



German Committee
Future Earth

GERMAN
SUSTAINABILITY
SCIENCE SUMMIT
**CONFERENCE
SUMMARY REPORT**

8 / 9 JULY 2021
INTERACTIVE VIRTUAL EVENT



As contribution to

futureearth
research for global sustainability



Supported by

DFG

Prepared and published by

Deutsches Komitee für Nachhaltigkeitsforschung
in Future Earth (DKN) / German Committee Future Earth

c/o Climate Service Center Germany (GERICS)
Helmholtz Zentrum Hereon
Chilehaus - Eingang B, Fischertwiete 1
20095 Hamburg, Germany

info@dkn-future-earth.de
www.dkn-future-earth.org
twitter.com/dkn_futureearth

December 2021

Recommended citation

German Committee Future Earth (2021):
German Sustainability Science Summit 2021
Conference Summary Report. Hamburg, Germany.

ISBN: 978-3-9813068-9-7



We gratefully acknowledge the financial
support of the German Research Foundation

Deutsches Komitee für Nachhaltigkeitsforschung in Future Earth (DKN) German Committee Future Earth

Prof. Dr. Jörn Birkmann

University of Stuttgart, Institute of Spatial and Regional Planning (IREUS)

Prof. Dr. Michael Bollig

University of Cologne, Department of Social and Cultural Anthropology, Global South Studies Center (GSSC)

Prof. Dr. Aletta Bonn

Helmholtz-Centre for Environmental Research (UFZ); Friedrich-Schiller-Universität Jena; German Centre for Integrative Biodiversity Research (iDiv)

Prof. Dr. Daniela Jacob (chair)

Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon

Prof. Dr. Ute Nöthlings

Rheinische Friedrich-Wilhelms-Universität Bonn, Institute for Nutritional and Food Sciences, Nutritional Epidemiology

Prof. Dr. Konrad Ott

Christian-Albrechts-Universität zu Kiel, Department of Philosophy

Prof. Dr. Martin Quaas

Leipzig University, Department of Economics; German Centre for Integrative Biodiversity Research (iDiv)

Prof. Dr. Markus Reichstein

Max-Planck-Institute for Biogeochemistry, Department of Biogeochemical Integration

Prof. Dr. Imme Scholz

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

Dr. Christiane Joerk (ex-officio)

DFG Head Office

Dr. Sebastian Sonntag (ex-officio)

Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, DKN Secretariat

DKN Secretariat

Hosted at Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon

Dr. Tina Krönert

Dr. Barbara Malburg-Graf

Martina de Pedro

Dr. Martin G. Scharffenberg

Dr. Sebastian Sonntag

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1. Summary

Sustainability science has become more and more important over the last years, as within times where the need for mitigation of and adaptation to climate change, the need for healthy ecosystems as well as for social cohesion and justice have become pressing issues, a sustainable transformation is of utmost urgency.

The German Sustainability Science Summit 2021 continued the series of German Future Earth Summits organized by the German Committee Future Earth (DKN). In this way, the DKN provides a platform for exchange on new scientific findings and research needs in the field of sustainability research and to foster interdisciplinary collaborations within Future Earth and beyond. Future Earth is a network of scientists, researchers and innovators designed to provide the knowledge needed to support transformations towards sustainability. The focus of the summit was explicitly dedicated to national and international interdisciplinary and integrative sustainability science, while discussing the previous and future work of the DKN.

Around 500 participants from 46 countries from all over the world registered for the German Sustainability Science Summit 2021. The conference was held as an online event on 8th and 9th July 2021, with about 150 participants acting as hosts and speakers of the 29 different summit sessions. The summit was preceded by an early-career researcher workshop on 7th July 2021 on opportunities and challenges for early-career scientists in inter- and trans-disciplinary sustainability science.

One important item on the summit program was the discussion of the DKN position paper “Research priorities for sustainability science” (Jacob, D. et al., 2022: Research priorities for sustainability science. German Committee Future Earth, Hamburg, Germany) on central focus topics and open research questions in sustainability research. The position paper was brought forward by the DKN committee members, coming from very different disciplines, and prior to the summit was provided to all participants. The paper comprises the focus topics which were discussed during several sessions of the summit, such as (1) Normativity in sustainability research, (2) Extreme events: collapse or resilience? - the role of health, well-being and social cohesion for reaching the sustainable development goals, (3) Diet, biodiversity and health - the role of sustainable diets for healthy people and healthy ecosystems, and (4) Scale challenges in climate change, risk and adaptation research in the context of sustainable development. The lively discussions and interesting comments on the position paper will be reflected in the future work of the DKN.

Most of the summit sessions were set up in response to an open call for session proposals. In addition to the various scientific sessions and science-policy sessions with presentations and lively discussions, the online conference platform enabled networking via various innovative tools including a poster and networking session with a virtual art exhibition. The sessions covered a broad range of topics, including climate change adaptation finance, the role of participation in just science and governance, water security, biodiversity, planning and construction, systemic risks, and others. Also the three active DKN working groups outlined their topics on (1) Modelling the human environmental interactions in the anthropocene, (2) Anticipating and transforming coastal futures, and (3) Sustainable, transformative and circular bioeconomy.

The diverse program was rounded up with two vivid plenary panel discussions, shedding light on the new social contract for climate change adaptation in dynamic societies and concluding the summit with perspectives of international sustainability science.

The DKN thanks all panelists, speakers, presenters and participants for joining the summit, for all their contributions and for participating in the enlightening and lively discussions. Many thanks also go to the event agency Con Gressa for the technical realization of the event and for the creation of the summit logo. And last but not least, strong thanks to the German Science Foundation (DFG), without which the summit would not have been possible.

2. Welcome addresses of DFG

Dr. Christiane Joerk, on behalf of the DFG Head Office, DFG, Bonn, Germany

Distinguished participants, ladies and gentleman,

It is a great honor to me to open this conference having a word on behalf of the German Research Foundation. Many thanks to the German Committee for organizing this insightful conference.

The key question the summit is going to address is, how we bring together the already existing rich knowledge on global change and sustainable development, making this knowledge more fruitful by combining and scaling it up, and thereby looking at the impact that science could have on the implementation of the 2030 agenda. Scientists have been warning for quite a while about the worrying status of the planet. We all know that societies currently are far off track to deliver on the Sustainable Development Goals (SDGs) with regard to the 2030 deadline. Moreover, the pandemics has made it even worse - however perhaps leading the world to more awareness and to strongly calling up for immediate drastic and dramatic actions since a success in the implementation of the SDGs and sustainability would require much more ambitious actions on all levels. In this sense, science and research offer a great opportunity to help advancing a sustainable path to recovery and becoming more resilient.

However, one might question whether the present global science system is well-positioned and organized to enable scientists to contribute effectively and comprehensively to finding solutions and responding to the global challenges. The recognition may be that there is some sort of misalignment between the scale of global challenges that are to be addressed; and, then, looking at the limited resources existing in a fragmented manner mostly at the national level partly at the supranational level. However, sustainability scientists can rely on a broad range of different institutions advocating for the importance and promotion of sustainability research. These institutions act on different levels of scope, starting with the International Science Council, or the Global Research Council, the EU research programmes and also to mention the Future Earth network.

Germany, generally speaking, may boast of a variety of funding sources. There are various programmes supporting research for societal transformation, solution and mission oriented, based on cross- and transdisciplinary research - first and foremost to mention are the BMBF facilities -, whereas the DFG typically stands for the promotion of research mostly done in its own interest, purely knowledge driven, however without losing sight of broader aims in terms of application, knowledge transfer, transdisciplinarity. The DFG is and keeps committed to research questions like for example: What is preventing us from achieving the SDGs? In this sense, the DFG issued a paper giving recommendations for the upcoming parliamentary term, altogether 13 recommendations, thereof one, again confirming the importance of science as a key to meet the great societal challenges. The DFG also realizes the critical role of international science and research collaboration and seeks to contribute wherever and whenever we are able to. We are very much convinced that the climate crisis, sustainability crisis, raging pandemics, and the legitimacy crisis in terms of equity in various dimensions can only be tackled as a joint collaborative effort. In this sense, there are a few good examples for international fruitful cooperation funded by the DFG: together with partners from the Belmont Forum, a large transdisciplinary network of funders from almost 30 countries across the world, we take part in Collaborative Research Actions whenever it is sensible and helps to accommodate the needs of our academic communities. With respect to SDGs, we are happy to be part of the currently running call "Pathways to SDGs", a multistep programme providing subsequent opportunities for international collaboration during the next years, and well suited to address the SDGs as a comprehensive and interconnected system.

This fourth German Summit is held shortly after the Sustainability and Research Innovation Congress 2021, which brought together a considerable number of researchers across the world confirming that there this a really dynamic field going on. A good number of German scientists took also part in this event. All events are still available on the SRI website to spread across communities and countries.

I also like to take the opportunity to announce the welcome speech of the General Secretary of the DFG, which is scheduled for tomorrow. With that, I wish all of us a successful and inspiring conference. Thank you very much!

Dr. Heide Ahrens, Secretary General of the DFG, DFG, Bonn, Germany

Dear colleagues, friends, and distinguished guests,

It is a great pleasure for me to welcome all of you to the second day of this conference! I am most grateful for the opportunity to speak here and exchange opinions and perspectives with all of you. I am particularly delighted to participate since this is the first time I am attending the German Sustainability Science Summit as secretary general of the DFG and I am very much looking forward to getting to know this extraordinary summit even better. This is also, why I would like to express my gratitude to the German Committee Future Earth for hosting the summit. The summit provides a platform for exchange and networking on sustainability research, it promotes its further development and intensifies the dialogue between all players.

Dialogue and informal exchange have been rare, if they took place at all, in pandemic times, which makes this summit all the more important. The time ahead certainly, holds a wealth of complex challenges and we could almost say that we are facing several crises at the same time: the pandemic is not over yet while the looming crisis of climate change and loss of biodiversity are unfolding and will not be over soon. That is why the common exchange between researchers and research administrators is of utmost importance in order to elaborate fresh solutions to long-standing problems. Of course, in the steps ahead society and politics need to be integrated as well, which was reflected also in the policy sessions this morning. After all, the pandemic has shaped our awareness for the fragility of our interconnected conditions of living showing the importance of thinking globally and acting in an integrative way. This also means building and maintaining functional research systems.

Now, research is put under pressure in these times of pandemic crises. Pressure that has to do with a more direct relationship between academia and society, affecting especially but not only the life sciences. This more direct relationship is due to the pandemic but it could be adapted in other interfaces between research dynamics and societal expectations; and the area of sustainability being a prime interface.

And strengthening those interfaces is necessary but it must not come at the expense of research dynamics. This also finds reflection in the recent amendment of our statutes, which, by the way, found a huge majority in the DFG's general assembly two days ago. Now, this amendment recognizes the extraordinary role of sustainability and affirms it in a differentiated manner, assigning it a very specific role. To put it clearly, sustainability is an overarching ethical principle. As such, it is integrated for the first time in the preamble of our statutes - with the preamble being the place where the DFG defines its general self-understanding. So sustainability is - now at least - one of the principles that will guide all our actions and the future of the DFG. Therefore, the DFG's mission is to contribute, I quote, "to prosperity and sustainable progress". A progress, hence, that we understand primarily, but not exclusively as one that takes into account the finite nature of ecological resources.

Now, having said that, it is also important to see that sustainability is central to the preamble; it is not mentioned, however, in the first paragraph of the statutes - the place where the statutes define more concretely the evolvement of our main task, namely funding research projects. As for that funding, sustainability is not a criterion with direct validity in funding activities.

Now, you might wonder, why is that so?

In fact, in many research-funding frameworks like in the European context of Horizon 2020 as well as in the global context of the SDGs, the topic of sustainability is central to funding. Such mission-oriented funding has its own right. Moreover, in order to make the topic operational it can be defined along further aspects - illustrated in the variety of the SDGs itself. As such, they contain specific problems in search of specific answers. However, the DFG's funding philosophy is complementary to that approach.

As we pointed out in a press release last year with the title "Focusing on Sustainability", the DFG

- has funded numerous research projects dealing with various aspects of sustainability for well over a decade.
- In addition, our funding follows a strong bottom-up approach, which
 - for one, is boosting the dynamics of scientific curiosity in exclusively science-led review-panels, and which

- second, is fostering the conditions that contribute to the highest quality of research.
 - For an illustration, the DFG is funding the Cluster of Excellence 2037 at the University of Hamburg called Climate, Climatic Change, and Society (CLICCS) from 2019 onwards. Earlier, from 2007 to 2018, we funded that cluster's predecessor called Integrated Climate System Analysis and Prediction (CLISAP).
 - Sustainability is also the current topic for the Senate Commission on Earth System Research. Here a working group was formed to address "research interests versus protection interests in relation to sustainability" and is now for the first time reporting on its work to the DFG's statutory bodies.

So, in the long run the DFG's funding approach may perfectly complement the strictly mission-oriented approach. The first emphasizes a medium-term goal and orchestrates research accordingly, the second emphasizes curiosity, leaving the highest amount of freedom to the researchers themselves. In my opinion, it is important to give room for both accounts. The reason being that we need to bear in mind that future challenges, also those related to sustainability, may need answers to questions that have not been asked yet - at least not within the frameworks of contemporary missions, yet they dwell in the often visionary projects of our funding.

Consequently, upholding the quality of research has become a major task for the DFG since the beginning of the pandemic. Our intention is keeping the negative effects of the pandemic for research as low as possible as well as protecting research projects from a counter-productive termination. For an illustration, together with the Federal Ministry of Research, two research vessels were sent out last year at short notice to ensure the continuation of the costly MOSAiC expedition in the Arctic Ocean.

By the way, after those researchers returned from their expedition, towards the end of last year, they reported in numerous media formats on their extraordinary day-to-day research amidst ice floes and ice bears. That occurred during the long corona-winter with extended lock-downs, hence in a societal period of slight resignation but hopefully also reflection on our general living conditions. In that moment, the researchers contributed to sensitizing a broad public to the complexities of climate change.

So, to my understanding, it is crucial in these difficult times to protect all the excellent research that is already unfolding. We need the findings of this research now and in the future. And it would be a vicious circle, if the pandemic harmed that research that can actually help us to reduce the huge load of the challenges ahead such as climate change or loss of biodiversity.

That is also why the DFG took action at an early stage and initiated appropriate support measures in order to maintain the productivity of research processes. Moreover, we have constantly monitored the progress of the pandemic to determine whether there is a need for further action and activities. In the process, we came to the decision to again significantly expand the DFG's measures.

Now, considered as a research question, it could be exciting to see what the changes in home office and social distancing have already done to us and what consequences will remain, also for the research processes themselves. I guess, that everyone here could tell a different story of his or her own and we at the DFG are determined to learn from your experiences. For some time now, the fundamental social parameters of research, such as networking and interaction, have only been able to take place in a very modified form. And when networking only takes place on the net, we realize that researchers, too, need spaces of direct, immediate, physical interaction; this insight goes as far back as the foundation of the Aristotelian academy, it prospers in the universities of the Middle Ages, and it will not find a proper conclusion in the surfaces of ever narrower screens. Thinking has always been dependent on external inspiration: an objection, a counter-question, the confrontation with the doubt of others. Meanwhile, researchers give lectures without seeing their audience, without the trace of an immediate reaction to what is presented. The peers become virtual. But what does that make of the community?

It is possible that all of these side effects go by quickly. Perhaps, however, they influence research processes deeper than we might imagine today. In addition, these changes may affect also the processes of science administration as they rely heavily on social categories such as the peers or the community. I may reveal that in order to capture those changes the deployment of a Senate commission is being planned, on the topic of Research under post-pandemic conditions.

In fact, research and academia are a part of this fragile world. We are learning this from the pandemic. And we need to safeguard and build resilient conditions not only for the world we live in generally, but also for the research that unfolds in it. In the time ahead, the area of sustainability studies has a key role to play and the DFG is supporting this role actively, the least of it being our continued support for the German Committee Future Earth itself. By the way, the DFG's annual report 2021 (yet unpublished) will hold a large feature on our various activities in the field.

As we continue to search for ways out of the pandemic, I wish you all success and the relief of sharing experiences. Enjoy the rich power of joint reflection and mutual inspiration!

Thank you and enjoy!

3. Panel discussions on DKN focus topics

Four parallel sessions addressed the focus topics of the DKN position paper on research priorities in sustainability science. The brief summaries of the four sessions are compiled in this report. Individual comments of the panelists are published together with the position paper (Jacob, D. et al., 2022: Research priorities for sustainability science. German Committee Future Earth, Hamburg, Germany).

3.1 Normativity in sustainability research

Hosts

Prof. Dr. Imme Scholz

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany

Prof. Dr. Konrad Ott

Department of Philosophy, Christian-Albrechts-Universität zu Kiel (CAU), Kiel, Germany

Prof. Dr. Martin Quaas

Biodiversity Economics, Department of Economics, Leipzig University, Leipzig, Germany | German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig, Germany

Panelists

Prof. Dr. Melissa Leach

Institute of Development Studies (IDS), University of Sussex, Brighton, UK

Dr. Jana Zscheischler

Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e. V., Müncheberg, Germany

Prof. Dr. Raphael Ziegler

HEC Montreal, Montreal, Canada

Session abstract

Sustainability means the future how it ought to be ("the future we want", according to WCED 1987). Consequently, there are norms and values all the way down in Sustainability Research. Normativity in Sustainability Research can be based on environmental ethics, theories of justice, or future ethics. This can be done in interdisciplinary collaboration that includes philosophers, or based on the adaptation of ethical concepts, as in other normatively shaped areas of research (e.g., gender studies, restoration ecology, political ecology, economics, and applied ethics). The session discussed the meaning, the function and the difficulties of normativity in sustainability research, from the perspective of different disciplines, research problems, objectives and research practices.

3.2 Extreme events: collapse or resilience? - The role of health, well-being and social cohesion for reaching sustainable development goals

Hosts

Prof. Dr. Michael Bollig

Department of Social and Cultural Anthropology, Board Member of the Global South Studies Center (GSSC), University of Cologne, Cologne, Germany

Prof. Dr. Markus Reichstein

Department Biogeochemical Integration, Max Planck Institute for Biogeochemistry, Jena, Germany

Panelists

Prof. Dr. Alexander Fekete

Institute of Rescue Engineering and Civil Protection, TH Köln – University of Applied Sciences, Cologne, Germany

Prof. Dr. Terry Hartig

Uppsala University, Institute for Housing and Urban Research, Department of Psychology, Uppsala, Sweden

Dr. Michael Miess

Complexity science hub, Vienna, Austria

Dr. Kira Vinke

Potsdam Institute for Climate Impact Research, Potsdam, Germany

Session abstract

Reaching the Sustainable Development Goals (SDGs) requires dynamic processes of socio-ecological transition. Extreme events and shocks can render social-ecological systems more vulnerable and brittle, or spur transitions to a better adapted, more just and sustainable future state. This is shaped by the interaction of extreme events, societal resilience, individual health/well-being and social cohesion (i.e., the relatedness, social relations and orientation towards a public good). We hypothesize that social cohesion is an essential condition to provide resilience, in terms of being able to continue on a targeted path towards the SDGs after an extreme event. Resilience is deeply rooted in the material infrastructure and the socio-cultural framing of socio-ecological systems. In the session the interlinkages, synergies and tradeoffs between extreme events, societal resilience, individual health and well-being and social cohesion for designing pathways towards the SDGs were elucidated in a broad discussion on this.

3.3 Diet, biodiversity and health - The role of sustainable diets for healthy people and healthy ecosystems

Hosts

Prof. Dr. Aletta Bonn

Helmholtz - Centre for Environmental Research – UFZ, Leipzig, Germany, Friedrich-Schiller-Universität Jena, Jena, Germany | German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Germany

Prof. Dr. Ute Nöthlings

Institute for Nutritional and Food Sciences, Nutritional Epidemiology, Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, Germany

Panelists

Prof. Dr. Jan Börner

Institute for Food and Resource Economics, Faculty of Agriculture, Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, Germany

Prof. Dr. Ina Danquah

Universität Heidelberg, Faculty of Medicine, Heidelberg Institute of Global Health (HIGH), Heidelberg, Germany

Prof. Dr. Britta Renner

Universität Konstanz, Department of Psychology, Konstanz, Germany

Prof. Dr. Nynke Schulp

Vrije Universiteit Amsterdam, IVM Institute for Environmental Studies, Environmental Geography, Amsterdam, The Netherlands

Prof. Dr. Teja Tscharntke

Agroecology, Department of Crop Sciences, Center of Biodiversity and Sustainable Land Use, Georg-August-Universität Göttingen, Göttingen, Germany

Session abstract

Food provision is a fundamental contribution of nature for human health and wellbeing. At the same time food production is a key driver for deterioration of biodiversity in terrestrial, aquatic and marine ecosystems, and subsequently affecting human health. Food production, human nutrition and biodiversity management are intricately linked across different local and global scales, and the recent Covid crisis highlights the serious effects of biodiversity exploitation on human health and remote responsibilities. However, the linkages of biodiversity, diet and health are little understood and management for biodiversity conservation and food production often seem decoupled. Too often, recommendations for a sustainable diet are related to single issues, such as an agricultural production system (for example organic farming versus conventional farming) or to a specific type of food. Food systems that are spatially defined across the globe, regionally or locally, cannot easily be combined with current diet recommendations. Reaching sustainability in global and local food systems and resulting diets therefore needs discussions across different scales, disciplines and sectors. It is evident that the global food system, including food production and its impact on biodiversity, water and soils, and consumption is in a crisis and transformation to sustainability is urgently needed to maintain both human health and “healthy” ecosystems.

