lecturer.
- Course: *Diet and health – scientific evidence, recommendations and sustainability*. Karolinska Institute, 3 October 2024. Lecturer.
- Course: *Sustainability science II, Module II Corporations and sustainable development in the Anthropocene II*, Module leader and lecturer.
- Main supervisor of PhD student Abigayil Blandon (Sustainability Science, Stockholm Resilience Centre, Stockholm University).
- Main supervisor of MSc student Astrid Mohss (Social-Ecological Resilience for Sustainable Development Stockholm Resilience Centre, Stockholm University).
- Co-supervisor of PhD student Md Rezanual Islam (Swedish University of Agricultural Sciences, SLU).

Commissions

- Theme leader: Transformative Futures, Stockholm Resilience Centre, Stockholm University. Since 2025.
- Member of editorial board for *Environmental Research: Food Systems*. Since 2023.
- Internal reviewer, PhD thesis Anne Charlotte Bunge Stockholm Resilience Centre, Stockholm University.
- Member of EAT SFF25 Scientific Advisory Group.
- Member of the scientific council of Questionmark, NL.

Sofia-Kristin Kokinelis
MSc, Finance and HR Administrator

Sofia-Kristin is employed in the finance department at the Royal Swedish Academy of Sciences (RSAS) and works as finance and HR administrator for both the Beijer Institute and the Global Economics Dynamics and the Biosphere (GEBD) programme. She has a central and broad role in

financial management, as she is responsible for project financing, accounting, financial reporting, budgeting and drafting agreements between Beijer/GEDB and partners for the transfer of funds and is also a human resources (HR) administrator.

Sofia-Kristin prepares the annual budget in consultation with the management of Beijer and GEDB, follows up and indicates deviations that mean that the budget needs to be adjusted. Prepares annual reports for the board.

In her role as a project controller, she helps project managers make budgets for project applications, follows up on policies around project initiation and project formation, reviews items on monthly lists and sends periodic reports to project managers at regular intervals. Furthermore, she supports project managers with financial information and assists them with financial reporting to financiers.

In her role as HR administrator, she follows the process of new recruitment, prepares staff contracts, helps and communicates with employees. She is the link between Beijer/GEDB and RSAS in personnel matters. Due to the research collaboration between Beijer and the Stockholm Resilience Centre (SRC), her tasks also require close collaboration with the finance team at SRC.

Chuan-Zhong Li
Professor, Affiliated Researcher, Senior Research Fellow

Research focus

Energy and environmental economics, economic growth and dynamic welfare, sustainability studies, tipping points and resilience analysis.

Publications

Journal article

- Wu, S., X. Han, C. Z. Li, A. Löschel, X. Lu, L. Du, X. Cheng and C. Wei. 2024. Gigatonnes Missing Biomass Energy Consumption in Rural China. *The Energy Journal* 45(5), 149–166.

Discussion paper

- Li, C.Z. and G. Engström. 2025. Beijer Discussion Paper 282: Crop diversity, organic farming, and agricultural productivity: Evidence from European regions. *Beijer Discussion Paper Series*.

Conferences, workshops and presentations

- Conference: *Annual Conference on Environmental and Resource Economics (PACE)*. Hangzhou, China, 1–2 July 2024. Presentation: *On the analytics of optimal carbon taxes*.
- Workshop: *Economics of Planetary Boundaries*, Marholmen, Sweden, 7–8 May 2025. Presentation: *Crop diversity, organic farming, and agricultural productivity: Evidence from European regions*.

Commissions

- Program committee, Chinese Association of Environmental and Resource Economics (CAERE), 2024.
- Program committee, European Association of Environmental and Resource Economics (EAERE), 2025.
- Organizing committee, Professional Association of China's Environment (PACE) Annual conference, Hangzhou, China, 2025
- Guest editorial team, A special issue on "Natural disasters and resilience", *Ecological Economics*, dedicated to Karl-Göran Mäler.

Therese Lindahl
PhD, Programme Director, *Behaviour, Economics and Nature*

Research focus

Human behaviour in social-ecological systems. Linking individual motivators and actions to emergent large-scale behavioural patterns, institutions and sustainability outcomes. Behavioural responses to ecosystem dynamics (e.g. threshold effects, uncertainty and resource variability) and implications for cooperation and resource management. Attitudes and perceptions towards the environment and towards environmental policy. Methods for changing behaviour.

Publications

Journal articles

- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.
- Lindahl, T., and N. Linder. 2024. What factors influence choosing fish over meat among grocery shoppers? Insights from an unsuccessful nudge intervention, *Ecological Economics* 224:108297.
- Ran Y., U. M. Person, M. Jonell, T. Lindahl, B. Macura, A. Brons, C. Jeroen, A. A. Hatab, and E. Röös. Effectiveness of governance interventions in achieving environmentally sustainable dietary behaviours – a review of the evidence. *Environmental Research: Food Systems*. In press.
- Segerson, K., S. Polasky, M. Scheffer, R. Sumaila, J.-C. Cardenas, K. Nyborg, E. P. Fenichel, J. M. Anderies, S. Barrett, E. M. Bennett, S. R. Carpenter, B. Crona, G. Daily, A. de Zeeuw, J. Fischer, C. Folke, N. Kautsky, C. Kremen, S. A. Levin, T. Lindahl, M. Pinsky, A. Tavoni, B. Walker, and E. U. Weber. 2024. A cautious approach to subsidies for environmental sustainability. *Science* 386(6717):28–30.

Report

- Hansson, H., P.A. Hansson, L. Gordon, M., Hellström, M. Jonell, T. Lindahl, E. Röös, B. Persson, U. Soneson. 2024. Mistra Food Futures – Final report phase one. *Mistra Food Futures Report* #25.

Conferences, workshops and presentations

- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. 14–16 September, Askö and Royal Swedish Academy of Sciences, Sweden. Participant.
- Workshop: *ECORISK inauguration workshop*. University of Osnabrück, Germany, 3–5 March 2025. Speaker and participant.
- Seminar: *Agriculture in a risky world*. University of Osnabrück, Germany, 3 March 2025. Panellist.
- Workshop: *How will shared stories impact the prospects for human well-being in the Anthropocene?* Beijer Institute (Behaviour Economics and Nature Programme), the Royal Swedish Academy of Sciences, Stockholm Sweden. 2–4 June 2025.
- Conference: *Policies for Sustainable Food Consumption*. Uppsala, Sweden, 9–11 June 2025. Presenter.
- Conference: *Annual meeting of the European Association of Environmental and Resource Economics (EAERE)*. Bergen, Norway 16–19 June 2025.

Teaching and training

- Main supervisor of PhD student Sigrid Brydolf (Stockholm Resilience Centre, Stockholm University).
- Co-supervisor of PhD student Krisztina Jónás (the Norweigan College of Fishery Science, Arctic University of Norway).
- Lecturer and course coordinator, Master's course, *Environment, Lifestyles and Individuals*, International Master Programme in Environmental Social Science, Stockholm University, autumn 2024.
- Lecturer, Undergraduate course, *Världens eko (Echo of the World)*, Stockholm University, autumn 2024.
- Lecturer, Master's course, *Governance and management of social-ecological systems: Economic Perspectives*, Stockholm Resilience Centre, Stockholm University, spring 2025.
- Lecturer, Undergraduate course, *Environmental management in planning*, Department of Physical Geography, Stockholm University, spring 2025.

Commissions

- Member of the Programme Board, Master in Sustainability, Environment and Decision Making at University of Gävle. Since 2022.
- Member of the Environmental Research Council of the Swedish Environmental Protection Agency (Miljöforskningsrådet för Naturvårdsverket). Since 2025.
- Member of the Advisory Board, ECORISK research group, University of Osnabrück. Germany. Since 2024.
- Member of the reference group, Expertgruppen för studier i offentlig ekonomi (Expert group on Public Economics), Regeringskansliet (Government Offices of Sweden) 2024–2025.
- Associate, South American Institute for Resilience and Sustainability Studies (SARAS). Since 2018.
- Journal reviewer for *Ecological Economics, Humanities and Social Sciences Communications*, and *Scientific Reports*.

Other

- Participant in Svenskt Tenn's conversation series *Akademisamtal* (Academy talk) for the book launch *Svenskt Tenn: Interiors*. April, 2025.
- Invited speaker for food retailer ICA's research days, Stockholm, November 2024. Presenter and Panellist.

New Funding

- PLATE: Formas grant, SEK 60 million (SEK 5 million to Beijer Institute), Research centre for resilient meals, 2024–2027. Adamic partners are Stockholm Resilience Centre, Agricultural University in Uppsala, and Royal Institute of Technology. Non-academic partners include Stockholm municipality, Uppsala municipality, Gävleborg region, Swedish Food Agency, Axfoundation, Compass Group, TV-köket, Livegreen, WWF, Reformaten, and Max Burgers.

Timon McPhearson
Professor, Affiliated researcher, Senior Research Fellow

Research focus

Building on the foundational work established in the previous period, the Urban Systems Lab has continued to advance ClimateIQ, our AI-driven climate hazard assessment platform supported by a $5 million grant from Google.org's Impact Challenge on Climate Innovation. During this reporting period, we have significantly progressed the development and deployment of ClimateIQ's innovative multi-hazard modelling environment, which integrates advanced physics-based models with machine learning to deliver high-resolution climate risk information for urban areas.

Working in partnership with Climasens, we have developed user-centered dashboard interfaces and APIs that make sophisticated climate risk data accessible to city planners, emergency managers, and community organisations. The collaboration with Victor Galaz and the Beijer Institute has enriched our approach with insights from artificial intelligence, ecological economics, and resilience thinking, ensuring that ClimateIQ addresses not only technical challenges but also broader systemic vulnerabilities in urban climate adaptation.

Publications

Journal articles

- Branny, A., E. Andersson, and T. McPhearson. 2025. Micro-climate of nature-based solutions in Stockholm royal seaport. *Nature-Based Solutions* 7:100206.
- Creutzig, F., T. McPhearson, R. Bardhan, C. Belmin, W. T. L. Chow, M. Garschagen, A. Hsu, Ş. Kılkış, S. T. Islam, N. Milojevic-Dupont, M. Pathak, R. H. M. Pereira, P. Salehi, and D. Ürge-Vorsatz. 2025. Bridging the scale between the local particular and the global universal in climate change assessments of cities. *Nature Cities* 2:369–378.
- Dutta, M., P. Herreros-Cantis, T. McPhearson, A. Mustafa, M. I. Palmer, M. Tosca, J. Ventrella, and E. M. Cook. 2025. New York City 2100: Environmental justice implications of future scenarios for addressing extreme heat. *Landscape and Urban Planning* 254:105249.
- Esperon-Rodriguez, M., R. Gallagher, C. Calfapietra, P. Cariñanos, C. Dobbs, A. A. Eleuterio, D. Esperon Rodriguez, A. Jahani, E. Litvak, S. J. Livesley, G. Manoli, R. M. Marchin, T. McPhearson, C. Messier, J. Östberg, L. A. Roman, A. Russo, M. Saffariha, C. Shackleton, H. Sjöman, I. Solfjeld, J. Susskind, J.-C. Svenning, N. van Doorn, B. Wiström, J. Yang, and M. G. Tjoelker. 2025. Barriers and opportunities for resilient and sustainable urban forests. *Nature Cities* 2(4):290–298.
- Esperon-Rodriguez, M., R. V. Gallagher, J. Lenoir, V. L. Barradas, L. J. Beaumont, C. Calfapietra, P. Cariñanos, S. J. Livesley, T. Iungma, G. Manoli, R. M. Marchin, T. McPhearson, C. Messier, M. Nieuwenhuijsen, S. A. Power, P. D. Rymer, and M. G. Tjoelker. 2025. Urban heat in global cities and the role of nature-based solutions in mitigating future climate risks. *Environmental Research: Climate* 4(2):023001.
- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.
- Herreros-Cantis, P., L. Hoffman, C. Kennedy, Y. Kim, J. Charles, V. Gillet, A. Getzin, D. Littlefield, A. Zielinski, J. Bernstein, R. Settle-Robbinson, J. Langemeyer, M. Neumann, and T. McPhearson. 2024. Co-producing research and data visualization for environmental justice advocacy in climate change adaptation: The Milwaukee Flood-Health Vulnerability Assessment. *Cities* 155:105474.
- Hoff, R., R. Sparks, M. Chester, A. Mustafa, N. Johnson, A. Birchfield, T. McPhearson, R. Li, N. Ahmad, and I. Searles. 2025. Cascading failure propagation and perfect storms in interdependent infrastructures. *ASCE OPEN: Multidisciplinary Journal of Civil Engineering* 3(1):04025001.
- Rosenzweig, B., F. A. Montalto, P. Orton, J. Kaatz, N. Maher, J. Kleyman, Z. Chen, E. Sanderson, N. Adhikari, T. McPhearson, and P. Herreros-Cantis. 2024. NPCC4: Climate change and New York City's flood risk. *Annals of the New York Academy of Sciences* 1539(1):127–184.
- Wang, J., W. Zhou, T. McPhearson, E. M. Cook, P. Herreros-Cantis, and J. Liu. 2025. Socio-ecological impacts of the investment of urban nature in heat mitigation for two megacities. *Earth's Future* 13(6):e2025EF005976.