3.4 Scale challenges in climate change, risk and adaptation research in the context of sustainable development

Hosts

Prof. Dr. Jörn Birkmann

Institute of Spatial and Regional Planning IREUS, University of Stuttgart, Stuttgart, Germany

Prof. Dr. Daniela Jacob

Climate Service Center Germany (GERICS), Helmholtz-Zentrum hereon GmbH, Hamburg, Germany

Panelists

Prof. Dr. Emily Boyd

Centre for Sustainability Studies (Lucsus), Lund University, Lund, Sweden

Prof. Dr. Helena Freitas

University of Coimbra, Coimbra, Portugal

Prof. Dr. Jörg Knieling

Hafen City University Hamburg, Hamburg, Germany

Christian Günner

Hamburg Wasser, Hamburg, Germany

Session abstract

Spatial, temporal and functional scales have been a prominent topic in ecological and socio-ecological resilience research. However, less attention has been given to these issues as a cross-cutting topic in climate change mitigation, adaptation and sustainable development. There is evidence regarding the fact that present levels of greenhouse gas emissions pose a threat to human security and that increasing global warming increases climate-related risks to unique and threatened systems or to food security, health and biodiversity. But less information exists about shifts in risk, vulnerability and exposure patterns linked to different spatial and temporal scales. There is still a knowledge gap regarding the speed of potential changes at different spatial and temporal scales. Strategies to reduce risk and vulnerability as well as structures that support enabling conditions require a deeper understanding on how climate phenomena, resource challenges and development processes – including issues of human vulnerability – interact across spatial scales. More precisely, new strategies for cooperation across scales need to be developed, e.g., between cities and their hinterland in terms of water management, transport, energy and housing. A specific focus of the session was on research gaps and challenges.

4. Scientific sessions

4.1 How to distribute scarce international funding? The example of climate change adaptation finance

Host

Prof. Dr. Christian Baatz

Sustainability and Global Justice at the Department of Philosophy, Christian-Albrechts-Universität zu Kiel (CAU), Kiel, Germany

Speakers

Prof. Dr. Carola Klöck

Center for intern. Studies (CERI), Sciences Po, Paris, France

Dr. Alexander Schulan

Philosophisches Seminar, Faculty of Arts and Humanities, Christian-Albrechts-Universität zu Kiel (CAU), Kiel, Germany

Agenda and Process of the Session

- Introduction (C. Baatz)
- How is climate change adaptation finance currently being distributed? (C. Klöck)
- Is it fair to distribute climate change adaptation finance based on how people are governed? (A. Schulan)
- Guiding questions for the discussion (C. Baatz)
- Discussion with participants
- Summary and wrap-up (C. Baatz)

Most important findings

Vulnerability to climate change is relevant in the distribution of adaptation finance and there are global vulnerability metrics that provide a somewhat transparent assessment of vulnerability, such as the ND-GAIN Index. However, the correlation of vulnerability and receipt of funding only holds if physical vulnerability is considered that does not take socio-economic determinants of vulnerability into account. Overall, donors' economic interests and path dependencies play a larger role in the distribution of adaptation finance than recipients' vulnerability, poverty or governance. In the context of adaptation finance, considering recipient countries' governance in the distribution of funding is warranted - at minimum in theory - if "good governance" is understood as democratic decision-making. Then, entitlement-, legitimacy-, knowledge- and anti-corruption arguments support this claim. If using democracy as a distribution criterion is also warranted in practice remains controversial given peoples' comparatively high vulnerability in non-democratic countries.

Conclusion

It is unclear whether i) current democracy indices are sufficiently reliable to be used in decisions on how to distribute adaptation finance internationally and ii) its possible to combine democracy and vulnerability distribution criteria so that they compensate their respective drawbacks. In general, it would be very helpful to know more about the factors that determine whether adaptation projects are or will be effective and efficient. These could then be turned into distribution criteria.

4.2 Phylogenetic and genetic diversity: linking past and contemporary evolution to sustainability

Host

Prof. Dr. Luc De Meester

Scientific, Director of IGB (Leibniz-Institute of Freshwater Ecology and Inland Fisheries), Berlin, Germany | Full Professor at Freie Universität Berlin, Berlin, Germany and KU Leuven, Leuven, Belgium | Co-chair of EvolvES (formerly bio GENESIS)

Speakers

Prof. Dr. Rees Kassen

University of Ottawa, Ottawa, Canada

Dr. Mauricio Bellon

Research Professor at Swette Center for Sustainable Food Systems, Arizona State University | fellow at National Commission for the Use and Knowledge of Biodiversity (CONABIO), Mexico City, Mexico | affiliate of the Gund Institute for the Environment at the University of Vermont, Burlington, USA

Dr. Licia Colli

Università Cattolica del Sacro Cuore, Piacenza, Italy

Agenda and process of the session

In this session we wanted to expose the audience to and discuss with the audience on the many angles through which evolution, evolutionary insights and tools contribute to sustainability and sustainability science. The agenda involved a general introduction / tutorial to the theme, three invited talks highlighting important aspects of how evolution can contribute to sustainability, and a brief discussion.

- Introduction to the theme: Linking evolution to SDGs (Luc De Meester)
- Evolution and human health (Rees Kassen)
- Plant genetic diversity, agricultural practice, and food production (Mauricio Bellon)
- Animal genetics and agriculture (Licia Colli)
- Discussion

Most important findings

Tutorial

- both past evolution (phylogenetic diversity) and contemporary evolution (“eco-evolutionary dynamics”) have far reaching consequences for the functioning of ecosystems, resilience, and responses to global change
- species and genetic diversity may buffer against the effect of environmental change
- evolutionary insights and the evolutionary toolbox are highly relevant for all SDGs

Health

COVID-19 provides a clear-cut illustration of how important evolutionary dynamics are in health. Communication on scientific results on COVID-19 in the mainstream media often involved evolutionary aspects.

Crop genetic diversity

Small-scale farming plays a crucial role in preserving genetic diversity in crops and crop-wild relatives, as they favor adaptation to local environmental conditions and environmental change. This is especially important in the Anthropocene.

Genomics and livestock genetic diversity

Many local breeds have been lost or are threatened. Genomics provides an excellent tool to document global genetic diversity of domesticated organisms, and can also be used to inform breeding programs and reconstruction of lost traits.

Conclusion

- Both past evolution (phylogenetic diversity) and contemporary evolution (“eco-evolutionary dynamics”) have far reaching consequences for the functioning of ecosystems, resilience, and responses to global change
- Species and genetic diversity may buffer against the effect of environmental change
- Evolutionary insights and the evolutionary toolbox are highly relevant for all SDGs
- Direct applications of evolution include improved predictions of ecological responses to global change, applications in health, agriculture and conservation, and biotechnological applications
- There is a strong need to enhance awareness on the importance of evolution, evolutionary insights and the evolutionary toolbox to sustainability science.

4.3 Critical reflection on power relations and the transformative role of participation in sustainability science and governance

Hosts / Speakers

Dr. Stephanie Domptail

Senior researcher, Justus-Liebig University of Giessen, Giessen, Germany

Prof. Dr. Martin Petrick

Professor for Agricultural, Food and Environmental Policy, Justus-Liebig University of Giessen, Giessen, Germany

Dr. Torsten Grothmann

Senior scientist and project manager, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany

Prof. Dr. Tobias Krueger

Geography Department & IRI THESys, Humboldt-Universität zu Berlin, Berlin, Germany

Agenda and process of the session

Three short presentations by S. Domptail, T. Krüger and T. Grothmann followed by discussion in breakout rooms on two main guiding questions: a) What are unwanted consequences of power imbalances in participatory processes (e.g., reduction in fairness or legitimacy of outputs)? b) Which strategies could reduce power imbalances or unwanted consequences of imbalanced power relations in participatory processes?

Most important findings

All participants in a participatory process bring in situated knowledge and none is objective. Thus, scientists and public agents also need to relativize and seek legitimacy for their position. Session members shared the view that scientists need to rethink the role of their research tools and methods as means for integrating participants' knowledge. The feeling of "having a fair say" among participants, triggered e.g. through contributing to the research/action design, strengthens the effectiveness of sustainability actions.

Structural challenges of participatory research:

- Time and trust consuming, requiring continuous presence on the field and corresponding funding
- Insufficiently taught/understood among junior researchers

Management of power relations:

- Difficulty to bring all relevant parties to participate
- Difficulty to manage power balances among or within non-scientist stakeholder groups
- North/South power imbalances are pervasive and participants may not be aware of them

Conclusion

Solutions to manage power imbalances and the situatedness of all participants including researchers/public agents in participatory research or governance processes include:

- Determining the role of the researcher transparently
- Reviewing the research design and tools with main participants
- Using ethical review boards
- Evaluate research processes (including criteria such as legitimacy or fairness)
- Keeping conflict groups separated
- Working with legitimate representatives

4.4 Water security and climate change adaptation: Understanding the complexity of a global challenge

Hosts/Speakers

Prof. Dr. Jürgen Stamm

Speaker of the School of Civil and Environmental Engineering, Dean of the Faculty of Civil Engineering, Director of the Institute of Hydraulic Engineering and Technical Hydromechanics and Chair of Hydraulic Engineering, Technische Universität Dresden, Dresden, Germany

Prof. Dr. Holger Schüttrumpf

Institute of Hydraulic Engineering and Water Resources Management, RWTH Aachen University (RWTH), Aachen, Germany

Moderator

Ms. Hasmik Barseghyan

President of the European Youth Parliament for Water | UNFCCC COP16 Coordinator for Armenia | World Water Quality Alliance, member of the core team | CIPSEM Alumni of the “42 nd UNEP/UNESCO/BMU International Postgraduate Course on Environmental Management” at TU Dresden, 2019, Dresden, Germany

Speakers

Prof. Dr. S.A. Sannasiraj

Department of Ocean Engineering, Indian Institute of Technology Madras (IITM), Madras, India

Prof. Dr. Mukand Babel

Water Engineering and Management, Chair of Climate Change Asia at AIT, Asian Institute of Technology, Thailand

Prof. Dr. Edeltraud Guenther

Director, United Nations University, Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Germany

Agenda and process of the session

- Introduction and overview about the ABCD-Centre and the underlying concept (Prof. Jürgen Stamm)
- Water Security and Water Resources Management (Prof. S.A. Sannasiraj)
- Ecosystem Resilience and Nature-Based Adaptation (Prof. Mukand Babel)
- Transfer Strategies for Climate Adaptation (Prof. Edeltraud Guenther)
- Joint Panel Discussion

Most important findings

The partner universities, RWTH Aachen University (RWTH), Asian Institute of Technology Bangkok (AITB), Indian Institute of Technology Madras (IITM), United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) and Technische Universität Dresden (TUD) are collaborating for the establishment of a Global Water and Climate Adaptation Center tackling global challenges of water security and adaptation to a changing climate is at the core of the Centers agenda.

Climate resilient cities, rural and forestry areas depend on safe water supply for various sectors, effective water treatment, sustainable mitigation of water risks, innovative building technologies, a healthy urban climate and an adaptation of all water related infrastructures. Other climate related issues such as sea level rise, heat waves or storms are also considered. Research will be initiated on urban water security, urban water management, innovative water and wastewater treatment and water supply technologies, sustainable coastal and flood protection and innovative building technologies. Adaptation of (mega-) cities

according to the sponge city concept is a challenging research topic. Nature based solutions can play a promising role in this due to resource-efficiency.

Nature-based solutions receive increased attention due to their capability to contribute to effective climate adaptation on different scales and especially countries of the Global South have included them into their respective Nationally Determined Contributions – but despite the undeniable potential, the according goals remain rather broad and tangible targets are lacking. The concept relies on the functioning and services of ecosystems and their resilience. Although at least 50% of National Biodiversity Strategies and Action Plans under the UN Convention on Biological Diversity emphasize their importance for successful adaptation and mitigation efforts, there are still gaps in the holistic understanding and challenges to overcome towards a system-scale integration and sectoral planning processes.

The complex relations between demand, resource availability and quality, as well as financial and physical constraints can be addressed by knowledge-based policies and reform of professional practice. The Nexus Approach recognizes the urgent need for this knowledge and its interpretation in a policy-relevant setting. This need derives from the understanding that there is a lack of blueprints for development based on integrated management of water and other natural resources.

Conclusion

The session participants share the understanding that science-based solutions and global innovation networks have to go hand in hand with a local and global stakeholder dialogue. Hence, all efforts invested needs to act as an inter- and transdisciplinary platform for a science-based global dialogue and exchange on water security and climate adaptation. Socially inclusive event formats establish new bridges between science and local communities. This way, technological solutions have the chance to gain legitimacy amongst societal actors and climate adaptation takes place in an effective and sustainable manner.

4.5 Sustainability from an integrated earth system research view

Hosts/Speakers

Prof. Dr. Jochen Schanze

Leibniz Research Network „Integrated Earth Syst. Research“

Prof. Dr. Dieter Gerten

Leibniz Research Network „Integrated Earth System Research“

Speakers

Prof. Dr. Ulrich Bathmann

Leibniz Institute for Baltic Sea Research Warnemünde, Rostock, Germany

Prof. Dr. Andreas Mulch

Deputy Director General, Senckenberg Society for Nature Research, Leibniz Institution for Biodiversity and Earth System Research (SGN), Frankfurt am Main, Germany

Claas Schneiderheinze

PhD cand., Kiel Institute for the World Economy, Kiel, Germany

Agenda and process of the session

- Relevance of Integrated Earth System Research for sustainable development (Prof. Dr. Jochen Schanze)
- Challenges and scope of integrated Earth system modelling (Prof. Dr. Dieter Gerten) (Potsdam Institute for Climate Impact Research, Potsdam, Germany)
- Oceans and their use in the Earth system (Prof. Dr. Ulrich Bathmann)
- Integrated Earth system research on biodiversity (Prof. Dr. Andreas Mulch)
- Environmental migration and security in the Earth system (Claas Schneiderheinze)
- Moderated dialogue involving all session participants

Most important findings

Accelerating impacts of human activities on the Earth system pose new scientific questions. The session took the view of the recently proposed ‘Integrated Earth System Research’ (iESR) which combines the following views: First, it analyses alterations in the Earth system triggered by human activities. Second, it assesses the societal risks from these alterations. Third, it addresses the stakeholders of the Earth system. Fourth, it explores transformation pathways of society. Fifth, it elaborates conceptual and methodological interfaces for interdisciplinary research and transdisciplinary collaboration.

The course of the session covered an introduction of iESR as well as contributions on Earth system modelling and thematic Earth system challenges related to oceans, biodiversity and environmental migration. The dialogue led to positive feedback on the iESR initiative. Participants noted the societal role in defining safe operating spaces. Moreover, the use of positive narratives for preventing Earth system degradation was recommended.

Conclusion

It was agreed that Integrated Earth System Research (iESR) is key to (i) address the complexity of the Earth system, (ii) include humankind as pressure, receptor and actor in the Earth system and (iii) explore safe operating spaces for societal development within the Earth system. The new field provides the ecological foundation for sustainability transitions. The iESR initiative of Leibniz Association institutions joins expertise of national and international scientists from all relevant disciplines and covers collaboration with stakeholders.

4.6 "Fragmented ways" – Debating facets of mobility justice in sustainable transition research

Hosts

Prof. Dr. Antonia Graf

Junior Professor for Global Environmental Governance Westfälische Wilhelms-Universität, Institute for Political Science, Muenster, Germany

Berenike Feldhoff

Westfälische Wilhelms-Universität, Muenster, Germany

Julia Hansel

Westfälische Wilhelms-Universität, Muenster, Germany

Nils Stockmann

Westfälische Wilhelms-Universität, Muenster, Germany

Speakers

Heather Allen

Independent expert on sustainable transport, gender and climate change, Brussels, Belgium

Anne Kantel

PhD. Researcher on injustices in a global south dimension, American University, alumna, USA

Katja Leyendecker

PhD. Consultant and project manager for gender and mobility, alma mater, Northumbria University, Newcastle-upon-Tyne, UK

Prof. Dr. Karen Lucas

Professor of human geography, School of Environment, Education and Development, University of Manchester, UK

Lena Osswald

Freelance consultant, speaker and activist for a radically inclusive mobility transition, Berlin, Germany

Tanu Priya Uteng

PhD. Senior research planner, Institute of Transport Economics, Oslo, Norway

Agenda and process of the session

The discussion table began with a brief introduction by Antonia Graf. The session continued with three opening statements from the invited experts from science and practice (Prof. Dr. Karen Lucas, Lena Osswald, and Tanu Priya Uteng). The opening statements were followed by a first Q & A session. Afterward, two invited experts (Heather Allen and Anne Kantel) commented on the statements and the discussion so far. The session ended with a lively discussion.

Most important findings

The discussion revolved around many interesting topics such as travel budgets and over-consumption, intersectionality, the socio-cultural dimension of mobility transitions, and the necessity of networks and exchange between science and practice.

The role of data in order to assess mobility justice and its inherent "trickiness" received particular attention. Even though data (such as trip diaries) was conceived of as biased and contingently reproducing existing injustices, it is, nonetheless, necessary to 'use it' to make power structures visible and to speak about injustices in the first place.

The discussion can be subsumed with three overarching questions:

- How do we avoid shifting disadvantages/ injustices from one group of persons to another group of persons/ from one scale to another scale?
- How can a sustainable and just transition in the mobility sector take place on a systemic level? Who is part of that system?
- How is power assessed in the debate about justice? Who is regarded to be heard? How to make power visible?

Conclusion

The discussion has shown once again that mobility justice is a very relevant but often underexposed topic in science and practice about sustainability transitions. Many important research questions and open desiderates still lie ahead. The discussion table has pointed to the relevance of cutting-edge research on mobility transitions and their multi-dimensional justice aspects, which we would encourage the DKN to include in their future work and related programs.

4.7 Sustainability and freedom

Host

Kira Meyer, M.A.

Research associate and PhD student at the Department of Philosophy, Christian-Albrechts-Universität zu Kiel (CAU), Kiel, Germany

Speaker

Dr. Mike Hannis

Senior Lecturer in Ethics, Politics and Environment, School of Humanities, Bath Spa University, Bath, UK

Agenda and process of the session

- Sustainability, freedom and 'environmental rights': reflections on Milieudefensie et al v Royal Dutch Shell. (Dr. Mike Hannis)
- Comments by Kira Meyer
- Open discussion

Most important findings

Mike Hannis argued that sustainability and freedom can not only be reconciled, but also that sustainability is a condition for autonomy. While problematic ideas of freedom as well as a neutral state ideology can be seen as barriers to sustainability, a policy based on ecologically literate conceptions of human flourishing and 'floors and ceilings' around resource consumption are required for sustainability. Sustainability protects the capabilities for flourishing, while environmental rights guarantee the latter. The Milieudefensie court decision underlines the importance of such a rights-based argument. In her comment, Kira Meyer argued that prior to the implementation of environmental rights a change of the conceptions of nature and freedom – which are more fundamental when it comes to human conduct towards the environment – is necessary. Secondly, she asked whether the relation between freedom and sustainability might be even stronger than Hannis claimed: Are the two concepts interconnected and stand in a double-sided interdependence relationship? In the discussion, the question arose whether the state should have a mandatory concept of a flourishing life. Hannis highlighted that at least the idea of corporate freedoms or rights bodies should be challenged.

Conclusion

Sustainability and freedom are not necessarily conflicting. Rather, they can be seen as interconnected: At least, sustainability is a condition for autonomy. Furthermore, it could be asked whether the connection between the two concepts is even stronger, that is whether they stand in a double-sided interdependence relationship. One possible and very promising approach to reconcile sustainability and freedom is an eudaimonist one which links both by their contribution to a human flourishing life.

4.8 MA Sustainability research: Analyse! Valuate! Shape! Educating the next generation in Passau

Hosts

Prof. Dr. Martina Padmanabhan

Chair of Comparative Development and Cultural Studies, Universität Passau, Passau, Germany

Prof. Dr. Anna Henkel

Chair of Sociology, with a focus on Technology and Sustainable Development, Universität Passau, Passau, Germany

Prof. Dr. Suleika Bort

Chair of International Management and Social Entrepreneurship, Universität Passau, Passau, Germany

Discussants

Dr. Anna Antonova

Director of Environmental Humanities Development, Rachel Carson Center for Environment and Society, Ludwig-Maximilian-Universität München, Munich, Germany

Dr. Hanna Straß-Senol

Director of Environmental Humanities Development, Rachel Carson Center for Environment and Society Coordinator IDK "Rethinking Environment", Ludwig-Maximilian-Universität München, Munich, Germany

Agenda and Process of the Session

The session brings 2 upcoming MA programs into conversation: Sustainability research at the University of Passau and Environmental Humanities at the Ludwig Maximilian Universität in Munich.

Most important findings

The discussion took place at the interface of sustainability research and teaching and between two upcoming study programmes. The MA Environment and Society (LMU) tackles key social and environmental challenges in just, creative, and constructive ways and aims at understanding human-nature relationships with critical perspectives. The MA Sustainability Research: Analyse! Valuate! Shape! (UPAS) focuses on 1. Analysis to gain sustainable knowledge for reflexive competencies, because sustainability is complex and heterogeneous as a scientific and social discourse as well as a social-ecological phenomenon. 2. Valuation of sustainable structures for contextualizing competencies, considering that agency is always shaped by context and coordinated action takes place in socially and materially pre structured contexts. 3. Shaping sustainable imaginaries for competencies to act perceives the necessary transition as rethinking and enacting economic processes resulting in global challenges.

Conclusion

Thus we conclude, that students require knowledge on different sustainability discourse, their genealogy and their positionality, provided by social sciences and the humanities to deal analytically and practically with heterogeneity. This enables them to drive fundamental paradigm shifts in companies and administrations towards responsible and sustainable management. Last not least, this approach incorporates and critically analyses possibilities of digitalization for innovative pathways.