Conferences, workshops and presentations

- Urban NSB Day 2024. Utrecht University, Utrecht, the Netherlands, June 2024. Keynote presentation: *Nature-based Pathways for Health in Cities*.
- Conference: *Cost-effective and Fair Climate Change Adaptation: Deploying nature-based solutions and green infrastructure in urban areas*. Joint Initiative from from the UCL Institute for Risk and Disaster Reduction, the UCL Bartlett School of Sustainable Construction, and the European Investment Bank, UCL, London, UK, September 2024. Keynote presentation: *Urban nature-based solutions and equity*.
- Conference: *NYC Climate Week 2024*. The New York School, New York, USA, September 2024. Presentation: *ClimateIQ: Exploring the Potential of AI Tools for Climate Risk and Resilience*.
- Conference: NYC Climate Week 2024. New York Federal Reserve, New York, USA, September 2024. Presentation: *Heat, Health, and Wealth: Aligning Public, Private, and Philanthropic Action to Protect Communities and the Economy*.
- Conference: *NYC Climate Week 2024*. The New School, New York, USA, September 2024. Presentation: *ClimateIQ: Exploring the Potential of AI Tools for Climate Risk and Resilience*.
- Summit: *Urban Tech Summit 2024*. Cornell Tech, New York, USA, 19 November 2024. Panel member and presentation: *Hazards, Impacts, and Technology Solutions: Flooding*.
- Workshop: *Seeing Earth through AI: Using AI to advance breakthrough discoveries for people and planet*. Stockholm Resilience Centre, Google DeepMind and Potsdam Institute for Climate Impact Research, Stockholm, Sweden, January 2025. Presentation: *Cities, AI, and Resilience*.
- Seminar: *Anthropocene climate risks and resilience in cities*. Urban Science Research Seminar Series, Center for Urban Science + Progress (CUSP), New York University Tandon, New York, NY, USA. 22 April 2025. Presenter.
- Symposium: *Climate Resilience in New York City*. Cornell Mui Ho Center for Cities Symposium, Cornell University, New York, NY, USA, 24 April 2025. Moderator: *Flooding in New York City*.
- Summit: *Climate Solutions Summit NYC*. Host: New York Climate Exchange, Governors Island, New York, USA, April 2025. Presentation: *NYC Panel on Climate Change, the 5th Assessment*.

Teaching and training

- Supervisor of Postdoc/USL fellow Madhavi Jain (Jawaharlal Nehru University).
- Supervisor of Postdoc/USL fellow Sally El Hajjar (University of the Basque country).
- Supervisor of Postdoc/USL fellow Ashish Shrestha (Arizona State University).
- Supervisor of Postdoc/USL fellow Rajan Jain (Arizona State University).
- Supervisor of postdoc Loan Diep (UCL-London). Completed.
- Supervisor of PhD student Mallory Rutigliano (Milano School of Public and Urban Policy).
- Supervisor of PhD student Sofya Krasnya (Milano School of Public and Urban Policy).
- Supervisor of PhD student Ishita Rahman (Milano School of Public and Urban Policy).
- Supervisor of PhD student Julie Steryvson (Milano School of Public and Urban Policy).
- Supervisor of PhD student Bart Orr (Milano School of Public and Urban Policy).

Commissions

- Co-chair (formerly panel member), New York Panel on Climate Change (NPCC). Since 2019
- Contributing author, Special Report on Climate Change and Cities (SRCCC), Intergovernmental Panel on Climate Change (IPCC). Since 2025.
- Editorial Board member for *Urban Transformations*.
- Editorial Board member for *Nature-Based Solutions*.
- Editorial Board member for *Urban Climate*.
- Founding associate editor for *Nature npj Urban Sustainability*.
- Associate editor for *Ecology and Society*.

Other

- Expert assignment: Chapter Lead, United by Nature Assessment (formerly the First National Nature Assessment – NNA1), U.S. Global Change Research Program, 2024–2025.
- Documentary production: NATURA Global Roadmap for Urban Nature-Based Solutions, co-produced with One World Network Ltd. To be launched in conjunction with COP30, 2025.

New Funding

- Disaster Scenario Investigation and Validation for Climate Emergency Readiness in Africa (DISCOVER-Africa), Climate Change AI Innovation Grant, $150,000.
- Green Talent: Building Capacity and Partnerships for Systemic Solutions to the Climate and Biodiversity Crisis, €3,000,000, EU Horizon, 2025.

Oskar Nyberg
PhD, Researcher

Research focus

Antimicrobial resistance in the seafood value chain – Science lead for the SeaBOS Keystone Project on AMR.

Conferences, workshops and presentations

- Conference: *Antibiotikaresistens – Hur går vi från forskning till praktik, produkter och policy? (Antibiotic resistance – How do we move from research into practice, products and policy?)*, Nalen, Stockholm, Sweden, 6 Feb 2025. Poster: *Monitoring antibiotic resistance in the seafood supply chain.*
- Workshop: *SeaBOS 9th working meeting*, Stockholm, Sweden, 2–4 April 2025. Presentation and participant.
- WTO SPS Committee Thematic Session on Addressing Antimicrobial Resistance Through SPS Measures in International Trade, hybrid meeting, Geneva, Switzerland, 17 June 2025. Presentation: *A science-industry collaboration for reducing antibiotic use in aquaculture – development of AMR monitoring.*
- Dialogue: *SeaBOS 9th Keystone Dialogue*, Annecy, France, 9–10 October 2024. Presentation and participant.

Commissions

- Journal reviewer for *Marine Pollution Bulletin*.

Other

- Participation in the podcast *Transforming Tomorrow*, discussing AMR from a global business perspective, produced at the Pentland Centre for Sustainability in Business University of Lancaster, Lancaster, United Kingdom. 30 April 2025.

Belinda Reyers
Professor, Affiliated researcher, Senior Research Fellow

Research focus

Social-ecological systems perspective in sustainable development: research and practice.

Publications

Journal articles

- Reyers, B., and E. M. Bennett. 2025. Whose conservation, revisited: how a focus on people–nature relationships spotlights new directions for conservation science. *Philosophical Transactions of the Royal Society* B 380(1917):20230320.

Book chapter

- Gurung, J., J. Leventon, F. Wickson, J. Dabezies, T. Olemako, J. Penca, A. Rajvanshi, R. Remans, E. Turnhout, Y. Yoshida, A. Kahrić, J. Naggea, P. Bridgewater, B. Reyers, and A. Renaud. 2024. Transformative change and a sustainable world. In: K. O'Brien, L. Garibaldi, and A. Agrawal, editors. *Thematic Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change*. IPBES, Bonn, Germany.

Report

- Reyers, B. 2025. Accounting for Nature in Development: Final Technical Report to the Natural Capital Project, Stanford University, USA.

Conferences, workshops and presentations

- Workshop: *Transformative potential of biodiversity mainstreaming in South Africa*. Co-hosted by University of Pretoria and South African National Biodiversity Institute. Cape Town, South Africa, August 2024. Organiser and host.
- Workshop: *Ecological Infrastructure for Water Security Project*. The Development Bank of South Africa, Midrand, South Africa, 5–6 February 2025. Participant.
- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. 14–16 September, 2024, Askö and Royal Swedish Academy of Sciences, Sweden. Participant.
- Conference: *Bending the curve of biodiversity loss: what are we trying to change?* Natural Capital Symposium, Stanford University, June 2024. Presentation and session host.

Teaching and training

- Main supervisor of Post-Doctoral Fellow Dr V. Mokoka (University of Pretoria, South Africa).
- Main supervisor of Post-Doctoral Fellow Dr. R. Davids (University of Pretoria, South Africa).

Commissions

- Member, Board of Directors, the NSERC's Strategic Initiatives: RESNET at McGill University. Canada. Since 2024.
- Chair, Scientific Advisory Group, the Welcome Trust funded Programme: SHEFS, University of Kwazulu Natal, South Africa, and University of London, UK. Since 2024.
- Review editor of the Intergovernmental Science Policy Platform for Biodiversity and Ecosystem Services: Transformative change assessment. From 2022–2024.
- Member of Advisory Board, United National Development Program – Human Development Report Office. Since 2020.
- Member of the Scientific Council of Montpellier University's Advanced Knowledge Institute on Transitions (MAK'IT), Montpellier, France. Since 2019.
- Member of the Editorial Board, *Global Environmental Change*. Since 2021.
- Subject Editor for the *Current opinion in environmental sustainability*. Since 2019.

New Funding

- University of Pretoria, Department of Research and Innovation: Postdoctoral Fellowship; April 2025–April 2026. SEK 150 000.

Caroline Schill
PhD, Researcher

Research focus

Human behaviour in relation to escalating ecosystem change, environmental uncertainties, and social inequalities, grounded in complexity and social-ecological systems thinking. Combining insights and methods from sustainability science, ecology, and behavioural sciences, and using multiple- and mixed-method approaches to study human actions and perceptions as context-dependent and co-evolving.

Publications

Journal articles

- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.

Conferences, workshops and presentations

- Conference: *Pathways to Sustainability: Social-ecological resilience and transformation across multiple scales*, Programme on Ecosystem Change and Society (PECS)-III., Montréal, Canada, August 2024. Presentation: *Living with rapid environmental change in Wainwright, northern Alaska: Iñupiat community insights through participatory photography*.
- Conference: *Pathways to Sustainability: Social-ecological resilience and transformation across multiple scales*. Programme on Ecosystem Change and Society (PECS)-III, Montréal, Canada, August 2024. Special session organizer and co-chair: *Regime shifts research meets transformations research – advancing critical frontiers for safe and just futures.*
- Workshop: *ERSI (Earth Resilience and Sustainability Initiative) on critical transitions and transformations*, Stockholm Resilience Centre, August 2024. Invited participant.
- Seminar: Centre for Sustainability Transitions (CST) Colloquium Series, Stellenbosch University, South Africa, online, September 2024. Presentation: *Living with the 'new normal' in the Arctic: looking behind the scenes of a research project bringing together interpretive and behavioural approaches in collaboration with the Iñupiat community of Wainwright (northern Alaska).*
- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. Askö and Royal Swedish Academy of Sciences, Sweden. Participant and core writing team member.
- Workshop: *Empirics of Hope Data Exploration*. Anthropocene Laboratory, Royal Swedish Academy of Sciences, Stockholm, Sweden, October 2024. Co-organizer and co-host.
- Seminar: *'Eco-anxiety'* with Maria Ojalá (University of Oulu, Finland). How2be a scientist, Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden, October 2024. Invited discussant.