4.9 True food pricing

Hosts

Prof. Dr. Susanne Stoll-Kleemann

Geographer and Political Scientist, Chair of Sustainability Science and Applied Geography, University of Greifswald, Greifswald, Germany

Speakers

Dr. Stefan Ewert

Political Scientist and Landscape Ecologist, Research Associate, Interdisciplinary Centre for Baltic Sea Region Research (IFZO) and Greifswald Mire Centre (GMC), University of Greifswald, Germany

Amelie Michalke

M.Sc., Business Engineer, Research Associate, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Henriette Rau

M.Sc., Health Care Manager, Research Associate, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Susanne Nicolai

M.Sc., Psychologist, Research Associate, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Lennart Stein

B.Sc., Sustainable Geographer, Research Assistant, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Rosalie Fichtner

B.Sc., Sustainable Geographer, Research Assistant, Chair of Sustainability Science and Applied Geography, University of Greifswald, Germany

Agenda and process of the session

The first spotlight presented by Stefan Ewert focused on the necessary differentiation in True Food Accounting (TCA) with regard to soils. Amelie Michalke introduced a framework for internalizing external costs from the production of different foods, as well as different production practices, as this session's main focus. In the following, Lennart Stein and Rosalie Fichtner highlighted the outcomes of a quantitative face-to-face study evaluating the customer's cognizance of measures taken. Based on a literature review, such intervention studies, their evidence-based success factors and, especially, barriers were analyzed and presented by Henriette Rau as the fourth spotlight. Susanne Nicolai's talk spotlighted the links between justice sensitivity, moral emotions and dietary behavior and intention.

Most important findings

Agricultural production entails a magnitude of environmental and social impacts that are currently not reflected in the market prices of different foods. Such unpriced effects, or external costs, distort market-equilibria and lead to an increased demand of unsustainable food. The quantification and adequate economic evaluation of externalities (True Food Accounting) from food production poses an approach to manifest dietary shifts towards more holistically sustainable patterns.

Conclusion

Supermarkets' food pricing often conceals what it really costs to produce those food items, because costs to the environment are not taken into account. Therefore, true cost accounting (TCA) is needed. Food is elemental to life and, thus, true food pricing and its potential consequences have direct influence on the Sustainable Development Goals.

4.10 Synergies and trade-offs for the multiple usages of land on our way to climate neutrality

DKN working group: Modelling Human-EnviRonMental InTeractions In the ANthropocene (HERMITIAN)

Hosts

DKN Working Group HERMITIAN

Prof. Dr. Julia Pongratz

Lehrstuhl für Physische Geographie und Landnutzungssysteme, Director of the Department of Geography, Faculty of Geosciences, Ludwig-Maximilians-Universität (LMU), Munich, Germany

Prof. Dr. Victor Brovkin

Climate-Biogeosphere Interactions, Land in the Climate System, Max-Planck-Institut für Meteorologie, Hamburg, Germany

Dr. Galina Churkina

Potsdam Institut für Klimafolgenforschung, Potsdam, Germany

Dr. Jonathan F. Donges

Department of Earth System Analysis, Potsdam Institut für Klimafolgenforschung, Potsdam, Germany

Prof. Dr. Matthias Garschagen

Chair in Human Geography, Ludwig-Maximilians-University München (LMU), München, Germany | IPCC Lead Author (SROCC, AR6 and SYR)

Prof. Dr. Tobias Kuemmerle

Geographisches Institut, Humboldt-Universität zu Berlin, Berlin, Germany

Dr. Thomas Kastner

Senckenberg Biodiversität und Klima Forschungszentrum, Frankfurt am Main, Germany

Prof. Dr. Mark Rounsevell

Institut für Meteorologie und Klimaforschung Atmosphärische Umweltforschung (IMK-IFU), und Institut für Geographie und Geoökologie (IFGG), Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany

Prof. Dr. Jürgen Scheffran

Research Group Climate Change and Security, Institut für Geographie, Universität Hamburg, Hamburg, Germany

Agenda and process of the session

- Introduction of the HERMITIAN working group and session goals (Prof. Dr. V. Brovkin)
- Impulse talk: Synergies and trade-offs for the multiple usages of land on our way to climate neutrality (Prof. Dr. Julia Pongratz)
- Breakout groups discussion
- Plenary discussion

Most important findings

The goal of this session was a community dialogue to shape a future national research program (e.g., a DFG Priority Program proposal). The Breakout Groups discussed:

- **Q1** The impulse talk mentioned key topics in the field of interdisciplinary assessment of the usages of land in the context of climate goals. Which other key topics for future research in this field are relevant?

Answers to Q1 Coupling of social dynamics and climate modeling; role of trade and financial markets; disruptive technologies and events; path dependencies; time lags and cascades of tipping points in social and natural systems; stronger inclusion of biodiversity considerations; high-resolution model-data fusion; connection of local and global environmental change; North-South relationship w.r.t. terrestrial CDR; land use to overcome injustice issues

- **Q2** What is Germany's special role in pushing this field forward? Which related topics are covered by international initiatives?

Answers to Q2 Germany is a key player in developing many of the existing relevant methodologies such as IAM-ESM coupling and behavioral modeling. It has a responsibility to invest in research to provide the scientific basis to solve pressing global change issues.

Conclusion

Investigating the multifunctionality of land in pathways of climate neutrality, where ecosystem services such as food and fibre production, living space, and biodiversity compete with possibly large needs of area for CDR and ever stronger needs for adaptation, is an emerging field. It requires a much better understanding of the multi-dimensional linkages to find sustainable solutions, including analysis of tipping points in societal and ecosystem dynamics related to landuse, and thus a dedicated research agenda. The topic is urgent (Paris Agreement) and timely (advances can feed into AR7 cycle).

4.11 Science narratives in policy advice – For exploring the coastal-marine science- society-policy nexus

DKN working group: Anticipating and Transforming Coastal Futures

Hosts

Prof. Dr. Anna-Katharina Hornidge

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Sustainable Development Solutions Network (SDSN) Germany, Bonn, Germany

Dr. Sebastian Ferse

Future Earth Coast & Leibniz Center for Tropical Marine Research, Bremen, Germany

Speakers

Dr. Michael Siebert

Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ), Bonn, Germany

Dr. Jacqueline Uku

President of Western Indian Ocean Marine Science Association (WIOMSA) | Kenya Marine and Fisheries Research Institute (KMFRI), Mombasa, Kenya

Prof. Dr. Martin Visbeck

Head of the Research Unit: Physical Oceanography, Ocean Circulation and Climate Dynamics, GEOMAR Helmholtz-Centre for Ocean Research Kiel, Kiel Germany

Ilka Wagner

National Representative to the Wadden Sea World Heritage Board, Wilhelmshaven, Germany | Head of Division Marine Nature Conservation, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Germany

Agenda and process of the session

After a short introduction by Prof. Dr. Anna-Katharina Hornidge, each of the four panelists [Dr. Jacqueline Uku (WIOMSA), Dr. Michael Siebert (GIZ), Ilka Wagner (BMU) and Prof. Dr. Martin Visbeck (GEOMAR)] gave an impulse statement. These were followed by a joint discussion, moderated by Dr. Sebastian Ferse.

Most important findings

How can we foster inclusivity and structural change in the discourse on the ocean-climate nexus between the spheres of science, society and policy? Lack of knowledge and mutual understanding of the inner workings and respective logics lead in many cases to delayed action or are even used against ambitious measures. While strategic partnerships and international development agendas with the aim to protect the ocean are increasing, they are still facing slow onset processes. Since policy-makers need to mediate conflicting interests and are held accountable for the impacts on society, they strive to find balanced solutions. Here, the potential of concepts such as „blue economy“ or „blue carbon“ is often highlighted, however the concrete ways to unfold it are seldom elaborated. One exemplary way to make scientific narratives more tangible, discussed in this session, are visual interventions as „decision-making theaters“, creating digital knowledge eco-systems for an accessible ocean.



Conclusion

In a time shaped by increasing uncertainty, social inequalities and a changing climate, we urgently need a shared vision for a common future – one that goes beyond the normative guide of the Agenda 2030. Co-constructing different and positive ideas on empirically based scenarios can only work through transformative, sustainable approaches along with a dialogue between global and locally embedded narratives. In this regard, the momentum of the UN Decade of Ocean Science is a promising opportunity.

4.12 Sustainable, transformative and circular bioeconomy

DKN working group: Sustainable, transformative, and circular bioeconomy

Hosts

Prof. Dr. Daniela Thrän

Department Bioenergie, Helmholtz-Zentrum für Umweltforschung (UFZ) Leipzig, Leipzig, Germany

Prof. Dr. Ulrich Schurr

Institut für Pflanzenwissenschaften, Forschungszentrum Jülich, Jülich, Germany

Speakers

Dr. Bettina Brohmann

Öko-Institut e.V. Institute for Applied Ecology, Darmstadt, Germany

Uwe R. Fritsche

Scientific Director, IINAS – International Institute for Sustainability Analysis & Strategy, Darmstadt, Germany

Dr. Steffi Ober

Team leader Economics Research Policy|NABU-Naturschutzbund Deutschland e.V., Berlin, Germany

Agenda and process of the session

- Welcome & Intro
- WG overview & WG Team
- Breakout Groups
 - Towards a sustainable transformation? The blind spots of the current research agenda Dr. Steffi Ober, Team leader Economics and Research Policy Policy, NABU – Naturschutzbund Deutschland e.V., Berlin, Germany
 - Bioeconomy in a net zero world – possible contributions and trade-offs Uwe R. Fritsche, Scientific Director, IINAS-International Institute for Sustainability Analysis & Strategy, Darmstadt, Germany
- Plenary – highlights of breakout groups
- Towards a BioWEconomy: The cultural dimension of bioeconomy and societal change
- Q&A and Summary

Most important findings

Current research does not adequately reflect the transformation required for a sustainable bioeconomy but encouraging projects have started and should be enlarged, especially in international formats. Transdisciplinary approaches are seen as required in this.

There are important trade-offs between the bioeconomy, climate, and biodiversity, and positive (synergistic) options exist which need more substantiation (by research), and implementation (by policy).

Participants indicated that the social dimension, especially inclusiveness, should become more prominent in the research. The presented “BioWEconomy” is conceptually part of this, and the respective potential role of culture and arts should be explored further.

Conclusion

Participants expressed their interest to continue discussion in a physical meeting later this year, and the organizers indicated to prepare for this. Interested parties should contact Daniela Thrän/Uwe Fritsche.

4.13 Spatiality in sustainability science: Contrasting perspectives to accelerate transformation

Host

Prof. Dr. Marc Wolfram

Director, Leibniz Institute of Ecological Urban and Regional Development, Dresden, Germany | Spokesperson, Leibniz Research Network Knowledge for Sustainable Development

Speakers

Prof. Dr. Christine Fürst

Department for Sustainable Landscape Development, Universität Halle-Wittenberg, Halle, Germany

Prof. Dr. Jannika Mattes

Professorship for Organisation and Innovation, CvO-Universität Oldenburg, Oldenburg, Germany

Prof. Dr. Richard Cowell

School of Geography and Planning, Cardiff University, Cardiff, UK

Agenda and process of the session

- Introduction (Prof. Dr. Marc Wolfram)
- Speed talk 1: How can conceptions of spatiality contribute to leverage and accelerate sustainability transformations? (Prof. Dr. Christine Fürst)
- Speed talk 2: A geography of innovation perspective on regions in sustainability transitions (Prof. Dr. Jannika Mattes)
- Speed talk 3: 'Place' concepts in sustainability transformations (Prof. Dr. Richard Cowell)
- Joint discussion question: How can different conceptions of spatiality in Sustainability Science contribute to leverage and accelerate sustainability transformations?

Most important findings

Spatial research approaches are a constitutive feature of sustainability sciences (SuSc). Especially implications of spatial ecosystem limits and interactions (Earth system) and the conditions for change in particular locations (places) have played a prominent role in the field from the outset.

Over the past two decades, however, a wider range of spatial ontologies has been deployed to unpack the conditions for and dynamics of social-ecological as well as socio-technical and political-economic transformations and their sustainability implications. This involves different understandings of space as

- Physical-material (ecosystems, built environs, etc.)
- Socially constructed (institutions, discourses, etc.)
- Experienced (lived, practiced, etc.)
- Relational (networked, assembled, etc.)

Major inter- and also transdisciplinary (TD) strands emerging along these lines include:

- Landscape research / Land system science
- Urban transformation research (incl. STS and SES)
- Innovation geography

Conclusion

In order to enhance their contribution to understanding and accelerating sustainability transformations, sustainability sciences should:

- Draw on the above variety of spatial lenses purposively to elucidate stakes, options, conflicts and trade-offs linked to alternative pathways
- Develop research strategies that focus on emerging transformation conflicts unfolding in places (regions, cities, neighborhoods), linked to complex interactions between multiple sectoral processes
- Ensure meaningful and equitable representation in TD research, despite spatiotemporal constraints

Corresponding research policy and -instruments are needed that support the spatial requirements of SuSc and thereby enhance sustainability transformations, considering:

- Place as a condition for trusted TD research collaborations and longer-term social learning processes (and thus, sustainability impacts)
- Strategic TD learning based on co-creation approaches needs to draw on spatial and place-based disparities, similarities and diversity

4.14 Zero Carbon City Munich, Germany, through Water-Energy-Food (WEF) nexus-based infrastructure development

Hosts

Dr. Daphne Keilmann-Gondhalekar

Chair of Urban Water Systems Engineering, Technical University of Munich (TUM), Munich, Germany

Dr. Saravanan Subramanian

German Development Institute (DIE), Environmental Governance, Bonn, Germany

Speakers

Dr. Wolfgang Stefinger

Member of German Parliament & Committees on Education, Research and Technology Assessment, and on Economic Cooperation and Development, Germany

Mr. Ramon Arndt

Climate Neutral City Manager, Munich, Germany

Dr. Ines Dombrovsky

Head of Environmental Governance Program, German Development Institute (DIE), Bonn, Germany

Prof. Dr. Jörg Drewes

Chair of Urban Water Systems Engineering, Technical University of Munich (TUM), Munich, Germany

Ms. Ruth Erlbeck

Former German International Cooperation (GIZ), Cluster Coordinator Environment and Sustainable Infrastructure Egypt and GIZ Urban Nexus: Integrated Resources Management in Asian Cities

Dr. Nandani Lynton

Global Head, Organizational Growth, Siemens Energy

In collaboration with BMW Foundation Responsible Leaders Network and Scientists for Future (S4F)

Agenda and process of the session

The session started with 2-minute inputs from selected experts to set the stage to jointly identify key enablers and barriers to decarbonization, taking Munich City in Germany as a case study and was conducted in collaboration with BMW Foundation Responsible Leaders Network and Scientists for Future.

Then, a debating game allowing all participants to join the discussion using a MIRO board and web polling. This enabled an open talk about the key solutions, enablers and barriers for urban climate change mitigation and resource use efficiency.

Most important findings

The open discussion enabled the identification of various suitable, impactful, and implementable solutions for promoting urban decarbonization in Munich. The participants also located their inputs regarding enablers, barriers, and potential solutions within four different areas which overlapped in the MIRO working board, namely: economy, civil society, science and technology, and politics. The mentioned solutions included urban gardening and greening, recycling and waste management, water reclamation with resource recovery, use of smart grids, and the implementation of novel energy generation technologies such as green hydrogen. Several enablers were also identified, which included governance elements such as energy partnerships, tax incentives for industry on research and development, the

promotion of urban co-creation spaces for new ideas and solutions, policy creation for integrated resource efficiency, and cooperation at different geographical scales. The identified barriers included the lack of political will and intersectoral integration, the increase in high-consumption patterns, and lack of funding directed towards decarbonization.

Conclusion

Most of the identified solutions, enablers and barriers were located within the interface of all sectors (economy, civil society, science and technology, and politics). This indicates an awareness that integrated solutions and coordinated efforts are required for enabling decarbonization within cities. Additionally, far from purely technical and scientific solutions, several inputs involved political, economic, and social improvements. This gives hints on which practices can be hindering the implementation of solutions for decarbonization. Addressing this within the policy agenda for urban planning can support resource security, enhance climate change resilience, and promote intersectoral synergies for a more sustainable urban living.

4.15 Capacity building for monitoring and fostering sustainable use of biological diversity.

Hosts

Dr. Jonas Schaper

Center for Applied Geoscience, Eberhard Karls University of Tübingen, Tübingen, Germany

Dr. Nica Claudia Caló

Dep. Of Sustainable Landscape Development, Martin Luther University, Halle (Saale), Germany

Prof. Dr. Bernd Cyffka

Sustainability research Lab, KU Eichstätt-Ingolstadt, Germany

Dr. Jörg Freyhof

Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany

PD Dr. Jens Jetzkowitz

Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany

Rebecca Peters

Center for Applied Geoscience, Eberhard Karls University of Tübingen, Tübingen, Germany

Dr. Nike Sommerwerk

Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany

Speakers

Dr. Million Belay

General Coordinator Alliance for food sovereignty in Africa (AFSA), Kampala, Uganda

Prof. Dr. Christo Fabricius

WWF Germany| KAZA Secretariat | Nelson Mandela University, Port Elizabeth, South Africa

Prof. Dr. Ingrid Hemmer

KU Eichstätt-Ingolstadt, Eichstätt, Germany

Prof. Dr. Anne-Kathrin Lindau

KU Eichstätt-Ingolstadt, Eichstätt, Germany

Dr. Taukondjo Sem Shikongo

UN Secretariat of the Convention on Biological Diversity, Montreal, Canada

Agenda and process of the session

- Competing interest in Majang biocultural diversity. (Dr. Million Belay)
- Piloting community-based monitoring in the Kavango- Zambezi TFCA. (Prof. Dr. Christo Fabricius, B. Reicheldt-Zolho)
- Capacity building on ESD for academic staff at universities with a focus on biodiversity loss. (Prof. Dr. Ingrid Hemmer, Prof. Dr. Anne-Kathrin Lindau)
- Benefit sharing as an incentive for conservation and sustainable resource use. (Dr. Taukondjo Sem Shikongo)

Most important findings

In SSII6 four impulse talks presented ideas on how to promote biological diversity, while simultaneously ensuring sustainable socio-economic development, particularly in the global south. The key findings of the talks and the subsequent discussions were:

- Competing interests and the current mechanisms of global markets are promoting biocultural diversity loss

- Successful nature conservation goes hand in hand with a resilient and inclusive societal development
- Culture plays a pivotal part in building up capacities with respect to biodiversity monitoring and biocultural diversity conservation
- Participatory learning and mapping, polycentric governance and the promotion of social connections for learning are efficient tools to build up capacities
- Socio-ecological monitoring is a multi-stakeholder and thus multi-cultural endeavor; capacity building needs to involve different knowledge systems and the private sector

Conclusion

In order to promote sustainable development, future biodiversity research should:

- Investigate how monitoring data can be more efficiently integrated into policy-making processes
- Identify cultural aspects that go along with successful capacity building and more efficient ways to communicate research results to all stakeholders including stakeholders from different knowledge systems
- Establish methods to assess the “footprint” of internationally traded products on local biocultural diversity

4.16 Sustainable planning and construction

Hosts

Prof. Dr.-Ing. habil. Manfred Bischoff

Institut für Baustatik und Baudynamik, Universität Stuttgart, Stuttgart, Germany

Prof. Dr.-Ing. habil. Norbert Gebbeken

Forschungsgruppe BauProtect, Forschungszentrum RISK, Universität der Bundeswehr München, München, Germany

Prof. Dr.-Ing. habil. Dierk Raabe

Director, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany

Speakers

Prof. Dr.-Ing. Dr.-Ing. E.h. Manfred Curbach

Institut für Massivbau, Technische Universität Dresden, Dresden, Germany

Prof. Dr.-Ing. Andrea Benze

Professur Städtebau und Theorie der Stadt, Hochschule München, München, Germany

Prof. Dr. Werner Lang

Lehrstuhl für energieeffizientes und nachhaltiges Planen und Bauen, Technische Universität München, München, Germany

Prof. Dr.-Ing. habil. Dierk Raabe

Director, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany

Agenda and process of the session

The session was subdivided into two sections:

- Four brief presentations as listed below and
- A discussion involving both invited panelists and session attendees.

Most important findings

In his talk “21st Century Building – Towards a Climate and Resource Neutral Construction” Prof. Manfred Curbach highlighted the huge impact of the construction sector on climate relevant emissions by providing facts and figures. He discussed technical solutions, in particular related to construction materials, for reducing embodied energy.

Prof. Werner Lang (TU München) indicated possibilities of how to build with a positive ecological footprint by means of digitalization, life cycle assessment as well as involving occupant behavior.

In her presentation “Designing the City under Climate Change” Prof. Andrea Benze (Hochschule München) reflected aspects of sustainable planning from the perspective of architecture and urban planning.

Prof. Dierk Raabe talked about sustainable metallurgy and metals. Specifically, steel, aluminum, nickel, and titanium require a lot of energy when extracted and manufactured. He showcased carbon-lean primary production, recycling, scrap-compatible alloys, and circular economy as possibilities for more sustainable solutions.

In the following, the appropriate quantification of climate impact, particularly including the aspect of embodied energy and grey emissions, was controversially discussed. Carbon neutral cement (concrete) has been identified as a key technology and important subject of future research.

Conclusion

The Paris climate goals require a radical transformation in the construction sector. The session revealed three crucial aspects:

- It is not appropriate to assess the environmental impact of buildings via operational energy only. The complete life cycle and grey emissions have to be included.
- Research is required for new materials, recycling and digitalization.
- Architecture and urban planning should plan and construct in existing contexts instead of demolition and replacement.