- Symposium: *Humans and the Biosphere – Pathways to a Sustainable Future*. The Beijer Foundation's 50th anniversary, Royal Swedish Academy of Sciences, Stockholm, Sweden, October 2024. Panel member.
- Workshop: *Theory development on collective action in common pool resources – taking stock and looking ahead*. AgentEx project, Högberga Gård, Lidingö, Sweden, November 2024. Co-host and presentation: *Why bother with conducting controlled behavioural experiments to study collective action in the Anthropocene-Biosphere? – some personal reflections and insights from recent work*.
- Seminar: *Brown Bag Lunch*. Stockholm Resilience Centre, Stockholm University, December 2024. Presentation: *Living with rapid environmental change in Wainwright, northern Alaska: Iñupiat community insights through participatory photography*.
- Public seminar: College of Business and Public Policy. University of Alaska Anchorage, Anchorage, USA, January 2025. Presentation: *Living with the 'new normal': local community perspectives on drastic environmental change in the Arctic.*
- Workshop: *Patterns work team inequality and the biosphere project*, Krägga Herrgård, Bålsta, Sweden, 2–4 April 2025. Participant.
- Programme day: *Formas Career Grant* 2024. Formas, Stockholm, Sweden, April 2025. Presentation: *Stepping stones – some personal reflections and insights from (almost) 8 years as a sustainability science researcher.*
- Workshop: *Empirics of Hope*. Anthropocene Laboratory, Royal Swedish Academy of Sciences, Stockholm, Sweden, April 2025. Co-organiser and co-host.
- Public seminar: *Inequality and the Biosphere*. Royal Swedish Academy of Sciences, Stockholm, Sweden, May 2025. Co-organiser.
- Roundtable dialogue: *Inequality data: identifying critical indicators and going beyond socio-economic variables*. Organised by the Inequality and the Biosphere project, Royal Swedish Academy of Sciences, Stockholm, Sweden, May 2025. Participant.
- Workshop: *Inequality and the Biosphere consortium meeting*. The Beijer Institute, Royal Swedish Academy of Sciences and Idöborg, Sweden. 12–16 May, 2025. Co-organiser and participant.
- Workshop: *The Human Mind and Brain in the Anthropocene*, Stockholm Resilience Centre, Hesselby Slott, Stockholm, Sweden, May 2025. Invited participant.
- Workshop: *How will shared stories impact the prospects for human well-being in the Anthropocene?* Behavior, Economics, and Nature Research Programme workshop, Royal Swedish Academy of Sciences, Stockholm, Sweden, June 2025. Co-organiser and participant.

Teaching and training

- Course leader, Master's level course *Governance and management of social-ecological systems*, Stockholm Resilience Centre, Stockholm University, spring 2025.
- Module leader, lecturer and examiner, Master's level course module *Theories and methods for governance of the commons*, Stockholm Resilience Centre, Stockholm University, spring 2025.
- Co-supervisor of PhD student Raakel Vuojolainen (Department of Biological and Environmental Science, University of Jyväskylä, Finland).
- Mentor of Postdoc Dianty Ningrum, Empirics of Hope, Anthropocene Laboratory, KVA.
- Main supervisor of Master's student Jesús Manuel Jiménez Torres (Sustainable Territorial Development, University of Magdalena, Santa Marta, Colombia).
- Main supervisor of research intern Karoline Hermansson (International Master's Programme in political science at Stockholm University), Inequality and the Biosphere project, Beijer Institute, Royal Swedish Academy of Sciences.
- External reviewer of Individual Study Plan for PhD student Carolin Seiferth (Sustainability Science, Stockholm Resilience Centre, Stockholm University).
- Lecturer in Beckmans College of Design graduate level course in visual communication, Royal Swedish Academy of Sciences, spring 2025: *Living with the 'new normal': a local community's perspective on environmental change in the Arctic.*
- Tutor of three students in graduate level course in visual communication, Beckmans College of Design, collaboration between Beckmans, Svenskt Tenn and the Beijer Institute, spring 2025.

Commissions

- Theme Leader for the Interacting Complexities research theme (together with Emilie Lindqvist and Juan C. Rocha), Stockholm Resilience Centre, Stockholm University, August 2020 to August 2024.
- Mentor, Anthropocene Laboratory, Royal Swedish Academy of Sciences. Since 2023.
- Member of the Teachers' board, Stockholm Resilience Centre, Stockholm University. Since 2022.
- Member of Scientific Programme Committee of the Anthropocene Symposium 2025.
- Member of the Evaluation committee, Licentiate thesis defence of PhD student Kiran Pereira, Sustainability Science, Stockholm Resilience Centre, Stockholm University, June 2025.
- Reviewer of three Stockholm Resilience Centre Research Ethics Reviews, Stockholm Resilience Centre, Stockholm University.
- Journal reviewer for *Environmental Science and Policy*, and *Global Sustainability*.

Other

- Exhibition of participatory photography study with members from the Iñupiat community of Wainwright, North Slope Alaska, USA, in June 2023, within the Formas-funded project "Living with the 'new normal': Exploring human responses to abrupt environmental change in the Arctic using behavioural and interpretive social science", Stockholm Resilience Centre, Stockholm University, December 2024, and Wainwright Community Centre, Alaska USA, January 2025.
- Fieldwork in collaboration with the Iñupiat community of Wainwright, North Slope Alaska, USA, Simon West (Australian National University) and Kinga Psiuk (Centre for Sustainability Transitions, Stellenbosch University). Pre-registerd survey experiment, incentivised risk game, and qualitative follow-up interviews within the Formas-funded project "Living with the 'new normal': Exploring human responses to abrupt environmental change in the Arctic using behavioural and interpretive social science" (#2018-01176), January 2025. Lead.
- Research supervision – theory and practice course, Centre for the Advancement of University Teaching, Stockholm University, Autumn 2024.
- Member of the Careoperative (leadership collective experiment for sustainability transformations). Since 2019.

New Funding

- 'Living with the 'new normal'' (SEK 100,000), additional funds to cover fieldwork expenses of ongoing Formas-funded project ('New Normal project'). Main applicant. Hierta Retzius Foundation Fund for Scientific Research Open Call 2024.

Agneta Sundin
Communications Officer

Agneta is responsible for developing and editing the website and the annual report and administering the Beijer publication series, as well as organising and moderating workshops, seminars and other events. During the year, among other things, she co-organised the symposium "Social Sciences in an Era of Rapid Global Change" in October 2024 at the Academy; she was Beijer Institute project leader for collaboration with Beckmans College of Design and Design firm Svenskt Tenn, resulting in the exhibition *What Happens In the Arctic Does Not Stay In the Arctic* in spring 2025; and she co-organised the Beijer Young Scholars IV workshop in May 2025, at the Academy and the island of Idöborg. A member of Stockholm Resilience Centre's (SRC) communications team, she is involved in activities arranged jointly with SRC. Agneta also works for the Academy's GEDB programme.

Anna Tompsett
PhD, Researcher

Research focus

Development economics, environmental economics, public good provision, infrastructure.