4.17 Securing the living quality of urban regions under heat and water stress

Hosts

Prof. Dr. Philip Leistner

Institute for Acoustics and Building Physics IABP, University of Stuttgart, Stuttgart, Germany

Prof. Dr. Jörn Birkmann

Institute of Spatial and Regional Planning IREUS, University of Stuttgart, Stuttgart, Germany

Speakers

Prof. Dr. Jörn Birkmann

Institute of Spatial and Regional Planning IREUS, University of Stuttgart, Stuttgart, Germany

Pia Krause

M. Sc, Institute for Acoustics and Building Physics IABP, University of Stuttgart, Stuttgart, Germany

Joanna McMillan

M. Eng., Institute of Spatial and Regional Planning IREUS, University of Stuttgart, Stuttgart, Germany

Prof. Dr. William Solecki

Department of Geography, City University of New York, New York, USA

Prof. Dr. Marzia Traverso

Institute of Sustainability in Civil Engineering INaB, RWTH Aachen, Aachen, Germany

Agenda and process of the session

The aim of the session was to identify specific challenges in how to secure the living quality in urban regions and formulate research needs.

- Welcome and Introduction (Prof. Dr. Philip Leistner)
- Global Content (Prof. Dr. William Solecki)
- Regional Content in South Germany (Prof. Dr. Jörn Birkmann)
- Integrating climate and vulnerability information at the city-regional scale (Joanna McMillan)
- Interaction between Microclimate and Indoor climate (Pia Krause)
- Summary - Challenges need to be addressed (Prof. Dr. Philip Leistner)

Most important findings

Securing quality of life in urban regions exposed to extreme heat and water stress requires a multi-dimensional assessment. Up to now, most studies examine future climate change on the residential population, and therewith do not sufficiently acknowledge dynamics of exposure and vulnerability.

Many cities prepare adaptation strategies only for their own area, and therewith do not acknowledge the city-regional interactions.

In order to represent models of heat and water stress, a more differentiated assessment of urban and regional structure is required. Such models are fed with demographic and socio-economic data in order to factor multi-scale levels of vulnerability and adaptive capacity.

Under extreme heat and water stress, green structures in the outside help to improve the indoor climate significantly. To ensure a comfortable indoor climate, the living quality of (sub)urban regions must be considered and planned not only for humans but also for the urban flora and fauna.

Conclusion

Adaptation strategies for (sub)urban regions and their multi-scale interdependence must be examined holistically. Planning tools and models must be able to cover the requirements and interdependencies between different (multi-)scales. In particular, the tools must represent the potential of green structures across scales. The knowledge of experts must be networked in order to be able to map the interdependencies of macro-, meso-, micro- and indoor climate in (sub)urban regions holistically.

Follow Up

Interested in a DFG roundtable on new methodological approaches of multi-scale assessments for urban sustainability and living quality in the context of heat and water stress.

4.18 Climate change and systemic risk

Hosts

Dr. Dorothea Frank,
Research Coordination Department Biogeochemical Integration, Max-Planck-Institute for Biogeochemistry Jena, Jena, Germany

Dr. Kai Kornhuber
The Earth Institute, Columbia University, New York, USA

Prof. Dr. Reinhard Mechler
Research Group Leader Systemic Risk and Resilience Research Group, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

Prof. Dr. Markus Reichstein
Director Department Biogeochemical Integration, Max-Planck-Institute for Biogeochemistry Jena, Jena, Germany

Dr. Jana Sillmann
Research Director CICERO (Centre for International Climate and Environmental Research), Oslo, Norway

Prof. Dr. Simron Singh
Faculty of Environment, University of Waterloo, Waterloo, Canada

Speakers

Dr. Kai Kornhuber
The Earth Institute, Columbia University, New York, USA

Prof. Dr. Reinhard Mechler
Research Group Leader Systemic Risk and Resilience Research Group, International Institute for Applied Systems Analysis IIASA, Laxenburg, Austria

Dr. Michael J. Puma
Director of the Center for Climate Systems Research, The Earth Institute, Columbia University, New York, USA

Prof. Dr. Dann Mitchell
Joint Met Office Chair in Climate Change and impacts, Cabot Institute for the Environment, University of Bristol, Bristol, UK

Agenda and process of the session

- Introduction (Prof. Dr. Markus Reichstein)
- Short talks:
- Climate Change and Systemic Risk (Dr. Kai Kornhuber)
- From Systemic Risk to Systemic Resilience (Prof. Dr. Reinhard Mechler)
- Examining systemic risk in the global food system (Prof. Dr. Michael J. Puma)
- Heat related mortality in a warmer world (Prof. Dr. Dann Mitchell)
- Panel discussion with speakers and audience

Most important findings

Climate change is affecting weather extremes globally. Recent extremes suggest that climate models underestimate the magnitude of certain types of extremes, as e.g. the 2021 Western North American-Canadian heatwave.

Food systems are especially vulnerable to climate extremes, supply networks rely on (national) critical infrastructures and international shipping route chokepoints.

Identified needs are

- Good data (an issue in parts of the world) and solid predictors (e.g. for “heat & humidity”)
- (Better) climate knowledge to accurately evaluate model uncertainties and associated future risk
- Complement physical science work on global tipping points (existential climate risk and urgency)
- Platform for qualitative and quantitative evidence on adaptation limits and transformation that may help to overcome soft limits
- Improved knowledge of markets, geopolitics, trade relationships, and other socioeconomic factors to understand impacts of extremes and options for mitigating those risks

Conclusion

- Climate change is projected to lead to increasing extreme events, which, when interacting with socio-economic drivers, will increase systemic climate-related risk
- We assume that current model projections provide a conservative estimate of their future risk
- Systemic risk research to further develop evidence on soft and hard climate adaptation limits in socio-ecological systems at scale
- New / improved theories and institutions to address the challenges and options for mitigating multi-scale systemic risks within countries and internationally

4.19 Climate change and human mobility in the anthropocene

Hosts

Prof. Dr. Björn Vollan

Department of Economics, University of Marburg, Marburg, Germany

Prof. Dr. Andreas Neef

Faculty of Arts, University of Auckland, Auckland, New Zealand

Speakers

Prof. Dr. Petra Tschakert

Department of Geography, University of Western Australia, Perth, Australia

Prof. Björn Vollan

Department of Economics, University of Marburg, Marburg, Germany

Dr. Lucy Szaboova

European Centre for Environment and Human Health, University of Exeter, Exeter, UK

Prof. Andreas Neef

Faculty of Arts, University of Auckland, Auckland, New Zealand

Agenda and process of the session

Four Presentations

- Climate Mobility and Climate Justice (Prof. Dr. Petra Tschakert)
- Determinants of climate induced migration (Prof. Dr. Björn Vollan)
- Urban sustainability and the subjective wellbeing of migrants: the role of risks, place attachment and aspirations (Dr. Lucy Szaboova)
- Ambiguous Role of New Zealand in Climate Migration and Climate Mobility Justice in the Pacific (Prof. Andreas Neef)
- Discussion

Most important findings

Migration is increasingly seen as an adaptation measure to climate change, often in addition to other drivers, wrapped up in positive and negative narratives

The decision to move and its consequences for climate migrants, as well as receiving and sending communities, are multifaceted

Examining the diverse mobility experiences across the three categories, namely embodiment, climate influence, and impacts, can help understand the dynamics and complexities of climate (im)mobility

An analysis of the lived experiences of rural-urban migrants in BGD suggests that the subjective wellbeing of migrants is shaped by affinity to new urban residences, the achievement of migration aspirations, and perceived social and environmental risks at the new place (new urban precarity)

On the other hand, many people endangered by climate hazards prefer to adapt in-situ over moving away even when facing extremely high hazard risks

An empirical analysis of survey and experimental data from BGD, SOI, VET, and PHI suggests that the willingness to move is explained by social cohesion, risk aversion, place attachment and migration aspiration

Treating climate migration as an adaptation strategy poses the danger of shifting the burden to those most affected by climate change

As those countries mainly contributing to climate change – such as NZ – restrict legal pathways for climate-related migration, climate migrants face a combination of climate and mobility injustice

Conclusion

- Climate migration decisions and consequences are complex and need to be further scrutinized in empirical analyses
- Multiple dimensions are to be recognized when analyzing the effect of climate mobilities on various actors and hence the environment and conditions to be provided for successful migration
- Many of those affected by climate-related hazards prefer to adapt in-situ, yet interesting dimensions of inequalities drive the extent to which such preferences are shaped by culture, norms, and dominant values (e.g. patriarchy)

The insight that many of those affected do not want to move paired with the fact that in many cases it is other countries causing climate change. This calls for a reconsideration of moral duties and resulting laws and obligations

4.20 A new social contract for climate change adaptation in dynamic societies?!

Hosts

Prof. Dr. Matthias Garschagen

Chair in Human Geography, Ludwig-Maximilians-University München (LMU), München, Germany | IPCC Lead Author (SROCC, AR6 and SYR)

Prof. Dr. Karen Pittel

Director, ifo Center for Energy, Climate, and Resources, Co-Chair, German Advisory Council on Global Change (WBGU)

Panelists

Dr. Astrid Zwick

Head of InsuResilience Secretariat, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Dr. Jun Rentschler

Senior Economist, Office of the Chief Economist for Sustainable Development, World Bank

Christoph Bals

Policy Director, Germanwatch e.V., Bonn, Germany

Agenda and process of the session

The session aimed to take stock of the emerging debate around (new?) social contracts needed for climate change adaptation. In doing so, it reviewed and discussed the current knowledge on existing as well as envisioned social contracts in different world regions and across scales. It also debated a future agenda for transdisciplinary research on social contracts for adaptation.

Panelists working at the interface of academia, adaptation practice and civil society were invited to contribute to the discussion in flash talks and panel contributions. The audience contributed heavily through questions and comments.

After an introductory presentation by Prof. Garschagen and input statements by the panelists, the discussion focused in particular on the following three sets of questions:

- Which science and knowledge is needed to inform (shifting) social contracts for climate change adaptation? Where do you see the biggest knowledge gaps? How are different types of knowledge important?
- Are social contracts an issue for all societies – or more so for some?
- Is there a difference in the debate of social contracts for CCA within and between countries?

Most important findings

The session generated a number of key findings:

- The panelists and the audience emphasized a strong need to consolidate research on the social negotiations surrounding the roles and responsibilities for climate change adaptation between different actors. In principle, this need applies to all world regions.
- The participants likewise considered the “social contract” lens a very fitting and potentially powerful one. It allows for addressing normative and empirical dimensions, which the panelists highlighted in their contributions.
- The panelists stressed that science on social contracts for adaptation needs to be inter- and transdisciplinary as it needs to provide theoretically grounded, empirically robust and actionable results.

- Knowledge gaps that need to be addressed do not only relate to future responsibilities but also to the current state of adaptation and the expectations – often mutually conflicting – different actors have towards each other.

Conclusion

As climate change research has strongly shifted towards adaptation and its governance, science needs to engage more explicitly with the existing – and maybe shifting – social contracts for conceiving, planning, implementing and financing adaptation. Current and implicit “contracts” might soon reach their limits under intensifying climate impacts and adaptation needs. New social contracts are not yet clear and need to be co-developed through transdisciplinary approaches.

Session abstract

Climate change research has slowly been moving from a focus on impacts and risks to a focus on responses. Transdisciplinary concepts such as the “solution space” receive a groundswell of attention, ranging from detailed local case studies all the way to global assessments. However, much of the scientific discourse on adaptation applies a rather technocratic view to the reshaping of human-environment-relations. Only slowly emerging at best is a deeper understanding of the social contracts needed to deliver on the massive adaptation efforts required. The transformation debate that starts to engage with this question often remains on a normative level, bypassing the empirical analysis of how responsibilities for adaptation are perceived and assigned. New empirical research, however, suggests growing gaps in mutual expectations and ascribed responsibilities between, e.g., state actors, citizens and private sectors. Increased scientific efforts to unpack and reassemble these often tacit conceptions are therefore urgently needed.

5. Science policy sessions

5.1 Science as a transformative lever for sustainable development – Science policy as a game changer

Hosts

Prof. Dr. Anna-Katharina Hornidge

Sustainable Development Solutions Network (SDSN), Germany | German Advisory Council on Global Change (WBGU) | German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany

Dr. Sabrina Schulz

Sustainable Development Solutions Network (SDSN), Germany

Panelists

Prof. Dr. Anna-Katharina Hornidge

Sustainable Development Solutions Network (SDSN) Germany | German Advisory Council on Global Change (WBGU) | German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany

Prof. Dr. Jacqueline McGlade

Professor of Natural Prosperity, Sustainable Development and Knowledge Systems, Institute for Global Prosperity, London, UK

R. Andreas Kraemer

Founder & Director Emeritus Ecologic Institute, non-executive Director of the Fundação Oceano Azul, Lisbon, Portugal

Discussant

Dr. Steffi Ober

initiator and head of the project „Forschungswende“, an online portal to bring the views and expertise of civil society into science policy-making, Berlin, Germany

Agenda and process of the session

- Panel discussion with input statements as opportunity to share observations/perceptions on the science-policy interface in Germany and Europe.
- Interventions from the audience by Dr. Jorge Vasconcelos and Dr. Marianne Beisheim
- Mutual commenting
- Final statements.

Most important findings

Recommendations for making science into an important lever for sustainability:

- Stronger focus on real world problems and solutions; need to adapt incentive system in scientific system.
- Stronger focus on the social sciences, inter-, trans- and multidisciplinary research.
- More flexibility in terms of approaches, methods and respective funding schemes to make sustainability research more effective and outcome-oriented.

- Need for speed: faster approval and implementation processes; quicker publication of scientific findings.
- Learn from EU approach to science funding: policy-relevant research for mobilising existing knowledge for practical application in policy-making.
- Avoid politicisation of science as this undermines its credibility but keep in mind that transformative research is always political research.
- Strengthen science-society-policy interface, involve civil society stakeholders as society needs to understand urgency of action so co-design, co-production, co-interpretation and co-implementation become possible.
- Strengthen science diplomacy.

Conclusion

Much remains to be done so science can become an effective lever for sustainable development. The responsibility lies both with the political system that needs to acknowledge the special nature and specific needs of transformative research and with the scientific/academic system that needs to overcome its frequently rigid and conservative structures that impede effective advice for political decision-makers and meaningful exchange with society.

5.2 Knowledge production around the SDGs: Rewards and recognition in a global context

Host / Moderator

Dr. Max Voegler
VP Global Strategic Networks DACH, Elsevier, Germany

Speakers

Rachel Martin
Information Industry Relations and Communications, Elsevier, Germany

Dr. Graham Harrison
Senior Science and Technology Consultant, World Bank

Prof. Dr. Klaus Kümmeler
Sustainable Chemistry and Material Resources, Leuphana University, Lüneburg, Germany

Christian Schwägerl
Investigative and science journalist | co-founder of RiffReporter

Agenda and process of the session

The session took place as a panel discussion. To provide input at the beginning of the session, Rachel Martin presented new and different ways of thinking about “impact”, followed by the discussion.

Most important findings

Scientific “excellence” as measured in publications and citations has been the central unit of measurement for the past decades, and this has generally been the primary measure of “impact”. If the scientific community would like to produce knowledge and advance the sustainable development goals, it must rethink how it evaluates and incentivizes the production of knowledge.

By looking at scientific output through an SDG “lense”, it becomes possible to redefine the way institutions view what excellence means. Re-thinking impact can also lead to a more nuanced view of how technologies and innovation develop in a given field, such as energy research.

Rethinking impact also requires knowledge to be placed in different contexts in order to evaluate research impact: diversity, for example, should apply both to the question of who participates in the production of knowledge, and also where that knowledge is produced and where it is applied.

Conclusion

The panel discussed and proposed several ways in which our understanding of “impact” should be redefined in light of the SDGs: one idea was to require submitted papers to have an “SDG impact statement” so that authors have thought about how their work contributes to global sustainability research. A second idea focused on re-thinking “impact” as including the accessibility of knowledge – Open Access is part of this, but just as important is the question of how the scientific community can apply SDG 17 (partnerships) to encourage the localization of knowledge. An important caveat to this is also to think about “diversity” not just in terms of people, but also in terms of geography and to make sure that the development and application of knowledge occur with the same ease in the global south as in the global north. As one panelist said: “excellence is everywhere”.

5.3 The lack of rationality in the debates on climate policies: An attempt to shed light on this puzzle

Hosts

Prof. Dr. Andreas Freytag

Friedrich-Schiller-University Jena, Jena, Germany | University of Stellenbosch and STIAS, Stellenbosch, SouthAfrica

JProf. Dr. Matthias Menter

Friedrich-Schiller-University Jena, Jena, Germany

Speakers

Thomas Chen

Academy for Mathematics, Science, and Engineering, Morris Hill, USA

Dr. Fritz Reusswig

Urban Transformations, Research Domain 2 (Climate Resilience), Potsdam Institute for Climate Impact Research (PIK) e.V., Potsdam, Germany

Prof. Dr. Uwe Schneidewind

Mayor of Wuppertal and Club of Rome, Wuppertal, Germany

Prof. Dr. Joachim Weimann

Otto von Guericke University Magdeburg, Magdeburg Germany

Agenda and process of the session

The three panelists (Dr. Fritz Reusswig, Potsdam Institute for Climate Impact Research; Prof. Dr. Uwe Schneidewind, Mayor of Wuppertal and Club of Rome; Prof. Dr. Joachim Weinmann, Otto von Guericke University Magdeburg) opened the discussion with a 5-minutes introductory statement, followed by a 30-minutes discussion. The last 15 minutes of our session were devoted to questions from the audience.

Most important findings

The debate about climate change and policies to prevent a further increase in global temperature and rising sea levels in Western democracies, e.g. in Germany, takes place on several levels, of which at least three can easily be distinguished: (1) science, (2) policy, and (3) public. Needless to say that these levels are interrelated and feedback mechanisms are at play.

Both theoretical reasoning and empirical evidence suggest that climate change cannot be prevented against the enormous innovative potential of – a socially well-balanced – capitalist system; in socialist regimes, environmental policies were and are almost non-existing. The session asked the question of why this opposition to effective and efficient policy strategies is so persistent. For discussing this puzzle, we invited social scientists and policymakers. We wanted to understand the causes of this opposition and learn how it might be overcome so that both the climate and an open democratic market economy can be safeguarded.

Conclusion

The entire discussion centered on the role of narratives. It thereby became clear that all panelists had a different perspective on the respective roles the state, enterprises and individuals should play in the climate policy setting – ranging from a rather passive role of the state towards a very active role. These differences were worked out during the discussion. It became clear that an economic perspective – implying to meet a generally accepted objective with the lowest costs – is difficult to agree on. The topic climate change has received a relatively strong morale component, which makes rational arguments less likely to succeed, partially explaining the aforementioned puzzle.

5.4 “Biodiversity Mainstreaming” and its relevance for a more sustainable conservation and utilization of nature

Hosts

Prof. Dr. Volker Mosbrugger

Spokesman of the BMBF Research Initiative for the Conservation of Biodiversity (FEa), Senckenberg Research Institute, Frankfurt, Germany

Dr. Julian Taffner

Head of the Central Coordination of the BMBF Research Initiative for the Conservation of Biodiversity (FEa), Senckenberg Research Institute, Frankfurt, Germany

Dr. Philipp Sprenger

Research Assistant at the Central Coordination of the BMBF Research Initiative for the Conservation of Biodiversity (FEa), Senckenberg Research Institute, Frankfurt, Germany

Discussants

Agnes Becker

Ecological Democratic Party (ÖPD), Regional Association Bavaria, Passau, Germany

Ralf Schulte

Department of Nature Conservation and Environmental Policy, NABU e.V., Berlin, Germany

Dr. Sonja Geiger

Chair for Consumer Research, Justus-Liebig-University Gießen, Gießen, Germany

Prof. Dr. Aletta Bonn

Department Ecosystem Services, Helmholtz-Centre for Environmental Research –UFZ, Leipzig, Germany; Friedrich-Schiller-Universität Jena, Jena, Germany; German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Germany

Agenda and process of the session

Together with climate change, the dramatic loss of biodiversity is one of the greatest challenges facing humankind. However, despite the existential value of biodiversity, biodiversity loss has only played a subordinate role in the political and societal debate about how sustainability can be achieved.

In a discussion moderated by Prof. Dr. Volker Mosbrugger with Agnes Becker (Ecological Democratic Party – ÖPD), Ralf Schulte (NABU e.V.), Dr. Sonja Geiger (Justus-Liebig-University Gießen) and Prof. Dr. Aletta Bonn (Helmholtz-Centre for Environmental Research – UFZ; Friedrich-Schiller-University Jena; German Centre for Integrative Biodiversity Research – iDiv) as panelists (Figure 1), we explored which role “biodiversity mainstreaming”, i.e. the consideration of biodiversity in all political and economic decisions, but also in private lifestyles, can have on our way to a sustainable conservation and use of natural capital.

The discussion was roughly structured along four key questions:

- How important and successful is the mainstreaming approach in democratic processes? What are best practice examples?
- What characterizes fair, science-based mainstreaming as opposed to “populist manipulation”? How effective are positive, solution-based vs. disaster scenarios?
- Why is climate mainstreaming more successful than biodiversity mainstreaming? What are the lessons learnt?
- How can biodiversity mainstreaming, biodiversity research, and sustainability science mutually support each other to promote the transition towards sustainability? Do we need common narratives, and if so, which ones?

Towards the end of the discussion, the audience was asked to answer the question “What is the key to successful biodiversity mainstreaming?” via “Mentimeter”, resulting in a word cloud representing a collection of key factors (Figure 2).

Most important findings

Successful biodiversity mainstreaming requires awareness. Yet, in society, there is ignorance and/or a lack of knowledge. We need to evaluate our education and find solutions to create awareness, e.g. through action portfolios, citizen science and better communication strategies. However, awareness can only be a first step towards transition. We need more research from social sciences to explore which personal and social norms can certainly change collective behaviors. Combining emotions and personal experiences with scientific facts, can be a key to reach more people with conservation topics.

Catastrophe framing can induce short-term behavioral changes, but to promote a long-term effect toward changes in people's attitudes, we need positive framing.

For mitigating climate change, CO₂ emissions can be quantified and charged with taxes. For biodiversity, such quantifications are more complex. The concept of ecosystem services provides opportunities to give biodiversity an economic value.

Conclusion

There is a need for cross-sectoral cooperation to achieve true biodiversity mainstreaming and to link biodiversity, climate and health. For systemic changes in political decisions, it needs pressure from the society. Mixing bottom-up and top-down approaches seems promising to induce behavioral changes. A more general environmental awareness and a positive common motive such as a “healthy and green planet” can promote transformation towards a sustainable lifestyle within the planetary boundaries.

6. Early Career Researchers Workshop

Inter- and transdisciplinarity in sustainability science - opportunities and challenges for early career scientists perspectives from different fields

Hosts

Dr. Jorge Saturno

YESS community | Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

Dr. Faten Bahar

YESS community | University of Carthage, Tunisia Polytechnic School, La Marsa, Tunisia

Panelists

Prof. Dr. Alexander Fekete

Institute of Rescue Engineering and Civil Protection, TH Köln – University of Applied Sciences, Cologne, Germany

Prof. Dr. Birgit Blättel-Mink

Department of Social Sciences, Institute for Sociology, Johann Wolfgang Goethe-University Frankfurt am Main, Frankfurt am Main, Germany

Antje Brock

German ECS Netzwerk | Institut Futur, Freie Universität Berlin, Berlin, Germany

Agenda and process of the session

- Network and workshop introductions
- Panelist presentation
- Open discussion

Most important findings

- Increasing third-party funding is contributing to precariousness career development in working conditions of ECRs.
- Excellence is disciplinary driven and does not give sufficient room to transdisciplinary approaches, despite the necessity for transdisciplinarity on the discursive level.
- Right now, 85 % of ECS are on a fixed-term contract. The average contract of a PhD is 22 months, the avg. for Postdoc contracts is 28 months.
- Real, inter- and transdisciplinarity, not just by label, is more complex, therefore time – and expertise – relevant and these extra time is not structurally added for ECS
- Knowledge integration and coproduction has been implemented in Germany since few years. However, Global South - Global North knowledge interaction is still a missing task.
- Applied Sciences universities in Germany have been more efficient to implement transdisciplinary approaches in their study programs.
- Practitioners are not always open to implement solutions coming from research.
- Knowledge management / sharing ideas is very important to booster inter- and transdisciplinarity.

Conclusions

Early career researchers in sustainability science face different challenges to implement inter- and transdisciplinary approaches. The challenges comprise, for example, monodisciplinary study programs, career evaluation mechanisms with disciplinary focus, difficulties to plan long-term careers given the contracting conditions (WissZeitVG)

7. Summit conclusions and outlook

The German Sustainability Science Summit 2021 provided an international platform to exchange about new scientific findings and research needs, for discussions of the future of sustainability research and to foster interdisciplinary collaborations within Future Earth and beyond. The focus of the summit was explicitly dedicated to national and international interdisciplinary and integrative sustainability science, while discussing the previous and future work of the DKN along the DKN position paper on research priorities in sustainability research.

Concluding panel discussion: Perspectives of international sustainability science

Host

Prof. Dr. Daniela Jacob

Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Hamburg, Germany

Panelists

Dr. Faten Bahar

University of Carthage, Tunisia Polytechnic School, La Marsa, Tunisia

Prof. Dr. Anna-Katharina Hornidge

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Sustainable Development Solutions Network (SDSN) Germany, Bonn, Germany

Prof. Dr. Konrad Ott

Department of Philosophy, Christian-Albrechts-Universität zu Kiel (CAU), Kiel, Germany

Prof. Dr. Johan Rockström

Potsdam Institute for Climate Impact Research (PIK), University of Potsdam, Potsdam, Germany

Prof. Dr. Peter Schlosser

Julie Ann Wrigley Global Futures Laboratory, Arizona State University, Tempe, AZ, USA

Prof. Dr. Martin Visbeck

GEOMAR Helmholtz-Centre for Ocean Research Kiel, Christian-Albrechts Universität zu Kiel, Kiel, Germany

The concluding panel discussion raised the overarching question about perspectives of international sustainability science. The discussion revealed that sustainability science has become an established field of research. It is now stated in the statutes of the DFG that science contributes to sustainable progress, a big achievement which was unimaginable 30 years ago. The panelists emphasized that it should be asked self critically, how far research can and should move beyond the more traditional idea of conventional science. The transition of science was discussed throughout the summit: science has stepped up to interdisciplinary science, transdisciplinary science and leading to transformative science, which is more engaged, more concerned, more active, blurring the lines between science, campaigning and political engagement. In this light, the scope of sustainability science was discussed broadly. On the one hand sustainability science was perceived as an established and mature field of research in the classical sense, whereas another perception was that it is a still young and immature science that is not clearly defined. It is a crosscutting field to which many single disciplines can and should contribute. As sustainability science is looking beyond the classic definitions of science, it became obvious from the discussions that

the combination of basic and applied research is needed in order to provide a scientific basis for solutions to large societal problems within a reasonable time frame.

The panelists concluded that, to accomplish a redefinition of science, sustainability has to be anchored across all areas of academia and education while at the same time faculties dedicated to sustainability science need to serve as nuclei within the institutions to allow for a holistic view in education.

It was also discussed that sustainability science needs to bridge several fault lines to enable transdisciplinary and transformative science, such as between the different national funding structures and science systems, between science and policy, between science and society, and between academia and engineering. In order to achieve these ambitious goals, the panelists acknowledged that an international platform is of importance for partnerships and collaborations, with contributions from all fields, from the different parts of the world to build bridges and fill gaps to overcome the rifts between different contexts and different regions and to set a joint agenda to shape sustainability research collectively. It was concluded that sustainable living on our planet is a global challenge in a cross-cultural dialogue as key element of equity, fairness and justice.

The discussions also highlighted sustainability science as a crosscutting topic connecting all generations with a need to engage early-career researchers and professionals more than before, along with the need to address challenges in career development in sustainability science, as the future belongs to the young generations.

It was also highlighted that science must uphold its integrity, credibility and persistence. In this context it was noted that interdisciplinary, transdisciplinary and transformative science must presuppose high disciplinary standards and measures for excellence, while at the same time being able to react fast to anticipate problems.

The summit concluded with the remark that sustainability has to become the new normal and that it is now to create a manageable earth system for all future generations.

8. Appendix

8.1 Poster session

8.1.1 DKN Focus Topics

Engineering Machine Learning Solutions for Climate Adaptation: Remote Sensing for Disaster Recovery

Thomas Y. Chen
Academy for Mathematics, Science, and Engineering, USA

Sustainable extreme event management - The event perception evaluation for sustainable well-being

Dr. Olga Pilipczuk
Institute of Management, University of Szczecin, Poland

Land-use change effects on biodiversity through mechanistic simulations: A case study with South-Asian mammals

Andre P. Silva
Ecology and Genetics, Uppsala University, Sweden
Co-Authors
Filip Thorn, Damaris Zurell, and Juliano Cabral

8.1.2 Science Policy

“Biodiversity Mainstreaming” and its relevance for a more sustainable conservation and utilization of nature

The rationality paradox of climate populism. Non-intended rational effects of populist climate policy narratives

Dr. Fritz Reusswig
Dep. RD 2: Resilience, Potsdam Institute for Climate Impact Research (PIK), Germany
Co-Authors
Wiebke Lass, Seraja Bock

8.1.3 Scientific Session

Sustainable planning and construction

Adaptive Skins and Structures for the Built Environment of Tomorrow

Prof. Dr. Manfred Bischoff

Institut für Baustatik und Baudynamik, Universität Stuttgart, Stuttgart, Germany

Co-Author

Oliver Sawodny

Low-waste construction with quality-assured, serial prefabrication

Dr. Patrick Forman

Institute of Concrete Structures, Ruhr University Bochum, Bochum, Germany

Co-Authors

Albert Albers, Markus König, Gisela Lanza, Daniel Lordick, Peter Mark

Design Strategies for Material-Minimised Carbon Reinforced Concrete Structures – Principles of a New Approach to Construction

Prof. Dr. Manfred Curbach

Institute of concrete structures, Technische Universität Dresden, Dresden, Germany

Co-Author

Josef Hegger

The future of healthy living and working in the face of sustainability and crisis management - Resilient transformation of urban spaces

Prof. Dr. Norbert Gebbeken

ResearchCenter RISK, University of the Bundeswehr, Germany

Co-Authors

Andrea Benze, Wolfgang Günthert, Andrea Heil, Werner Lang, Dirk Lüddecke, Stephan Pauleit

8.1.4 Scientific Session

Securing the living quality of urban regions under heat and water stress

An integrative spatial approach to developing adaptation strategies for the growing polycentric region of Stuttgart

Joanna M. McMillan

IREUS Institute of Spatial and Regional Planning, University of Stuttgart, Germany

Co-Authors

Britta Weißer, Joern Birkmann

8.1.5 Belmont Forum CRA projects

Transdisciplinary research for pathways to sustainability

DREAMS - Developing Resilient African cities and their urban environment facing the provision of essential urban SDGs

Prof. Dr. Christine Fürst

Sustainable Landscape Development, Martin Luther University Halle-Wittenberg, Halle, Germany

Co-Authors

Yazidi Bamutaze, Ellen Banzhaf, Henry Nii Nmai Bulley, Daniele Cantini, Timothy Dube, Arjan de Groot, Maame Adwoa Gyekye-Jandoh, Detlef Mueller-Mahn, Gorretti Nsubuga Nabanoga, Benjamin Kofi Nyarko, Christian Papilloud, Frank Pietzsch, Reinhold Sackmann, Malte Steinbrink, Michael Thiel, Raymond Asare Tutu

Eco2Health - Health and agriculture sustainability through interdisciplinary surveillance and risk assessment platform of global emerging zoonotic diseases

Prof. Dr. Ting-Wu Chuang

Molecular Parasitology and Tropical Diseases, Taipei Medical University, Taipei, Taiwan

Co-Authors

Day-Yu Chao, Beatriz Martinez Lopez, Fanen Terdoo, Olalekan Adekola

PACPATH - Pacific Ocean Pathways in Support of Sustainable Development: an Integrated Approach

Dr. Louis Celliers

Helmholtz Centre for Materials and Coastal Research, Germany

Prof. Dr. Maria Manez Costa

Helmholtz Centre for Materials and Coastal Research, Germany

Principle Investigator

Alexandre Ganachaud

National Research Institute for Sustainable Development, France

Co-Authors

Jérôme Aucan, Antje Bruns, Louis Celliers, Klaus Eisenack, Sebastian C.A. Ferse, R. Health Kelsey, Silja Klepp, Pierre-Yves Le Meur, Maria Manez Costa, Maraja Riechers, Elisabeth Holland, Simon Nicol, Awnesh Singh, Myriam Vendé-Leclerc, Karina von Schuckmann

RREFlood - Residual Risk of Extreme Floods - A Challenge for Achieving the Sustainable Development Goals

Prof. Dr. Peter Fröhle

Institute of River and Coastal Engineering, Hamburg University of Technology, Hamburg Germany

Co-Authors

Dr. Anna Serra-Llobet, Dr. Natasa Manojlovic

UComNetSus Africa - Building Urban Community Networks for Sustainable Cities in Africa

Dr. Peter Wangai

Environmental Studies & Community Development, Kenyatta University, Kenya

Co-Authors

Benjamin Betey Campion, Margaret Owuor, Taiwo O., Mugo D., Malonza J., Adeoye O., Soah S.

8.1.6 WPN2030 (Science Platform Sustainability 2030)

How to advance sustainable consumption in Germany in the context of the 2030 Agenda and the German Sustainability Strategy? Integrating diverse perspectives and generating policy recommendations by means of a transdisciplinary lab approach

Konar Mutafoğlu, Julia Jägle, Falk Schmidt
Science Platform Sustainability 2030, Germany

8.2 Virtual Exhibition “Climate Action in Arts”

Curator

Anke Schlünsen-Rico
Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Germany

Art can show us the disaster caused by anthropogenic climate change, but also takes us out of the apocalyptic lethargy and challenges humanity to become active and visionary.

Climate Action in Arts reflects this movement in 4 virtual spaces starting with the photographer Daniel Beltrá who works on human impacts on the environment such as deforestation or melting ice. In the background of his Amazon Series, you can hear “The sound of underground stones. Who sings? Stones”, an audio piece by Barbara Santos and Carlos Gomez, who work with indigenous people in the Amazon.

After the frontal call from Craig S. Altemose “All art should be climate art - otherwise in 30 years, all art will be about grief”, some video clips show what we might do and what our future could look like, such as “Plan”, a participatory eco-art project by Xavier Cortada, “Unmoored”, by Mel Chin, which allows to explore a submerged Times Square in mixed reality or the trailer of the promising “2040. Join the regeneration” by Damon Gameau.

Access link to the exhibition: <https://spatial.chat/s/g3s21?room=208494>

8.3 Directory of summit participants

Lucy Apiyo Adundo

Center for International Development and Environmental Research, Justus-Liebig University, Deutschland, lucy.apiyo@outlook.de

I am passionate about improvement of food security and nutrition especially in developing economies and studies Bachelor of Science in Nutritional Sciences and Home Economics at Justus-Liebig University. Thereafter, I pursued my Masters in Transition Management with focus on nutritional science and agriculture modules, also taking part in an Erasmus Mundus exchange program at Ghent University in Belgium. My master thesis was on "the impact of youth employment promotion programs on the income, food and nutrition security of agricultural entrepreneurs in Sierra Leone", a research that was conducted within a GIZ Programme. I am planning to do my Phd this year and my research will contribute to understanding the role of the emergence of supermarkets and its impact on food sovereignty and nutrition status of the urban population. Using a case study of Nairobi Kenya, this study will contribute to addressing these gaps, by determining the influence of changes in food governance on the power relations between actors in the food system and what this means to food choices, accessibility and availability in cities. The study will further assess the impact of "supermarketization" on the dietary diversity and nutritional status of the urban population in relation to the resulting changes in food accessibility, -availability (as a means to diversify diets among different demographic groups) and the social and cultural meanings people attach to food. Mixed methods approaches of both quantitative and qualitative research methods will be applied. Data will be collected using surveys, interviews, Key Informant Interviews, Focus group discussions and participant observation.

Dr. Afshin Afshari

Hygrothermik, Fraunhofer IBP, Deutschland, afshin.afshari@ibp.fraunhofer.de

Modeling of the urban climate and its interaction with building energy demand. Meso- and micro-scale modeling approaches. Model-based urban design optimization. For more detail, please refer to the web page of the urban modeling group at Fraunhofer IBP.

Martinien Arcadius Ahogle Agassin

Environmental Planning and Management, KENYATTA UNIVERSITY, Kenia, ahoglearcadius@gmail.com

I am PhD student in Environmental Planning and Management. I am holding a Master of Sciences in Soil sciences and a Bachelor of Science in plant Sciences. My PhD research is focusing on contamination in Peri-Urban agrosystems in Kenya. I am very interested in modelling and producing land use map for safe and sustainable Peri-Urban farming.

Dr. Heide Ahrens

DFG German Research Foundation, Deutschland, heide.ahrens@dfg.de

Heather Allen

Median, Belgien, heather@heatherallen.co

Heather Allen has more than 25 years international experience and is a highly-regarded expert in gender, transport and sustainable development. Her knowledge covers both practical experience and research. She has worked widely in Europe, Latin America, Asia and Africa including UN Women (Papua New Guinea), Asian Development Bank (China, Philippines, and Cambodia); CAF (the Development Bank of Latin America) in Argentina, Chile and Ecuador and the World Bank. Other recent projects include an international review of gender transport data for the FIA Foundation, developing an inclusive urban transport planning guide for C40 CFF, a 3-country review of the impact of COVID-19 on women's mobility in Sub-Saharan Africa, collecting and analyzing data on sexual harassment on public transport in Malawi and Nigeria. She was recognized as a GIZ TUMI 'Remarkable Women in Transport' and is currently a Trustee for Walk21 and a Director of their European Foundation.

Mimi Amaichigh

European Youth Parliament for Water, Österreich, mimiamachigh@hotmail.com

Dr. Anna Antonova

Rachel Carson Center for Environment and Society, LMU Munich, Deutschland, anna.antonova@rcc.lmu.de

Ramon Arndt

Climate Neutral City Manager, Munich, Germany, ramon.arndt@muenchen.de

I am a Urban Ecologist (Dipl.Ing. TUM) working for the last 30 years at the Planning Department of the City of Munich in the area of Strategic Planning (Stadtentwicklungsplanung).

Starting within area of Technical Urban Infrastructures my main focus since mid 90s was Sustainable Urban Development (Local Agenda 21; the general framework on local sustainability, Sustainability Indicators Reporting; ...) following strong involvement in the Cities' Climate Change Mitigation Strategies (IHKM) and energy and waste policies. Supporting bottom up approaches from society I spent last 12 years engaged with several local non government organisations (NGOs); Since starting in January 2019 I am personally supporting local Fridays for future and engaged within the regional group of Scientists for Future.

Dr. Faten Attig Bahar

University of Carthage, Tunisia Polytechnic School, Tunesien, faten.bahar@gmail.com

Dr.-ing. Faten Attig Bahar is an Author, Scientist and Postdoctoral researcher from the University of Carthage, Tunisia Polytechnic School. She is also an Alexander von Humboldt Fellow for the International Climate Protection Program hosted at the University of Rostock, Germany (2019/2020).

Faten is serving on several continental committees and is holding several responsible positions in various African and international NGOs including The World Meteorological Organization (WMO), WMO Research Board on Weather, Climate, Water and the Environment, and Future Earth: a Steering committee member of the Future Earth Nexus Knowledge-Action-Network, the North Africa coordinator of the Future Earth African community and a Future Earth Implementation Team member. She is the chair of the Future Earth Global Secretariat and Coordination Hub Review Committee.

She is also an Executive Committee member of the Young Earth System Scientists and she is serving as a mentor/coach for the International Support Network for African Development (ISNAD-Africa), and the InnovAction Idea2Market Africa networks.

Faten has rich expertise in renewable energy technologies and implementation, energy system modeling, renewable energy project valuation and financing options, climate finance, green transition with a focus on Africa, renewable energy emerging markets, energy efficiency in industry and buildings and science communication.

Faten led many initiatives for young researchers and co-hosted several (online) seminars and workshops. Faten was also a reviewer of the IPCC report SOD-WGI-AR6 and SOD-WGII-AR6 and supported the work of ECR group review of the IPCC report organized by APECS, MRI, PAGES ECN, PYRN and YESS.

On the other hand, Faten is an author and has published 19 books for children in Arabic language. She has received several awards as an outstanding youth author in Tunisia since 2007.

Prof. Dr. Christian Baatz

Philosophy, Kiel University, Deutschland, baatz@philsem.uni-kiel.de

I mostly work on climate ethics, theories of justice and sustainability. Current research foci are climate change adaptation, human rights theory and (the ethics of) carbon dioxide removal.

Prof. Dr. Mukand Babel

Water Engineering and Management (WEM), Asian Institute of Technology (AIT), Thailand, msbabel@ait.ac.th

"Dr. Mukand S. Babel is a Professor of Water Engineering and Management at the Asian Institute of Technology (AIT), Thailand. In addition, he is leading the Climate Change Asia (CCA) initiative at AIT for Catalyzing Capacity for Action to address climate change issues in the region. He has been Visiting/Honorary Professor at several universities/institutes including University of Exeter (2018-2021), UK; Indian Institute of Technology Roorkee, India; Beijing Normal University, China; Kyoto University, Japan; University Teknologi Mara, Malaysia; and Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), Allahabad, India. Prof. Babel's professional experience in teaching, research, and consultancy spans over 35 years.

In 2014, He was appointed as a Member of the Advisory Committee of the World Water Quality Assessment, an initiative of UN-Water Group led by UNEP and GEMS/Water. In 2014 he was appointed as a Member of the Executive Committee, Asia Pacific Division (APD) of IAHR (2015-16). In 2015, he was elected as one of Directors of the Executive Board of IWRA (2016-18). In 2016, he was appointed as a Board Member of the Asia Water Council. He was a recipient of the 2018 International Award by the Japan Society of Hydrology and Water Resources.

Dr. Babel has supervised 30+ doctoral and 200+ master theses covering diverse areas of hydrology and water resources. With over 300 publications in international refereed journals, books (including one on Climate Change and Water Resources), and book chapters and conference proceedings, he currently conducts interdisciplinary research to address diverse water problems and issues including water security assessment and enhancement and climate change impact and adaptation in water sector. His h-index is 31 with 3368 citations as of 18 April 2021. Dr. Babel has carried out many research and sponsored projects in collaboration with international organizations and governments."

Azim Baibagyssov

Institute of Landscape Ecology and Resources Management, JLU Giessen, Deutschland, azim.baibagyssov@gmail.com

My research concentrates on analyzing socio-ecological systems in the arid and semi-arid region of Central Asia. Focusing on conservation and sustainable "wise" use of wetlands, it aims to investigate the resources of most productive natural ecosystems as the primary natural capital for strategies toward sustainable rural livelihoods along rivers and near lakes.