Publications

Journal articles

- Habib, M. A., S. Cocciolo, M. M. A. Raihan, P. Bhattacharya, and A. Tompsett. 2024. Training caretakers to clean community wells is a highly cost-effective way to reduce exposure to coliform bacteria. *npj Clean Water* 7(1):110.

Preprints

- Von Carnap, T., R.M. Asiyabi, P. Dingus, and A. Tompsett. 2025. Using satellite imagery to monitor remote rural economies at high frequency. *arXiv preprint* arXiv:2407.12953.

- Niemi, M., N. Nordfors, and A. Tompsett. 2025. Trade and pollution: evidence from India. *arXiv preprint* arXiv:2502.09289.
- Masson, S., A. Potts, A. Williams, S. Berggreen, K. McLaren, S. Martin, E. Noda, N. Nordfors, N. Ruecroft, H. Druckenmiller, S. Hsiang, A. Madestam, and A. Tompsett. 2025. A robot-assisted pipeline to rapidly scan 1.7 million historical aerial photographs. *arXiv preprint* arXiv:2503.24063.

Conferences, workshops and presentations

- Conference: *World Water Week*. Stockholm, Sweden, August 2024. Presentation: *Across Borders: A Global Synthesis of the Latest WASH Research*.
- Seminar: Lund University, Lund, Sweden, September 2024. Presentation: *Time is not money: An experiment with community contribution requirements in cash and labour*.
- Seminar: University Paris Dauphine-PSL, October 2024. Presentation: *Time is not money: An experiment with community contribution requirements in cash and labour*.
- Conference: *Association for Swedish Development Economics annual conference*. Stockholm, Sweden, November 2024. Presentation: *60 years of global development and environmental change 1939–1999*.
- Conference: WASH Economics Conference. Oberlin, USA. March, 2025. Presentation: *Understanding Institutional Persistence*.

Teaching and training

- Main supervisor of PhD student Nicklas Nordfors (Stockholm University). Defense: 6th September 2024.
- Main supervisor of PhD student Chiara Latour (Stockholm University).
- Co-supervisor of PhD student Merve Demirel (Institute of International Economic Studies, Stockholm University).
- Co-supervisor of PhD student Jimena Romero (Institute of International Economic Studies, Stockholm University).
- Co-lecturer, PhD level course *Development Economics I and II*, Stockholm University, autumn 2024.
- Co-lecturer, Master's level course *Environment and local communities*, Stockholm University, autumn 2024.
- Co-lecturer, Master's level course *Environment, markets and politics*, Stockholm University, autumn 2024.
- Course leader, PhD level course *Towards clarity and grace in academic writing*, spring 2025.

Commissions

- Thesis examiner, London School of Economics, March 2025.
- Journal reviewer for the *Economic Journal*, *Journal of Development Economics*, *Journal of Environmental Economics and Management*, and *World Development*.
- External reviewer for USAID Development Innovation Ventures and SIDA.

New Funding

- Identifying Interventions to Improve Maintenance of Local Water Infrastructure: The Role of Local Institutions and Incentives J-PAL Solutions and Advancements through Research in Water and Air. USD 75,000. Project participants: Namrata Kala (MIT) and Anna Tompsett.

Max Troell
Associate Professor,
Programme Director, *Aquaculture and Sustainable Seafood*

Research focus

Sustainability of global seafood system, aquaculture, capture fisheries, governance, coastal and marine ecosystems, resource management, coastal livelihoods, ecosystem functions and services, mangroves, biodiversity, resilience, regime shifts, food systems, nutrition and food security, integrated aquaculture, food/seafood trade dynamics, sustainability metrics, life-cycle analysis, climate change, certification standards, AMR, antibiotic resistance.

Publications

Journal articles

- Gephart, J. G., R. Agrawal Bejarano, K. Gorospe, A. Godwin, C. D. Golden, R. L. Naylor, K. L. Nash, M. L. Pace, M. Troell. 2024. Globalization of wild capture and farmed aquatic foods. *Nature Communications* 15:8026.
- Golden, C., A. C. Hartmann, E. Gibbons, G. Todinanahary, M. Troell, G. Ampalaza, F. Behivoke, et al. 2024. HIARA study protocol: impacts of artificial coral reef development on fisheries, human livelihoods, and health in southwestern Madagascar. *Frontiers in Public Health* 12:1366110.
- Luthman, O., D. H. Robb, P. J. G. Henriksson, P. S. Jørgensen, and M. Troell. 2024. Global overview of national regulations for antibiotic use in aquaculture production. *Aquaculture International* 32(7):9253–9270.
- Farias, D. R., R. Ibarra, R. Estévez, M. Tustly, C. V. Mohan, O. Nyberg, M. Troell, R. Avendaño-Herrera and W. Norden. 2024. Towards Sustainable Antibiotic Use in Aquaculture and Antimicrobial Resistance: Participatory Experts' Overview and Recommendations. *Antibiotics* 13(9):887.
- Troell, M. 2024. Opportunities for Blue Food in a Turbulent Future – What's Ahead for a Growing Aquaculture Industry? *Bulletin of the European Association of Fish Pathologists* 45(1).
- Chary, K., P. J. G. Henriksson, and M. Troell. 2024. Competition for human edible feed resources in aquaculture – looking at tilapia farming. *Food Security* 17:57–72.
- Desbois, A.P., L.A. Brunton, P. J. G. Henriksson, O. Luthman, M. Troell and D. M. Green. 2025. Aquaculture requires special consideration in National Action Plans for Antimicrobial Resistance. *Science of The Total Environment* 958:177785.

Conferences, workshops and presentations

- Symposium: *AQUA 2024*. Copenhagen, Denmark, 26–30 August 2024. Plenary speaker ASC's Knowledge Hub.
- Presentation: *Sustainable Seafood*. Institute for Marine and Antarctic Studies & Centre for Marine Socioecology, Tasmania University, Australia, 20 September 2024.
- Conference: *SAAFE Annual Conference*. Adelaide, Australia, 17–18 September 2024. Participant.
- Seminar: *Future Seafood – how to build sustainable Swedish aquaculture*. AFGO Transformation Seminar. Stockholm, Sweden, 13 March 2025. Panel discussant.
- SeaBOS International Working meeting. Marholmen, Sweden, 1–3 April 2025. Presenter.
- Symposium: *The 19th Key symposium, Planetary Health*. Stockholm, Sweden, 19–21 May 2025. Discussant and poster.

Teaching and training

- Evaluator for Associate Professor Dr Jonathan Roques (Gothenburg University), October 2024.
- Internal reviewer for PhD student Kajsa Sahlin (Stockholm Resilience Centre, Stockholm University), 2024.
- Internal reviewer for PhD student Charlotte Bunge (Stockholm Resilience Centre, Stockholm University), Spring 2025.

Commissions

- Researcher responsible for joint work on Antibiotics, SeaBOS.
- Review editor for *Journal of Aquaculture Environment Interactions* (AEI); *Frontiers in Marine Science*.
- Reviewer assignment during period: *Western Indian Ocean Journal of Marine Science*.
- Handling Editor for *Frontiers in Aquaculture*.
- Editorial board member, *Western Indian Ocean Journal of Marine Science*.
- Member of the Blue/Aquatic Food Action Coalition.
- Member of The Environment and Energy Committee, Royal Swedish Academy of Sciences, Stockholm, 2023–2025.
- Member of the Swedish National Committee for Global Environmental Change, Royal Swedish Academy of Sciences, Stockholm, 2024–2025.
- Member of the International Advisory Board, Australia's Cooperative Research Centre for Solving Antimicrobial Resistance in Agribusiness, Food and Environments (CRC SAAFE), 2023–2025.
- Reviewer for "Communication research project", FORMAS, 2024–2025.
- Scientific Adviser, Dutch Research Council project 2022–2025: Regional innovation for circular low trophic aquaculture production in the Dutch North Sea (CIRCAQUA).
- Scientific Adviser, UK Research and Innovation Project: (2025-) "Working towards Adaptive and Versatile Environmental Sustainability in mollusc aquaculture" (WAVES), Stirling University, UK.
- Member of the Ocean working group, (Earth Commission). Since 2025.

Dineke Verkleij
MSc, Research Assistant

Research focus

Human behaviour in social-ecological systems and earth system governance, with a particular interest in social networks and collective action in the transition to sustainable agriculture. Works as a research assistant within the Inequalities and the Biosphere project, contributing to research on the trade-offs and synergies between reducing social inequality and safeguarding the biosphere as well as assisting the wider project coordination.

Conferences, workshops and presentations

- Workshop: The Askö meeting *Complex Adaptive Systems and Synergies for Collective Action*. 14–16 September, Askö and Royal Swedish Academy of Sciences, Sweden. Assistant.
- Public seminar: *Inequality and the Biosphere*. Inequality and the Biosphere project in collaboration with the Beijer Institute and Stockholm Resilience Centre, Royal Swedish Academy of Sciences, May 2025. Co-organiser.
- Roundtable dialogue: *Inequality data: identifying critical indicators and going beyond socio-economic variables*. Organised by the Inequality and the Biosphere project, Royal Swedish Academy of Sciences, May 2025. Co-organiser.
- Roundtable dialogue: *Inequalities in transnational value chains in Indonesia*. Organised by the Inequality and the Biosphere project, Royal Swedish Academy of Sciences, May 2025. Co-organiser and participant.
- *Workshop: Inequality and the Biosphere consortium meeting*. The Beijer Institute, Royal Swedish Academy of Sciences and Idöborg, Sweden, 12–16 May, 2025. Co-organiser and participant.
- Workshop: *Patterns work team inequality and the biosphere project*, Krägga Herrgård, Bålsta, Sweden, 2–4 April 2025. Co-organiser and Participant.