Christoph Bals

Germanwatch, Deutschland, bals@germanwatch.org

Hasmik Barseghyan

European Youth Parliament for Water (EYPW) - Solidarity Water Europe, Armenien, hasmik.official@gmail.com

Hasmik Barseghyan is a professional in the environmental management field, with a focus on water and renewable energy. She holds a Master in Business Administration (Université de Nantes, France). She was a fellow of the US State Department exchange program at the Oregon State Capitol contributing to the work of environmental and renewable energy committees. She was a post-graduate fellow in Environmental management at TU-Dresden, Germany in 2019. She has specific interest in development of water and energy policies and regulations. Currently affiliated to a number of international organizations: core team member at the UN World Water Quality Alliance, board member of the International Secretariat for Water, member of the EU Water Alliance, PAC member of the Amsterdam International Water Week, Armenia Country Coordinator at the 16th UN Climate Change Conference of Youth (COY16), member of the WorldEnergy Council Future Energy Leaders program, etc.

To learn more on her professional activities, connect on linkedin >

<https://www.linkedin.com/in/hasmikbarseghyan5590/>

Prof. Dr. Ulrich Bathmann

IOW, Deutschland, ulrich.bathmann@io-warnemuende.de

Prof. Dr. Ulrich Bathmann is Director at the Leibniz Institute for Baltic Sea Research Warnemünde and Professor of Earth System Research at the University of Rostock. Ulrich Bathmann did participate at numerous research expeditions which took him to the Baltic Sea (diploma), Norway, Ireland, Canada (doctorate) and Antarctica (habilitation). On such expeditions he was not only confronted with the challenges of the elements (storms, swell, ice), but also trained to work in confined spaces and under stress with a wide variety of people. He has also kept the view across the sea to the horizon from his desk at the institute, and it is there and on walks along the beach near Warnemünde that Bathmann relaxes his mind for further tasks as spokesman for the Leibniz ScienceCampus Phosphorus Research, in Rostock, for coordinating coastal marine research in Germany, and for serving on numerous national and international committees. His current field of interest includes natural and anthropogenically induced changes in coastal seas and their impact on society.

Dr. Mara Baudena

Institute for Atmospheric Sciences and Climate, National Research Council of Italy (CNR-ISAC), Italien, m.baudena@isac.cnr.it

Julia Maria Bayer

WWF Germany, Deutschland, julia.bayer@wwf.de

Agnes Becker

Ökologisch-Demokratische Partei (ÖDP) Bavaria, Deutschland, agnes.becker@web.de

Agnes Becker, born in 1980, from Wegscheid, county of Passau, Bavaria is district counselor and group chairwoman of a five-member ÖDP-group in the county council of Passau. Since 2009 she is vice chairwoman of Ökologisch-Demokratische Partei (ÖDP) in Bavaria and party member since 1997.

Following a carpentry apprenticeship, Agnes Becker completed her veterinary medicine studies at Munich's Ludwig Maximilian University. She operates a small organic farm in the Bavarian forest, consisting of five hectares of grassland along with eight hectares of forest. Ever since May of 2018 she is the official representative of the referendum "Artenvielfalt - Rettet die Bienen!" (Biodiversity-Save the bees!), the most successful initiative in Bavarian history. In the beginning of 2019 more than 1.7 million people, 18,3% of all voters, signed for the referendum, in only 14 days and therefore forced the state government to act on and to accept a fundamentally improved Bavarian Nature Conservancy Law (Bayerisches Naturschutzgesetz). It came into effect on 1st of August 2019.

Dr. Marianne Beisheim

Global Issues, Stiftung Wissenschaft und Politik - German Institute for International and Security Affairs, Deutschland, marianne.beisheim@swp-berlin.org

Dr. Marianne Beisheim is Senior Associate at Stiftung Wissenschaft und Politik (SWP), the German Institute for International and Security Affairs, where her focus is on global governance for sustainable development. She is an expert on the follow-up and review processes on the UN's 2030 Agenda for Sustainable Development. Among other things, she is a member of the UN-Political Advisory Board of the German Federal Foreign Office, of the Steering Group of the German Science Platform Sustainability 2030 and the Research Council of the United Nations Association Germany. From 2003 till 2010, Dr. Beisheim was Assistant Professor for International Relations at Freie Universität Berlin. From 2006 to 2017, she directed a DFG-funded research project on multi-stakeholder partnerships for sustainable development (SFB 700, project D1).

Dr. Million Belay

Alliance for Food Sovereignty in Africa, Äthiopien, million.belay@afsafrica.org

Dr. Mauricio Bellon

Swette Center for Sustainable Food Systems, Arizona State University, USA - Vereinigte Staaten, mrbellon@gmail.com

I am human ecologist focusing on sustainable agricultural and food systems around the world, with an emphasis on the use and conservation of agricultural biodiversity. My research has focused on the reasons, incentives and dynamics of crop diversity managed by farmers in their agricultural systems—both at the inter-specific and intra-specific levels—under different circumstances. I am interested in the links of crop diversity with crop evolution, human diets, seed systems, livelihoods, climate change, and agricultural technology.

Prof. Dr. Andrea Benze

Architecture, Hochschule München, Deutschland, andrea.benze@hm.edu

Andrea Benze is professor of Urban Design and Urban Theory at the Munich University of Applied Sciences. She researches and teaches about quotidian urban practices, collaboration and the inclusive city.

Prof. Dr. Elisabeth Berger

Social-ecological Systems, University Koblenz-Landau, Deutschland, berger@uni-landau.de

I lead an interdisciplinary research group focussing on issues of water scarcity and salinisation for aquatic biodiversity and human well-being in southern Morocco. My background is in aquatic ecology and ecotoxicology with a strong interest methods of stakeholder participation

Leonardo Andrés Bernal Rozo

Universidad El Bosque, Kolumbien, bernalr.leonardo@gmail.com

Environmental engineer from Colombia. During my bachelor's experience I worked on risk assessment and its relation with Environmental degradation in a town based at the foot of a mountain called "Cerro Fusacatán", with flooding, flash flooding and landslides antecedents.

I'm eager to pursue my Master's degree in Germany on sustainability and resource management.

Prof. Dr. Marc Oliver Bettzüge

University of Cologne & EWI, Deutschland, bettzuege.marc@uni-koeln.de

Prof. Dr. Joern Birkmann

IREUS / Institute of Spatial and Regional Planning and Development Planning, University Stuttgart / member DKN/German Committee Future Earth, Deutschland, joern.birkmann@ireus.uni-stuttgart.de

Prof. Dr.-Ing. habil. Jörn Birkmann is head of the Institute of Regional Planning and Development Planning at the University of Stuttgart and Professor of Spatial Development and Environmental Planning. He is Coordinating Lead Author within the IPCC AR6 cycle. In international and national research projects, such as Urbisphere /ERC-Synergy Grant, he is exploring issues of spatial and urban development and planning in the context of climate change and natural hazards. His research focuses in particular on vulnerability and risk research in the context of climate change. He is also active in the field of monitoring, scenario research and indicator development. Dr. Birkmann has published various papers with international colleagues in peer-reviewed journals, such as Nature, Global Environmental Change and Climatic Change. He is member of the Academy of Territorial Development in the Leibniz Association (ARL).

More information can be found: <https://www.ireus.uni-stuttgart.de/en/institute/team/Birkmann/>

Prof. Dr. Manfred Bischoff

Institute for Structural Mechanics (Institut für Baustatik und Baudynamik), University of Stuttgart, Deutschland, bischoff@ibb.uni-stuttgart.de

Manfred Bischoff graduated in civil engineering at the University of Stuttgart and obtained a doctoral degree at the Institute for Structural Mechanics at the same university in 1999. After a one-year stay as a post-doctoral visiting scholar at the University of California, Berkeley, he worked as research associate at the Chair of Structural Analysis at the Technical University of Munich. In 2005 he received his habilitation and the *venia legendi* in Statik. Since April 1, 2006, he is full professor for structural mechanics ("Baustatik und Baudynamik") and head of the corresponding institute at the University of Stuttgart.

His scientific work comprises all fields of computational mechanics and non-linear structural mechanics, with focus on finite element technology, shell theory, dynamics, multi-scale and contact problems and, more recently, biomimetics and adaptive structures. Manfred Bischoff is member of the review board of architecture and civil engineering of the German Research Foundation (DFG) and vice spokesman of the collaborative research center SFB 1244, Adaptive Skins and Structures for the Built Environment of Tomorrow. This strongly interdisciplinary research consortium develops, among others, methods and technologies to reduce mass, and thus embodied energy, in load carrying structures. He is also involved as a principal investigator in the cluster of excellence Integrative Computational Design and Construction for Architecture, which strives for more sustainable construction via methods of digitalization."

Prof. Dr. Birgit Blättel-Mink

Social Sciences Goethe-Universität Frankfurt am Main, Deutschland, b.blaettel-mink@soz.uni-frankfurt.de

I'm a sociologist with research interests in (social) innovation, sustainable consumption, transformation and transdisciplinarity. I've participated in three working groups of DKN-Future Earth: Co-Design, Co-Production and Co-Dissemination; Social innovations in energy policy making and Transformationskorridore für nachhaltigen Konsum. Recent publications: Jaeger-Erben, Melanie/Blättel-Mink, Birgit/Fuchs, Doris/Götz, Konrad/Langen, Nina/Rau, Henrike (2020) Grenzen des Konsums im Lebensverlauf: Gelegenheiten, Hürden und Gestaltungsspielräume. In: Consumption limits over a lifetime: Opportunities, obstacles and the scope of change | GAIA 29/4 S. 218 – 223; Blättel-Mink, Birgit / Brandl, Barbara (2020): Innovationen des Wirtschaftens. In: Blättel-Mink, Birgit / Schulz-Schaeffer, Ingo / Windeler, Arnold (Hrsg.) Handbuch Innovationsforschung. Wiesbaden: Springer VS (online first); Blättel-Mink, Birgit/Boddenberg, Moritz/Gunkel, Lenard/Schmitz Sarah, and Vaessen, Franziska (2017) Beyond the market. New practices of supply in times of crisis: The example community-supported agriculture. In: International Journal of Consumer Studies. 00:1–7. <https://doi.org/10.1111/ijcs.12351>

Dr. Tanja Blome

Klimawandel und Transformation, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, tanja.blome@hereon.de

With Meteorology / Geosciences as my background, I am working on the topics of agriculture and climate change, involved in the knowledge transfer from climate and soil science to users of the ag sector.

Andreas Blum

Built Environment, Resources and Environmental Risks, Leibniz Institute of Ecological Urban and Regional Development, Deutschland, a.blum@ioer.de

Andreas Blum has been working as a sociologist at the Leibniz Institute for Ecological Urban and Regional Development since 1993. One of his focal points is the analysis of socio-ecological aspects of resource implications of the development, maintenance and (re-)use of the built environment. Recent topics cover a Germany-wide survey on municipal infill development and construction land capacities as well as research on social innovations in the context of a transition to a circular economy in the building sector. He is furthermore involved in methodical consulting on qualitative and quantitative methods of empirical social research in different thematic contexts.

Annalena Böke

Stabsstelle Nachhaltigkeit und Hochschulgovernance, RWTH Aachen University, Deutschland, annalena.boeke@zhv.rwth-aachen.de

Prof. Dr. Michael Bollig

Department of Social and Cultural Anthropology, University of Cologne, Deutschland, michael.bollig@uni-koeln.de

Prof. Dr. Michael Bollig is Professor for Anthropology, Board Member of the Global South Studies Center (GSCC) in Cologne and Associate Vice Rector for International Relations with the Global South at the University of Cologne. His research focuses on human-environmental relations, political ecology, and environmental history, transition of local knowledge, globalization and conflict research.

Prof. Dr. Aletta Bonn

Helmholtz-Centre for Environmental Research - UFZ / FSU Jena / German Centre for integrative Biodiversity Research (iDiv), Deutschland, aletta.bonn@idiv.de

Prof. Dr. Aletta Bonn is head of the Department of Ecosystem Services at the Helmholtz Centre for Environmental Research - UFZ in Leipzig and Professor for Ecosystem Services at the Friedrich Schiller University Jena within the framework of the German Centre for Integrative Biodiversity Research (iDiv) Halle - Jena - Leipzig. Her research focuses on trend analyses and tele coupling of ecosystem services into social-ecological systems and citizen science.

Barbara Börner

Börner Consult, Deutschland, boerner@bb-consult.info

Prof. Dr. Jan Börner

Institute for Food and Resource Economics / Center for Development Research, University of Bonn, Deutschland, jborner@uni-bonn.de

Prof. Dr. Suleika Bort

School of Business, Economics and Information System, University of Passau, Deutschland, Suleika.Bort@uni-passau.de

Prof. Dr. Emily Boyd

LUCSUS, Schweden, emily.boyd@lucsus.lu.se

Emily Boyd is professor in sustainability science and director of LUCSUS at Lund University. Her work focuses on climate change, inequality and resilience. She focuses currently on disproportional impacts of climate extremes.

Antje Brock

Institut Futur, Freie Universität Berlin, Deutschland, brock@institutfutur.de

Dr. Bettina Brohmann

N&A, Öko-Institut, Deutschland, b.brohmann@oeko.de

Within Öko-Institut my team and I are responsible for transdisciplinary research. We take care of the development and further systematization of td methods and new formats within a wide range of realworld projects. The process design and integration of scientific and practitioners views and needs is one of our main issues.

Prof. Dr. Victor Brovkin

MPI for Meteorology, Deutschland, victor.brovkin@mpimet.mpg.de
Co-speaker of DFN WG HERMITIAN, group leader at MPI-Met

Dr. Cathrin Brüchmann

Research, Helmholtz Association, Deutschland, cathrin.bruechmann@helmholtz.de

Prof. Dr. Antje Bruns

Geography, Trier University, Deutschland, brunsa@uni-trier.de
Antje Bruns is holding a full professorship for Sustainable Development and Governance at Trier University. Her work examines socio-political dimensions of environmental and resource governance in coastal zones and coastal cities. Her theoretical interests span political ecology, knowledge politics and debates over development and sustainability transformations.

Cora Buchenberger

TU Braunschweig, Deutschland, c.buchenberger@tu-braunschweig.de

Selm Bultan

Geography, Ludwig-Maximilians-University Munich, Deutschland, selma.bultan@lmu.de

Max Burger

University Marburg, Deutschland, maximilian.burger@wiwi.uni-marburg.de

Dr. Nica Claudia Caló

Sustainable Landscape Development, Martin-Luther-Universität, Deutschland, nica.calo@geo.uni-halle.de

Dr. Louis Celliers

Climate Service Centre Germany, Helmholtz Zentrum Hereon, Deutschland, louis.celliers@hereon.de
Currently a Senior Scientist at the Climate Service Centre Germany (GERICS), an institute of Helmholtz Zentrum Hereon. I am Senior Scientist interested in coastal and ocean governance and coastal climate services - finding solutions for complex issues related to the well-being of coastal urban communities in a changing climate. My professional and personal goals are underpinned by the global goals for sustainability. I was previously employed by the CSIR, Royal Haskoning-DhV, and the Oceanographic Research Institute, South Africa.

Prof. Dr. Ilan Chabay

IASS Institute for Advanced Sustainability Studies, Deutschland, ilan.chabay@iass-potsdam.de
The overarching frame of my research interests is understanding and facilitating collective behavior change toward just, equitable, and sustainable futures at community and regional scales. I am especially interested in narratives, which have the potential and often the intent to mobilize individual and collective decisions and actions. I am looking to deepen understanding of the social processes and underlying concerns that form the basis of narrative creation, propagation, evolution, and receptivity to them. Understanding narratives in digital media is especially important to assess the impact on supporting or opposing movements towards sustainability and societal resilience, because of the increasingly widespread use of digital media and rapidity of response to information from multiple sources. This is also the mission of the international research and action alliance on Knowledge, Learning, and Societal Change (KLASICA), which I have led since 2008. Identifying and understanding motivations and incentives of actors in moving toward or rejecting pathways to sustainable futures will provide new insights and data and will populate computational models and games that can support stakeholders in making informed and effective decisions on their futures.

At the Institute for Advanced Sustainability Studies (IASS) in Potsdam Germany, Ilan is Head of Strategic Science Initiatives and Scientific Project Leader of the Global Sustainability Strategy Forum (GSSF) and the KLASICA projects. He has been at IASS since 2012. He is also Adjunct Professor in the School of Sustainability of Arizona State University and has an office in the ASU Washington, DC facility. Ilan serves as Chair of the External Research Evaluation Committee of the Research Institute for Humanity and Nature (chikyu-ken), Kyoto for 2021-2023.

Christina Chang

International Degree Program in Climate Change and Sustainable Development, National Taiwan University, Taiwan, r08247006@g.ntu.edu.tw

Ms. Chang is a Master's degree student from the International Degree Program in Climate Change and Sustainable Development (IPCS) in National Taiwan University (NTU) specializing in water resource management, climate change adaptation, and bioenvironmental systems engineering.

Thomas Chen

Academy for Mathematics, Science, and Engineering, USA - Vereinigte Staaten, thomasyutaochen@gmail.com

Thomas Chen is an early-career researcher whose primary interests lie at the nexus of climate change and artificial intelligence. He serves on the U.S. Technology Policy Committee of the Association for Computing Machinery. As much of his work lies at the nexus of artificial intelligence and earth science, he is also an active early-career scientist member of the European Geosciences Union and the American Geophysical Union.

Prof. Dr. Peiyuan Chen

Graduate Institute of Hydrological and Oceanic Sciences, National Central University, Taiwan, pychen52@gmail.com

Hi, this is Pei. Although I may be the youngest faculty in NCU, Taiwan, I'm eager to enhance my networking ability and background expertise, including Climate Change Adaptation, Urban Hydrology, Storm Water Management, and inter-disciplinary agricultural land use management. I've visited Germany and UK for academic purpose, each for one year, so maybe we know the same people in our network. Feel free to write me email for academic cooperation by visiting our lab website: <https://ncuihoswiselab.wixsite.com/wiselab/member>. Thanks.

Dr. Camilla Chlebna

Institute for Social Sciences / Working group for Organisation & Innovation, Carl von Ossietzky University Oldenburg, Deutschland, camilla.chlebna@uni-oldenburg.de

Camilla is a postdoctoral researcher in the working group for Organisation and Innovation within the Institute for Social Sciences at the University of Oldenburg. She is an interdisciplinary researcher cutting across the fields of economic geography, innovation studies, and transition studies with a particular interest for the role and destiny of regions in transition processes towards sustainable development. Since 2018 she participates in the REENEA project on regional energy transitions in German regions. Camilla studied Spatial Planning at the University of Technology in Vienna, Austria and at Oxford Brookes University in the UK. In her PhD, also at Oxford Brookes she compared the development of the wind energy industry in Germany and the UK. Her first postdoc position was in the Economic Geography group at Department for Geography and Regional Research at the University of Vienna in Austria.

Dr. Wen Ni Chu

Taiwan Sustainability Hub, Taiwan, tsh20201016@gmail.com

Prof. Dr. Ting-Wu Chuang

Molecular Parasitology and Tropical Diseases, Taipei Medical University, Taiwan, chtingwu@tmu.edu.tw

My research focuses on the spatial temporal analysis of vector-borne infectious diseases by integrating spatial epidemiology, geographic information system (GIS) and satellite remote sensing techniques to analyze how the environment and its change affect dengue epidemics and build up risk prediction models. Out studies on infectious diseases include regional climate variations such as El Nino-Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD), as well as a smaller-scale environmental change such as the impact of different land use types on vector groups and spatial distributions of diseases.

We have several international cooperation, including the collaborative study of the spatio-temporal risk factors of Malaysia Plasmodium knowlesi working with the research team from National University of Malaysia. Also, with researchers from Costa Rica, we cooperatively study on the impact of climate change has on the incidence rate of poisonous snake bites. In 2015, we are honored to accept the trust from CHAI and the financial support from Global Fund to help evaluate the climate vulnerability for the National Center for Malaria Control in Eswatini regarding climate change. This program also includes building up an early warning weather system to help Swaziland prevent serious malaria outbreaks and may eradicate malaria in the country.

Dr. Galina Churkina

PIK, Deutschland, galina.churkina@pik-potsdam.de

The overarching interest of Galina Churkina is the role of urbanization in the evolution of Earth. In this, she is interested in identifying the sustainable pathways of urban growth benefiting both people and environment. She was among the pioneers of the holistic studies of the urban carbon cycle, spearheaded the idea of cities becoming carbon sinks, and outlined the methodology for their quantification. She was the first to show the prominence of the urbanization effect on the global cycle of carbon. Throughout her career, she together with her colleagues noticeably advanced our understanding of the climatic and anthropogenic controls on the net primary productivity of the biosphere, the interactions between carbon/nitrogen cycles and the climate, as well as the trade-offs of tree planting campaigns for urban dwellers.

Dr. Licia Colli

Dipartimento di Scienze Animali, della Nutrizione e degli Alimenti, Università Cattolica del S. Cuore, Italien, licia.colli@unicatt.it

Dr. Licia Colli research activity focuses on livestock biodiversity characterisation and conservation, and on its potential role in sustainable farming, with particular emphasis on the dynamics of domestication and environmental adaptation investigated via modern and ancient DNA genomic tools.

Dr. Alline Costa

Sao Paulo State University, Brasilien, alline.marchesin@unesp.br

Prof. Dr. Richard Cowell

School of Geography and Planning, Cardiff University, Vereinigtes Königreich, cowellrj@cardiff.ac.uk

My research interest lies in the dynamics of sustainability transition, and especially with the spatial governance and politics of orchestrating change. My work has focused on two main areas: the challenges of rolling out renewable energy, and constraining fossil energy exploitation, including the interface with places, questions of justice and spatial planning mechanisms; the role of land use planning in promoting sustainable development, the relationship between environmental knowledge, concepts and decision-making and the likely environmental governance effects of Brexit.

Prof. Dr. Manfred Curbach

Institut für Massivbau, Technische Universität Dresden, Germany, manfred.curbach@tu-dresden.de

Prof. Dr. Bernd Cyffka

Sustainability Research Lab, KU Eichstätt-Ingolstadt, Deutschland, bernd.cyffka@ku.de

Professor for Applied Physical Geography at KU Eichstätt-Ingolstadt, Head of Floodplain Institute Neuburg/Donau, Member of Speaker's Council of the Sustainability Research Lab (KU.SRL) www.ku.de/srl

Prof. Dr. Ina Danquah

Heidelberg Institute of Global Health (HIGH), Heidelberg University, Medical Faculty, Deutschland, ina.danquah@uni-heidelberg.de

Ina Danquah is a nutrition scientist who has specialized in epidemiology. Her research focuses on sustainable nutrition in population groups from sub-Saharan Africa. Ina works on operationalizing the four dimensions of sustainable diets "healthfulness, affordability, cultural acceptability, and climate-friendliness/climate-resilience". She also designs, implements and evaluates population-based interventions to promote sustainable dietary practices in sub-Saharan Africa and among African migrants in Europe.

Ina is a principal investigator within the DFG-funded Research Unit "Climate Change and Health in sub-Saharan Africa", and Robert Bosch Junior Professor for "Research into the Sustainable Use of Natural Resources". She has been a leading scientist for the work package "Nutrition" in the EU/FP7 project RODAM (Research on Obesity and Diabetes among African Migrants; www.rod-am.eu). Ina has received funding from the Robert Bosch Foundation, the German Research Foundation (DFG), the National Climate Initiative (NKI), the German Diabetes Foundation (DDS), and the Leibniz Association. She has been awarded several prizes for her research, including the Early-Career Award by the Leibniz Kolleg Potsdam, the Nana Yaa Asantewaa Award for African-German Partnerships in Research, and the Ernst-Reuter Prize of the Free University Berlin.

Ina enjoys collaborations with the German Institute of Human Nutrition Potsdam-Rehbrücke (DIfE), Kwame Nkrumah University of Science and Technology, Kumasi (Ghana), Charité – Universitätsmedizin

Berlin, Centre de Recherche en Santé de Nouna (Burkina Faso), and Kenya Medical Research Institute (KEMRI) Kisumu (Kenya).

She has published more than 70 peer-reviewed articles, including Lancet, BMC Medicine, International Journal of Epidemiology, the American Journal of Clinical Nutrition, and the European Journal of Nutrition. Her work has been cited over 1750 times, and her h-index is 21.

Jens Danzeglocke

Earth Observation, German Space Agency DLR, Deutschland, jens.danzeglocke@dlr.de

At the Space Agency part of the German Aerospace Center DLR, I am part of the Earth Observation division and a team focussing on satellite-based applications for Earth monitoring. We are funding S&T projects in Germany, but also cooperate internationally. My personal focus is on topics related to disaster and risk management, and I am part of the "International Charter Space and Major Disasters."

Prof. Dr. Marianne Darbi

Institute for Landscape Planning and Nature Conservation, Hochschule Geisenheim University, Deutschland, marianne.darbi@hs-gm.de

Marianne Darbi is working as a professor for Landscape Planning and Impact Mitigation at Hochschule Geisenheim University.

Marianne is an environmental planner and researcher with many years of experience in landscape and spatial planning. Her research focuses on biodiversity conservation and management as well as impact mitigation in national and international contexts, sustainable land use, green economy and market-based instruments. She is particularly interested in policy and societal advice, as well as the practical and international relevance of research.

Maggie Davis

CCSI, Oak Ridge National Lab, USA - Vereinigte Staaten, davismr@ornl.gov

Over 10 years of experience quantifying feedstock growth opportunities in forestry and agricultural sectors. Specifically, utilizing growth and yield data in economic models, and focusing on including above and below-ground sequestration benefits under various cropping scenarios (e.g., with genetic improvements), for the Department of Energy's Bioenergy Technologies Office and other programs. Particular focus has been on the international trade of bioproducts, and the measurement of relative sustainability of these products.

Recent work has focused on data science for global climate data sources under the Atmospheric Radiation Measurement DOE facility. Interests bring together data science and natural resources: integrating climate data into natural resource management, economics, and land use planning that advance equitable climate-smart industries.

Prof. Dr. Luc De Meester

IGB, Deutschland, Luc.DeMeester@igb-berlin.de

I am an aquatic ecologist and evolutionary ecologist currently holding a position as scientific director of the IGB (Berlin) and professorship positions at Freie Universität Berlin and KU Leuven (Belgium, 20%). My research interests are broad covering evolutionary ecology, biodiversity research and conservation ecology, (meta)community ecology, and global change ecology, with an emphasis on freshwater ecosystems and aquatic model organisms. I have special interest in understanding how ecological and evolutionary processes interact to shape ecological patterns and community, ecosystem and biodiversity responses to global change, including climate change, agriculture and urbanization. IGB is the largest freshwater research institute in Germany studying all aspects of freshwaters with a strong focus on excellence and societal relevance. Research is highly interdisciplinary. The institute hosts a broad range of scientists including ecohydrologists, biogeochemists, microbiologists, ecologists and evolutionary biologists, biodiversity researchers, and fisheries scientists.

Martina De Pedro

German Committee Future Earth / DKN, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, martina.de_pedro@hereon.de

Annika Degen

Podcast Gender & Climate, Co-Founder TERNARI, Deutschland, annika.degen@gmail.com

Annika Degen holds a M. Sc. in Sustainable Corporate Governance. Her focal areas are the nexus of Gender & Climate Change and Sustainable Entrepreneurship. She has undertaken interdisciplinary research on how the private sector can combat the nexus of Gender & Climate Change. In her Podcast

"Gender & Climate" she spreads the word about these interconnected topics and interviews people affected by climate change and how it impacts the Gender Dimension.

Alicia Dery

Quality, Safety and Sustainability, Marley Spoon, Deutschland, alicia.dery@gmail.com

I am an environmental engineer with my passion for sustainability and the environment driving both my professional and private activities. I have currently undertaken the task of building a corporate sustainability strategy for the global meal-kit company Marley Spoon. I've completed a Masters degree in Environmental Engineering at the Technical University of Munich with my focus on the water treatment/management and energy, and my masters thesis was about the water, energy, food nexus solutions in Chennai, India. Overall my main interests lie in sustainability, consulting, and project management.

Prof. Dr. Petra Döll

Institute of Physical Geography, Goethe University Frankfurt, Deutschland, p.doell@em.uni-frankfurt.de

Dr. Ines Dombrowsky

Environmental Governance and Transformation to Sustainability, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) Deutschland, ines.dombrowsky@die-gdi.de

Dr. Ines Dombrowsky holds a PhD in Economics and an MSc in Environmental Engineering and heads the Research Programme 'Environmental Governance and Transformation to Sustainability' at the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE). Her research, grounded in institutional economics and political sciences, focuses on coordination and cooperation in environmental governance across levels, sectors, actor types and scales. A particular thematic focus lies on water and the water-energy-food-climate nexus. She has prior work experience with the Helmholtz Centre for Environmental Research – UFZ (2001-2010), the World Bank (1997-2001) and the Deutsche Gesellschaft für technische Zusammenarbeit (GTZ) (1995-1997).

Dr. Stephanie Domptail

Institute for agricultural policy and market research, Justus Liebig Universität Gießen, Deutschland, stephanie.domptail@agrar.uni-giessen.de

I conduct research on human-nature relationships in agricultural socio-ecological systems. I am also interested in epistemological dimensions of research, in the role of researchers in science and maybe also of science in society. I enjoy exploring how heterodox economic theories can contribute to framing novel aims for sustainable production and food systems.

Dr. Jonathan F. Donges

Earth System Analysis, Potsdam Institute for Climate Impact Research, Deutschland, donges@pik-potsdam.de

Christopher Dormeier

Maschinenbau, Technische Universität Braunschweig, Deutschland, c.dormeier@tu-braunschweig.de

I am currently doing my PhD at TU Braunschweig in the fields of Entrepreneurship and Innovation. The focus of my research are Circular Business Models and Innovation from a system of systems perspective. My goal is to provide better understanding of how different Business Models are interconnected and how we should therefore design business activities to be truly sustainable rather than only within small scale boundaries. Current tools for entrepreneurs and SMEs do not sufficiently take the larger ecosystem and the true effects of changes into account. Further, appropriate transitional Business Models are merely investigated. Finally, also the potential of dual transformation is not fully regarded, yet. In my approach, I combine a value based understanding of Business Models with system of systems approach, transaction and resource-based theory. The intended toolset shall provide deeper knowledge of effects and recommendations for practice to develop more sustainable businesses on a systemic and dynamic aggregation level.

I am highly interested in the construction and build environment as well as electronics since both show very different value streams and vast potential for the development of new Business Models.

Deepal Doshi

Department of Geography Ludwig Maximilian University Munich, Deutschland, deepal.doshi@lmu.de

Prof. Dr. Jörg E. Drewes

Chair of Urban Water Systems Engineering, Technical University of Munich, Deutschland, jdrewes@tum.de

Jörg E. Drewes is Chair Professor of Urban Water Systems Engineering at the Technical University of Munich (TUM), Germany, where he also serves as Program Director of the Environmental Engineering Program. Professor Drewes' research and scholarly activities are closely related to the common theme of energy efficient advanced water treatment systems and water recycling. In particular, he is interested in novel design approaches for natural and engineered treatment systems; distributed non-potable water reuse; potable water reuse; monitoring strategies and treatment performance assessments; state-of-the-art analysis of emerging trace organic chemicals (pharmaceutical residues, household chemicals, PFAS) and pathogens (including viruses and antibiotic resistance) in natural and engineered systems. Dr. Drewes has published more than 300 peer-reviewed journal papers and book contributions (h-index 55, Scopus).

Professor Drewes was appointed as member of the Advisory Council on Global Change directly advising the German Government (WBGU). He was awarded Fellow of the International Water Association (IWA) and is a member of the Strategic Council of IWA. He also served as the Chair of IWA's Water Reuse Specialist Group (2013-2019). He is also a member of the Drinking Water Commission, German Federal Ministry of Health and serves as the Associate Editor of ACS Environmental Science & Technology. Dr. Drewes served on multiple science advisory panels and chaired blue-ribbon panels on topics related to public health, engineering, drinking water supply, and reliability of water reuse projects in the U.S., Australia, Germany, and the European Union. He also serves on the Research Advisory Council of the Water Research Foundation (Alexandria, VA, USA).

Leonie Droste

SDSN Germany, Deutschland, leonie-marie.droste@die-gdi.de

Dr. Steffen Ehrmann

Macroecology and Society, German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Deutschland, steffen.ehrmann@idiv.de

Working in the LUCKINet project to design and develop interoperable tools to build global, annual fine-scale land-use models.

Prof. Dr. Klaus Eisenack

Resource Economics Group, Humboldt-Universität zu Berlin, Deutschland, klaus.eisenack@hu-berlin.de

Klaus Eisenack is professor for resource economics at Humboldt-Universität zu Berlin. His research focuses on adaptation to climate change, climate governance, and the energy transition, with game theory, modelling of institutional arrangements, and comparative approaches (in particular archetype analysis) being methods of choice. He is active in public understanding of science (for instance with the climate change game Keep Cool). He was professor for economics at Carl von Ossietzky University Oldenburg (2008-2016), and scientist at the Potsdam Institute for Climate Impact Research (2001-2008). Klaus Eisenack has a background in mathematics, economics and philosophy, and holds a PhD in mathematics from the Free University Berlin (2006).

Dr. Anne Ellersiek

Science Platform Sustainability 2030, Deutschland, anne.ellersiek@iass-potsdam.de

Michelle Engelhardt

Geo- and Environmental Science, University of Tübingen, Deutschland, elleengelhardt@gmail.com

I'm a geoecology master student currently doing research on organic micropollutants in rivers during a stormwater event.

Ruth Erlbeck

Former giz, Deutschland, ruth.erlbeck@icloud.com

Dr. Stefan Ewert

IFZO, University of Greifswald, Deutschland, stefan.ewert@uni-greifswald.de

Stefan Ewert is political scientist and landscape ecologist. Currently, he works in the Interdisciplinary Research Centre for the Baltic Sea Region (IFZO) at the University of Greifswald. He is member of the Greifswald Mire Centre (GMC). He investigates sustainable forms of agriculture (especially on peatlands) and the agricultural policy.

Prof. Dr. Christo Fabricius

Sustainability Research Unit, Nelson Mandela University, Südafrika, christo.fabricius@mandela.ac.za

Specialist advisor: adaptive monitoring and evaluation, conservation strategy and community-based natural resource management. Team member: KAZA Livelihoods Impact Monitoring Group. Mission: Capacity for African Resource Management #CARMa-Afrika. Profile: <https://www.linkedin.com/in/christofabricius/>

Elizaveta Fakirova

Urban Transformations, Potsdam Institute for Climate Impact Research (PIK), Russland, liza.fakirova@gmail.com

As a current German Chancellor Fellow I am investigating different policies and strategies (mechanisms of their work) towards implementation of green infrastructure - green roofs and facades in urban areas.

The experience of 10 european cities from 5 countries - Germany (Berlin, Hamburg, München, Frankfurt, Stuttgart), UK (London), Netherlands (Rotterdam), France (Paris), Switzerland (Basel) - will be collected, analysed and transferred to the context of Russia in order to rise awareness about the topic and make the first step towards implementation thereof. The landing page of the project: www.bluegreen2020.tilda.ws

Prof. Dr. Alexander Fekete

Technical University Köln, Deutschland, alexander.fekete@th-koeln.de

Mr Alexander Fekete is Professor of Risk and Crisis Management at TH Köln – University of Applied Sciences since December 2012. His present research focuses on studying the systemic interrelations of natural, technical and man-made hazards with social vulnerabilities and critical infrastructures. Interdisciplinary disaster risk management, risk governance, urban resilience, risk and crisis communication, and target levels of safety and security are recent research and educational activities.

Alexander Fekete previously worked from 2009-2012 as a Project Officer at the German Federal Office of Civil Protection and Disaster Assistance in the field of Critical Infrastructure Protection. From 2005-2009 he was Research Scholar at the United Nations University – Institute for Environment and Human Security (UNU-EHS), conducting research on social vulnerability to floods and climate change adaptation. As a consultant he worked for WHO, the German Technical Cooperation (GTZ), and the German Committee for Disaster Reduction (DKKV). He has carried out fieldwork and workshops in Armenia, Iran, Japan, Sri Lanka and Switzerland. Alexander Fekete holds a diploma degree in Geography from the University of Würzburg a doctorate (Dr.-Ing.) from the University of Bonn and a Habilitation at University of Würzburg.

Berenike Feldhoff

Institut für Politikwissenschaft, Universität Münster, Deutschland, berenike.feldhoff@uni-muenster.de

Dr. María Felipe-Lucia

Ecosystem Services, UFZ / iDiv, Deutschland, maria.felipe-lucia@idiv.de

My research seeks to understand the drivers and consequences of social-ecological interactions and its various implications on sustainability, mainly on ecosystem services flows and on equity in the access to those services. In particular, I investigate the effect of land use intensification on the relationships between biodiversity and ecosystem services, on the synergies and trade-offs between services, and on the social relationships between actors. I analyse these relationships at multiple spatial scales and model social-ecological scenarios to inform land management and restoration policies.

Dr. Sebastian Ferse

Science Management, Future Earth Coasts / Leibniz Centre for Tropical Marine Research (ZMT), Deutschland, sebastian.ferse@leibniz-zmt.de

Dr. Sebastian Ferse is an interdisciplinary scientist working on coral reefs. He currently is the Executive Director of Future Earth Coasts, a global research project of Future Earth dedicated to sustainability of the world's coasts. Dr. Ferse also is co-chair of the DKN Working Group "Anticipating and Transforming Coastal Futures". His research interests include the structure and function of marine communities, in particular of coral reefs, and their link to human society and activity. He furthermore is interested in transdisciplinary approaches in coastal and marine systems and the nexus between climate change, biodiversity, and sustainable development.

Rosalie Fichtner

Geography (Chair of Sustainability Geography), University of Greifswald, Deutschland, rosalie.fichtner@gmail.com

Matthias Fischer

Life Cycle Engineering GaBi, Fraunhofer Institute for Building Physics IBP, Deutschland, matthias.fischer@ibp.fraunhofer.de

Daniel Fleetwood

Forestry and Resource Management, Technische Universität München, Deutschland, daniel.fleetwood@tum.de

Sustainable design and resource recovery in non-industrialized countries were my focuses while studying for my bachelor's degree in civil engineering. After graduating, I was unable to satisfy my desire to work with nature, not against it, so now I am studying Sustainable Resource Management at TUM and focusing on regenerative land-uses and WEF nexus approaches.

Dr. Patrick Forman

Institute of Concrete Structures, Ruhr University Bochum, Bochum, Germany, patrick.forman@rub.de

Dr. Dorothea Frank

Department Biogeochemical Integration (BGI), Max-Planck-Institute for Biogeochemistry Jena, Deutschland, dfrank@bgc-jena.mpg.de

Prof. Dr. Helena Freitas

Life Sciences, Centre for Functional Ecology, University of Coimbra, Portugal, hfreitas@uc.pt

I am Full Professor of Biodiversity and Ecology at the Department of Life Sciences of the Faculty of Sciences and Technology of the University of Coimbra and the UNESCO Chair in Biodiversity and Conservation for Sustainable Development since 2014 (<http://unescobiodiversitychair.uc.pt>). I am member of the Mission Board for Climate Change Adaptation, including Societal Transformation and Focal Point for Portugal in IPBES. I coordinate the Centre for Functional Ecology - Science for People and the Planet (cfe.uc.pt) and my scientific areas of specialty are related to: Ecology; Mediterranean Ecosystems; Forest and Agriculture; Ecology and Management of exotic and invasive species; Conservation of Nature, Biodiversity; Physiology of the tree; Diversity of Plants and Fungi; Tolerance to Stress and Bioremediation; Conservation of Nature; Microbial ecology; Ecology and Society.

Dr. Felix Frey

VDI/VDE-IT, Deutschland, felix.frey@vdivde-it.de

I am consulting the BMBF in terms of biodiversity and biotechnology. Previously I worked on plant breeding, crop genomics and crop genetic diversity.

Dr. Jörg Freyhof

Museum für Naturkunde, Deutschland, joerg.freyhof@mfng.berlin

I am a co-organiser of the session SSII 6

Prof. Dr. Andreas Freytag

Friedrich-Schiller-University Jena, Deutschland, andreas.freytag@uni-jena.de

Dr. Andreas Freytag is Professor of Economics at the Friedrich-Schiller-University Jena and Honorary Professor at the University of Stellenbosch. He is also a member of the CESifo Research Network, a STIAS Fellow, Director of Tutwa Europe and associated to many international education organisations and think tanks.

Freytag has obtained degrees from the Universities of Kiel and Cologne. He has published a number of books and articles on economic policy, international trade policy, development economics and international policy coordination, including climate policy.

Marie Fries

Connect, BMW Foundation, Deutschland, marie.fries@web.de

Uwe Fritsche

IINAS, Deutschland, uf@iinas.org

Prof. Dr. Peter Fröhle

Institute of River and Coastal Engineering, Hamburg University of Technology, Hamburg Germany, froehle@tuhh.de

Prof. Dr. Oliver Frör

Environmental Sciences, Universität Koblenz-Landau, Deutschland, froer@uni-landau.de

Prof. Dr. Christine FÜRST

Nachhaltige Landschaftsentwicklung, Martin-Luther-Universität Halle-Wittenberg, Deutschland, christine.fuerst@geo.uni-halle.de

The research of my team is about the impacts of human interventions on processes and pattern and in consequence on functions and services of nature for humanity. We are working on systemic models that reflect the interactions between humans and nature and that help to understand - based on scenarios - how these will coincide and develop in the future. My specialization is on spatially explicit models, using cellular automata as a mathematical basis, more recent models that we develop within my group are using Bayesian (Belief) Network Modelling to understand complex system processes and responses.

In our context, we use quite a number of participatory forms of engaging actors in land use in modelling and impact assessment. Most recently, we could obtain one of the Pathways to Sustainability projects, DREAMS (Developing REsilient African cities and their urban environment facing rural-urban Migration, Climate and Global Change) to address how urban land use will develop and could be managed sustainably to ensure the provision of essential urban ecosystem services. We rely on larger scale participation formats such as open space conferences, formats that particularly address local hot spots such as Charettes, and forms that include votes and active engagement of actors to develop solutions, such as planning cells or focus groups.

Another aspect of our research is the further development of multicriteria assessment approaches that help to translate ecosystem services provision capacities and underlying biodiversity features into tangible information for consulting policy and decision making. We introduced approaches such as mathematical normalization, expert consultation, benefit transfer and others to ensure that often only partially available knowledge sources for evaluation are completed. We are still working on how to integrate uncertainties from missing / incomplete data, invalid knowledge sources and other constraints.