All publications

Publications

Journal articles

- Blandon, A., M. Jonell, H. Ishihara, and A. Zabala. 2025. What does "sustainable seafood" mean to seafood system actors in Japan and Sweden? *Ambio* 54:1010–1025.
- Branny, A., E. Andersson, and T. McPhearson. 2025. Micro-climate of nature-based solutions in Stockholm royal seaport. *Nature-Based Solutions* 7:100206.
- Chary, K., P. J. G. Henriksson, and M. Troell. 2024. Competition for human edible feed resources in aquaculture – looking at tilapia farming. *Food Security* 17:57–72.
- Creutzig, F., T. McPhearson, R. Bardhan, C. Belmin, W. T. L. Chow, M. Garschagen, A. Hsu, Ş. Kılkış, S. T. Islam, N. Milojevic-Dupont, M. Pathak, R. H. M. Pereira, P. Salehi, and D. Ürge-Vorsatz. 2025. Bridging the scale between the local particular and the global universal in climate change assessments of cities. *Nature Cities* 2:369–378.
- de Vos, A., A. Quinlan, R. Biggs, E. M. Bennett, B. Martín-López, A. V. Norström, G. Peterson, M. Schoon, C. R. Allen, E. Andersson, J. Baird, P. Balvanera, M. Berbés-Blázquez, F. Berkes, R. Calderón-Contreras, S. R. Carpenter, A. J. Castro, G. S. Cumming, M. Falardeau, W. L. Fick, C. Folke, E. I. N. Galang, S. Gelcich, L. J. Gordon, N. B. Grimm, J. Hamilton, J. Hodbod, C. Ifejika Speranza, L. Koch, A. Kosanic, R. Lembi, B. Locatelli, K. Malmborg, A. Manyani, A. Mathisonslee, A. Ocampo-Melgar, K. Psiuk, C. Queiroz, M. Riechers, L. Schultz, O. Selomane, K. Sherren, M. Spierenburg, M. Trimble, F. Turkelboom, and C. Wallington. 2025. Welcome home! Introducing SocSES: A Society for Inclusive and Impactful Social-Ecological Research. *Ecology and Society* 30(2):32.
- Desbois A. P., L. A. Brunton, P. J. G. Henriksson, O. Luthman, M. Troell, and D. M. Green. 2025. Aquaculture requires special consideration in National Action Plans for Antimicrobial Resistance. *Science of The Total Environment* 958:177785.
- Dutta, M., P. Herreros-Cantis, T. McPhearson, A. Mustafa, M. I. Palmer, M. Tosca, J. Ventrella, and E. M. Cook. 2025. New York City 2100: Environmental justice implications of future scenarios for addressing extreme heat. *Landscape and Urban Planning* 254:105249.
- Esperon-Rodriguez, M., R. Gallagher, C. Calfapietra, P. Cariñanos, C. Dobbs, A. A. Eleuterio, D. Esperon Rodriguez, A. Jahani, E. Litvak, S. J. Livesley, G. Manoli, R. M. Marchin, T. McPhearson, C. Messier, J. Östberg, L. A. Roman, A. Russo, M. Saffariha, C. Shackleton, H. Sjöman, I. Solfjeld, J. Susskind, J.-C. Svenning, N. van Doorn, B. Wiström, J. Yang, and M. G. Tjoelker. 2025. Barriers and opportunities for resilient and sustainable urban forests. *Nature Cities* 2(4):290–298.
- Esperon-Rodriguez, M., R. V. Gallagher, J. Lenoir, V. L. Barradas, L. J. Beaumont, C. Calfapietra, P. Cariñanos, S. J. Livesley, T. Iungma, G. Manoli, R. M. Marchin, T. McPhearson, C. Messier, M. Nieuwenhuijsen, S. A. Power, P. D. Rymer, and M. G. Tjoelker. 2025. Urban heat in global cities and the role of nature-based solutions in mitigating future climate risks. *Environmental Research: Climate* 4(2):023001.
- Farias, D. R., R. Ibarra, R. Estévez, M. Tustly, C. V. Mohan, O. Nyberg, M. Troell, R. Avendaño-Herrera and W. Norden. 2024. Towards Sustainable Antibiotic Use in Aquaculture and Antimicrobial Resistance: Participatory Experts' Overview and Recommendations. *Antibiotics* 13(9): 887.
- Gaffney, O., A. Luers, F. Carrero-Martínez, B. Dignam, L. Bengtsson, M. Jonas, W. Steffen, J. Rockström, and S. E. Cornell. 2025. The Earth alignment principle for artificial intelligence. *Nature Sustainability* 8(5):467–469.
- Galaz, V., H. Metzler, C. Schill, T. Lindahl, S. Daume, A. Marklund, A. J. Castro, J. Bard, T. McPhearson, D. Galafassi, and H. Peters. 2025. Artificial intelligence, digital social networks, and climate emotions. *npj Climate Action* 4(1):1–9.
- Gephart, J. G., R. Agrawal Bejarano, K. Gorospe, A. Godwin, C. D. Golden, R. L. Naylor, K. L. Nash, M. L. Pace, M. Troell. 2024. Globalization of wild capture and farmed aquatic foods. *Nature Communications* 15:8026.
- Golden, C., A. C. Hartmann, E. Gibbons, G. Todinanahary, M. Troell, G. Ampalaza, F. Behivoke, et al. In press. HIARA study protocol: impacts of artificial coral reef development on fisheries, human livelihoods, and health in southwestern Madagascar. *Frontiers in Public Health* 12:1366110.
- Habib, M. A., S. Cocciolo, M. M. A. Raihan, P. Bhattacharya, and A. Tompsett. 2024. Training caretakers to clean community wells is a highly cost-effective way to reduce exposure to coliform bacteria. *npj Clean Water* 7(1):110.
- Herreros-Cantis, P., L. Hoffman, C. Kennedy, Y. Kim, J. Charles, V. Gillet, A. Getzin, D. Littlefield, A. Zielinski, J. Bernstein, R. Settle-Robbinson, J. Langemeyer, M. Neumann, and T. McPhearson. 2024. Co-producing research and data visualization for environmental justice advocacy in climate change adaptation: The Milwaukee Flood-Health Vulnerability Assessment. *Cities* 155:105474.
- Herzon, I., R. Mazac, M. Erkkola, T. Garnett, H. Hansson, M. Jonell, M. Kaljonen, T. Kortetmäki, A. Lonkila, M. Niva, A. M. Pajari, T. Tribaldos, M. Toivonen, H. L. Tuomisto, K. Koppelmäki, and E. Röös. 2025. Both downsizing and improvements to livestock systems are needed to stay within planetary boundaries. *Nature Food* 5(8):642–645.
- Hoff, R., R. Sparks, M. Chester, A. Mustafa, N. Johnson, A. Birchfield, T. McPhearson, R. Li, N. Ahmad, and I. Searles. 2025. Cascading failure propagation and perfect storms in interdependent infrastructures. *ASCE OPEN: Multidisciplinary Journal of Civil Engineering* 3(1):04025001.
- Jonsson, A., J. Haider, L. Pereira, A. Fremier, C. Folke, M. Tengö, and L. Gordon. 2024. Nurturing Gastronomic Landscapes for Biosphere Stewardship. *Global Food Security* 42: 100789.
- Li, C. Z., A.-S. Crépin, and T. LIndahl. The economics of tipping points some recent modelling and experimental advances. *International Review of Environmental and Resource Economics* 18(4):385–442.
- Lindahl, T., and N. Linder. 2024. What factors influence choosing fish over meat among grocery shoppers? Insights from an unsuccessful nudge intervention, *Ecological Economics* 224:108297.
- Luthman, O., D. H. Robb, P. J. G. Henriksson, P. S. Jørgensen, and M. Troell. 2024. Global overview of national regulations for antibiotic use in aquaculture production. *Aquaculture International* 32(7):9253–9270.
- Nässén, N., M. Lilja, S. Sjöberg, and J. Colding. 2025. Community climate commons for collective climate action. *Sustainable Development* 33(2):2078–2095.
- Nilsson, C., T. Levin, J. Colding, S. Sjöberg, and S. Barthel. 2024. Navigating complexity with the four pillars of social sustainability. *Sustainable Development* 32(6):5929–5947.
- Polasky, S., M. Scheffer, and J. M. Anderies. 2025. Meltdown of trust in weakly governed economies. *Proceedings of the National Academy of Sciences* 122(14):e232052812.
- Reyers, B. and E. M. Bennett. 2025. Whose conservation, revisited: how a focus on people–nature relationships spotlights new directions for conservation science. *Philosophical Transactions B* 380(1917):20230320

- Rosenzweig, B., F. A. Montalto, P. Orton, J. Kaatz, N. Maher, J. Kleyman, Z. Chen, E. Sanderson, N. Adhikari, T. McPhearson, and P. Herreros-Cantis. 2024. NPCC4: Climate change and New York City's flood risk. *Annals of the New York Academy of Sciences* 1539(1):127-184.
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