Raphael Ganzenmüller

Geography, Ludwig-Maximilians-Universität München, Deutschland, raphael.ganzenmueller@geographie.uni-muenchen.de

Maximilian Garsch

Fakultät für Bauingenieurwesen und Umweltwissenschaften, Universität der Bundeswehr, Deutschland, maximilian.garsch@unibw.de

Prof. Dr. Matthias Garschagen

Department of Geography LMU Munich, Deutschland, m.garschagen@lmu.de

Prof. Matthias Garschagen is chair in human geography and heads the Teaching and Research Unit for Human Environment Relations at the Ludwig-Maximilians-University Munich (LMU). Prof. Garschagen's research focuses on risk, vulnerability, adaptation and transformation in the context of environmental hazards and climate change, particularly in cities. He is most interested in the ways urbanization and other societal changes shape future trends in risk, exposure and vulnerability. A second focus is on the evaluation of different adaptation options, including those to floods, heat waves and cyclones, and the governance of risk reduction, particularly at the interface of state and non-state actors. In his research, Prof. Garschagen combines a global view with regional and local expertise in Southeast Asia (especially Vietnam, Indonesia, the Philippines and Singapore), South Asia (especially

India), West Africa (especially Ghana and Nigeria) and Europe (especially Germany). Next to a number of book projects, his research findings have been published in international journals, e.g., on equitable climate change adaptation (in *Nature*), on the need to strengthen resilience in small and mid-sized cities (in *Nature*), on transitions in risk management from resilience to transformation (in *Ecology and Society*). Prof. Garschagen serves as a Lead Author in the IPCC's Special Report on Ocean and the Cryosphere (SROCC), the Sixth Assessment Report (AR6) and the Synthesis Report (SYR). For a number of years, he has been the scientific lead of the World Risk Report. Prof. Garschagen is an associate editor of the international journals *Climate and Development* and *Urban Climate* as well as an editorial board member of the *Journal of Extreme Events*. He has been Principal Investigator or overall coordinator of well over a dozen international research projects. Before joining LMU, he led a section risk assessment and adaptation governance the United Nations University.

Prof. Dr. Norbert Gebbeken

Research Center RISK, University of the Bundeswehr Munich, Deutschland, norbert.gebbeken@unibw.de

Professor Gebbeken joined the University of the Bundeswehr München in 1995 being chair holder of statics. Ever since he and his team conducted more than 100 research projects in the field of protective structures and published more than 600 articles (cross media). He was involved internationally in private and public design projects considering exceptional loadings (natural, man made, accident) for infrastructures including embassies worldwide, power plants, ministries, banks, media etc., rock fall on overhead street barriers, impact of fragments, etc. He is editor of the *International Journal of Protective Structures* and founder of the *International Association of Protective Structures*. He is founder and director of the research center RISK – Risk, Infrastructure, Security and Conflict. He is also President of the Bavarian Engineering chamber, and managing director of AJG Consulting Engineers as well as MJG Consulting Engineers. He is the initiator of the Bavarian expert group “Digital and ecological transformation of construction industry”. Thus, his expertise is in research, development and design practice. Effective 01.01.2020 Professor Gebbeken has been awarded the academic status “Emeritus of Excellence” which gives him the opportunity to continue his research and teaching activities.

Dr. Sonja Geiger

Consumer Research, Justus Liebig University, Deutschland, sonja.geiger@fb09.uni-giessen.de

I am an environmental psychologist working as a Senior Lecturer at the Justus-Liebig-University in Gießen. My research and lectures treat anything around how normative, cognitive and emotional aspects influence sustainable consumption and health behaviors and how these behaviors can be fostered to lead to greater well-being. Before returning to the scientific exploration of sustainability issues, I have worked for an international environmental association in Latin America, getting in touch with alternative concepts of what it means to lead a good life. This inspiration has penetrated my later research on how mindfulness practices and time wealth can contribute to a more conscious treatment of ourselves, others and natural resources.

Stephanie Geihs

Design for sustainability, faculdade de belas artes lisboa, Deutschland, stephanie@geihs.de

Prof. Dr. Dieter Gerten

Potsdam Institute for Climate Impact Research, Deutschland, gerten@pik-potsdam.de

Prof. Dr. Mark Gessner

IGB Berlin, Deutschland, gessner@igb-berlin.de

Freshwater ecologist, Professor of Applied Aquatic Science (TU Berlin)

Dr. Jan Goepel

iES - Institut für Ökosystemwissenschaften, Universität Koblenz-Landau, Deutschland, goepel@uni-landau.de

Prof. Dr. Antonia Graf

WWU, Deutschland, antoniag@uni-muenster.de

Johannes Graupner

Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Deutschland,
graupner@igb-berlin.de

As Knowledge Transfer Officer of IGB, I am working at the interface of science and society. I support and coordinate the knowledge exchange between researchers and specialised stakeholders such as policymakers, authorities, associations, NGOs, and businesses. Additionally, I am the speaker of the Knowledge Transfer Working Group of the Leibniz Association, and always open to knowledge exchange and discussions regarding the transfer topic. Profile: <https://www.igb-berlin.de/en/profile/johannes-graupner>

Annika Greven

Sustainable Production and Consumption, Wuppertal Institut für Klima, Umwelt, Energie gGmbH, Deutschland, annika.greven@wupperinst.org

Annika Greven works at the Wuppertal Institute within the division "sustainable production and consumption" research unit "Innovation Labs" as a researcher and designer. She studied industrial design engineering (B.Eng.) at the Fontys University of Applied Sciences in the Netherlands and strategic innovation in products and services (M.A.) at the University of Wuppertal, Germany. Her research focus is the sustainability-oriented and user-centered development of innovations, products, services and business models, especially in Living Labs. She is also part of the research project "Neue Urbane Produktion", which addresses the topic of urban production. Take a look for more information about this project: <https://neue-urbane-produktion.de>

Dr. Rüdiger Grote

Institute of Meteorology and Climate Research, Karlsruhe Institute of Technology, Deutschland,
ruediger.grote@kit.edu

I am interested in the responses of forests and urban ecosystems to climate change impacts, and their ability to sustain ecosystem services such as carbon sequestration and pollution removal, as well as wood supply and heat mitigation. Therefore, I develop and apply process-based models that describe carbon-, nitrogen-, and water balances as well as individual plant development and mortality in dependence on environment, in particular extreme events such as heatwaves and dry spells.

As a senior scientist at KIT I am contributing to various projects in Germany as well as abroad, recognizing beneficial synergistic effects of scientific cooperation. However, I think that it is also important to facilitate the incorporation of scientific insights into political or administrative decisions, as well as to apply pressing socio-economic questions that shape scientific research in order to obtain more targeted answers.

Dr. Torsten Grothmann

Ecological Economics, Carl von Ossietzky University Oldenburg, Deutschland,
torsten.grothmann@uol.de

My current research primarily focuses on the evaluation of participation and communication strategies in adaptation to and mitigation of climate change.

Prof. Dr. Armin Grunwald

Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology, Deutschland, armin.grunwald@kit.edu

Armin Grunwald is a Full professor of Philosophy and Ethics of Technology at Karlsruhe Institute of Technology (KIT), Germany. He has been director of the Institute for Technology Assessment and Systems Analysis at KIT (ITAS) since 1999 and Director of the Office of Technology Assessment at the German Bundestag in Berlin since 2002. After university education in physics, mathematics, and philosophy, he received a PhD in theoretical Solid State Physics from Cologne University in 1987. His research fields include technology assessment, ethics of new technologies, digitalization, theory of sustainable development, sustainability research, and the epistemology of inter- and transdisciplinary research. In his professional work, Armin Grunwald is member of several advisory commissions and committees in various fields of the technological advance, e.g. of the German Ethics Council and the National Board on Nuclear Waste disposal. He is an author and editor of multiple professional and research publications, among them "Technology Assessment in Practice and Theory" (Routledge 2019) and "The Hermeneutic Side of Responsible Research and Innovation" (Wiley 2016).

Prof. Dr. Edeltraud Guenther

UNU-FLORES, Deutschland, director_flores@unu.edu

Prof. Edeltraud Guenther is a globally recognised expert in environmental management and sustainability assessment. She assumed the position of Director of United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) in Dresden, Germany on 1 September 2018.

Prof. Guenther's research focuses on sustainability management, environmental accounting, and management control systems, with an emphasis on corporate responsibility, life cycle assessment, resilience, and sustainability assessment. As UNU-FLORES Director, Prof. Guenther is a vocal advocate for "Advancing the Resource Nexus", which is also reflected in the Institute's mission to create meaningful impact across the scientific landscape, and to champion the Resource Nexus as a vital scientific perspective.

Prof. Guenther received her doctorate in Environmental Accounting from the University of Augsburg and has held the position of Chair of Business Management, Sustainability Management and Environmental Accounting, at the Faculty of Business and Economics at Technische Universität Dresden (TU Dresden) since 1996. She founded the Centre for Performance and Policy Research in Sustainability Measurement and Assessment (PRISMA) in 2016 and has acted as the Centre's Chair since then. As an international authority on environmental resource management, Prof. Guenther has held Visiting Professorships at Namibia University of Science and Technology (NUST), Kobe University, and University of Virginia.

Christian Günner

Infrastrukturkoordination und Stadthydrologie, HAMBURG WASSER, Deutschland, christian.guenner@hamburgwasser.de

Strategic planning, conceptual planning and feasibility studies for water supply and wastewater disposal systems; new sanitary concepts (WASH); planning, design and construction of sewage plant installations involving civil, mechanical and electrical engineering; process and system evaluation of wastewater and sewage sludge treatment plants; cost-benefit analyses; invitations to tender (national and international); operation and maintenance of sewer networks; implementation of complex maintenance support systems for big sewer operation services, geographical information and management systems for documents; storm-water management, long-term urban infrastructural planning, organisation and optimising of processes within big and complex urban administrations, helping authorities preparing political will on states' level, conducting sustainable utility partnerships (SUPs) in developing / emerging countries, reorganizing projects; training of students and trainees.

Clara Gurreso

Kiel University, Deutschland, gurresoe@philsem.uni-kiel.de

Surajit Haldar

Institute for Agricultural Policy and Market Research, Uni Giessen, Deutschland, surajit.haldar@agrar.uni-giessen.de

I am a doctoral student at the Uni Giessen. My research interest is on institutional innovation in groundwater governance among community irrigation sharing system in Indian context. Qualitative Comparative Analysis, Descriptive statistics, Cluster Analysis and Mathematical modelling methods are used to bring analytical findings.

Dr. Mike Hannis

School of Humanities, Bath Spa University, Vereinigtes Königreich, m.hannis@bathspa.ac.uk

Mike Hannis writes and teaches on environmental ethics and politics. Theoretical foci include conceptions of sustainability, virtue ethics, and the ecological implications of inequality. Empirical contexts in which these have been examined include land use policy and land distribution issues, renewable energy and nuclear policy, mining, biodiversity offsetting, and trophy hunting. He also has an area interest in Namibia, having worked from 2014-2019 on the Future Pasts project (www.futurepasts.net) with Prof. Sian Sullivan. Publications include the monograph 'Freedom and Environment: autonomy, human flourishing and the political philosophy of sustainability' (Routledge 2016). He co-leads the MA in Environmental Humanities at Bath Spa University. For more detail see <https://www.bathspa.ac.uk/our-people/mike-hannis/>.

Julia Hansel

Political Science Department, Chair of Global Environmental Governance, University of Muenster, Deutschland, julia.hansel@uni-muenster.de

I'm research fellow at the Chair of Global Environmental Governance in the Political Science Department at University of Muenster. I'm currently working in the EU funded project SmartHubs - Smart Mobility Hubs as Game Changers in Transport, dealing with the implementation and co-creation of mobility hubs and their impact on a sustainable mobility transition.

Günther Hansen

Research Intelligence, Elsevier, Deutschland, g.hansen@elsevier.com

Elsevier offers Analytical Reports on SDG research fields on a global level

Prof. Dr. Bernd Hansjürgens

Economics, Helmholtz-Zentrum für Umweltforschung – UFZ, Deutschland, bernd.hansjuergens@ufz.de

Philip Harms

Leibniz Institute of Ecological Urban and Regional Development, Deutschland, p.harms@ioer.de

Dr. Graham Harrison

World Bank, USA - Vereinigte Staaten, gharrison@worldbank.org

Graham Harrison is a Senior Science and Technology Consultant at the World Bank, where he works primarily on higher education projects focused on competitive research funding. He contributes to the World Bank financed Africa Centers of Excellence for Development Impact project, a regional project involving 11 countries, as well as the Higher Education Development for Pakistan project.

From 2009 – 2018, Harrison served as a Program Officer in the Office of International Science and Engineering at the US National Science Foundation. At NSF, he focused on US-European research cooperation and science policy issues, and in 2015 served as the Head of the NSF Europe Office. He was a key organizer of the inaugural meeting of the Global Research Council - the Global Summit on Merit Review – in Washington DC. From 2012 – 2016, he served as the inaugural Executive Secretary to the Governing Board of the Global Research Council. The GRC is a virtual organization, composed of the Heads of public research councils worldwide, and works to strengthen international research cooperation and coordination through dialogue and position papers.

Dr. Harrison earned a B.S. from Stanford University and a Ph.D. from the University of California Santa Barbara, both in Chemical Engineering. He conducted postdoctoral research at the University of Melbourne, Australia. Prior to joining NSF, he was a tenured faculty member in the Department of Chemical Engineering at Clemson University in South Carolina.

Prof. Dr. Terry Hartig

Institute for Housing and Urban Research, Uppsala University, Schweden, terry.hartig@ibf.uu.se

Prof. Dr. Christian Hauser

PRME Business Integrity Action Center, University of Applied Sciences of the Grisons, Schweiz, christian.hauser@fhgr.ch

Christian Hauser is Professor of Business Economics and International Management at the University of Applied Sciences of the Grisons and visiting scholar at the Digital Society Initiative of the University of Zurich, Switzerland. He is a member of the topical platform Ethics of the Swiss Academy of Engineering Sciences (SATW), member of the United Nations Principles for Responsible Management Education (PRME) Working Group on Anti-Corruption and head of the first PRME Business Integrity Action Center in Europe. His research interests include international entrepreneurship, SME and private sector development, corporate responsibility and business integrity.

Dr. Karsten Haustein

Climate Service Center Germany (GERICS), Deutschland, karsten.haustein@hereon.de

Climate scientist at GERICS Hamburg (Climate Service Center Germany), with expertise in extreme weather event attribution. Researcher in the Climate Services for eXtremes project (within the ClimXtreme framework). Contributing author to the upcoming IPCC AR6.

Andrea Heil

Architects for Future, Deutschland, muenchen.a4f@gmail.com

Specialist for climate friendly, circular and healthy building materials

Ulrich Heinze

UHC Chemieberatung, Deutschland, uhcchemierat@aol.com

Prof. Dr. Ingrid Hemmer

Geography Education and ESD, Catholic University Eichstätt-Ingolstadt, Deutschland, ingrid.hemmer@ku.de

Ingrid Hemmer is retired Professor of Geography Didactics at the Catholic University of Eichstätt Ingolstadt. She is engaged in research and teaching in ESD. From 2010 to 2020, she was the university's sustainability officer. She is member in numerous networks for the implementation of ESD in schools and universities.

Prof. Dr. Anna Henkel

Chair of Sociology, with a focus on Technology and Sustainable Development, Universität Passau, Passau, Germany, anna.henkel@uni-passau.de

Ilka Hennet

Connect Europe, BMW Foundation Herbert Quandt, Deutschland, ilka.hennet@bmw-foundation.org

Dr. Helmke Hepach

GERICS, Deutschland, helmke.hepach@hereon.de

Dr. Hendrik Herold

Leibniz Institute of Ecological Urban and Regional Development, Deutschland, h.herold@ioer.de

Prof. Dr. Jacob Hörisch

Centre for Sustainability Management, Leuphana University, Deutschland, hoerisch@leuphana.de

Jacob Hörisch holds the Junior-Professorship for Sustainability Economics & Management at the Centre for Sustainability Management, Leuphana University Luneburg. His main research interests are in the fields of sustainability management, sustainable entrepreneurship, stakeholder theory and sustainable consumption. Jacob Hörisch has published various journal articles on these topics (e.g. Journal of Management Studies; Journal of Industrial Ecology). His research was rewarded with best paper awards at international conferences and with the Leuphana Best Young Researcher Award.

Prof. Dr. Anna-Katharina Hornidge

Directors, German Development Institute/ Deutsches Institut für Entwicklungspolitik (DIE); SDSN Germany, Deutschland, anna-katharina.hornidge@die-gdi.de

Prof. Dr. Anna-Katharina Hornidge is Director of the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) and Professor for Global Sustainable Development at the University of Bonn. Ms. Hornidge is a Development and Knowledge sociologist by training with a Habilitation in Development Research from the University of Bonn, a PhD in Sociology from the Technical University of Berlin and a Masters Degree in Southeast Asian Studies from University of Bonn and National University of Singapore. Before joining DIE in March 2020, she was Professor of Social Sciences in the Marine Tropics at the University of Bremen and Head of Department of Social Sciences and of the research group 'Development and Knowledge Sociology' at the Leibniz Center for Tropical Marine Research (ZMT) in Bremen. From 2006 to 2015 she worked as Senior Researcher for the Centre for Development Research (ZEF), University of Bonn, where she held the position as Professor and Director in the Department of Social and Cultural Change from 2014 to 2015.

In her research, Ms. Hornidge focuses on (a) the role of different types of knowledge in and for processes of change, as well as (b) questions of natural resources governance in agricultural and marine contexts. Her regional focus lies on Southeast and Central Asia, West and East Africa. Further, Ms. Hornidge serves as expert advisor in several advisory boards at national, EU and UN level: as Member of the German Advisory Council on Global Change of the German Government (WBGU), Co-Chair (with Gesine Schwan) of the Sustainable Development Solutions Network Germany (SDSN Germany), and as Chair of the Section 'Research' in the German UNESCO-Commission.

Jo-Ting Huang-Lachmann

GERICS, Deutschland, jo-ting.huang-lachmann@hereon.de

Jo-Ting Huang-Lachmann works as a scientist at the Climate Service Center Germany (GERICS). Her research focuses on economics of climate change adaptation in cities. She has published her research outcomes in international peer-reviewed journals like Cities, Ecological Economics, Climatic Change. She has an interdisciplinary background of environmental management and climate change adaptation

in cities and has practical experience working with cities. Her research area includes stakeholder engagement, climate adaptation, institutional economics and co-benefits of cities' climate and sustainability strategies. Jo-Ting works with cities worldwide, both in developed and developing world to develop synergies in their integrated climate change policies. She is also an active member of international networks such as Risk KAN.

Vivienne Huwe

NABU, Deutschland, vivienne.huwe@nabu.de

Prof. Dr. Daniela Jacob

German Committee Future Earth / DKN, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, d.jacob@hereon.de

Prof. Dr. Daniela Jacob heads the Climate Service Center Germany (GERICS) in Hamburg, an institution of Helmholtz-Zentrum Hereon, and is visiting professor at the Faculty of Sustainability of the Leuphana University of Lüneburg. She is member of the European Commission's Mission Board on "Adaptation to Climate Change including Societal Transformation" and was one of the coordinating lead authors of the IPCC Special Report on the impacts of global warming of 1.5° C above pre-industrial levels. Her work focuses on regional climate modelling and adaptation to climate change.

Julia Jäggle

wpn2030 (Wissenschaftsplattform Nachhaltigkeit 2030), Deutschland, Julia.Jaeggle@iass-potsdam.de

Prof. Dr. Sonja Jähnig

Department of Ecosystem Research, Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Deutschland, sonja.jaehnig@igb-berlin.de

My research focuses on global change effects in river ecosystems and large scale patterns of freshwater biodiversity. I am a co-founder of the Alliance for Freshwater Life which aims to halt and reverse the global decline of freshwater biodiversity through research, data synthesis, conservation, education, outreach, and policy-making.

Dr. Jens Jetzkowitz

Fb Society and Nature, Museum für Naturkunde Berlin, Deutschland, jens.jetzkowitz@mfn.berlin

Dr. Christiane Joerk

DFG, Deutschland, christiane.joerk@dfg.de

Dr. Christiane Joerk is Program Director in the Humanities and Social Sciences Group of the German Research Foundation (DFG) with a focus on economics.

Nina N. Kaiser

Aquatic Ecology, University of Duisburg-Essen, Deutschland, nina.kaiser@umwelt-campus.de

My research focus is ecosystem services of river restorations, cultural ecosystem services assessed with social media data; I'm an Executive Team member of YESS (Young Ecosystem Services Specialists); Editorial Office member of Ecosystems and People

Dr. Ellen Kammula

Staff Unit Sustainable Campus, Forschungszentrum Jülich GmbH, Deutschland, e.kammula@fz-juelich.de

Dr. Ellen Kammula is deputy head of the Staff Unit Sustainable Campus at Forschungszentrum Jülich since 2012. In addition she is the project lead of the BMBF-Project LeNa Shape (socially responsible research in research organisations) and member of the Helmholtz working group for sustainability. Next to the project management for Sustainability Reporting and the German Sustainability Codex at Forschungszentrum Jülich her work focusses on governance and participation for the transformation towards a sustainable future. The staff unit Sustainable Campus in Jülich is designated to coordinate sustainable development at the Helmholtz Association.

Dr. Minna Kanerva

artec Sustainability Research Center, University of Bremen, Deutschland, m.kanerva@uni-bremen.de

Minna has worked as a sustainability science researcher since 2011 at the University of Bremen. In 2019, she defended her PhD thesis entitled "The role of discourses in a transformation of social practices towards sustainability: The case of meat-eating related practices". Her current research

interests include sociology of meat, strategic ignorance, linking practices with discourses, consumption corridors, transformation of the meat system, and the larger sustainability transformation.

Dr. Anne Kantel

School of International Service, American University, Deutschland, anne.kantel@gmail.com

Anne Kantel's research looks at questions of policy acceptance, legitimacy, and sustainability in global environmental governance. In her doctoral dissertation she focused on when and why people perceive rules governing access to and the distribution of natural resources in the Global South legitimate or illegitimate. Identifying as a scholar of political ecology, her work engages with broader questions of justice, power, and equality and draws on insights from fields such as critical IR studies, cultural anthropology, post-colonial studies, feminist scholarship, international development, and political geography.

Prof. Dr. Daniel Karthe

Institute for Integrated Management of Material Fluxes and of Resources, United Nations University (UNU), Deutschland, karthe@unu.edu

Daniel Karthe currently heads UNU-FLORES's research programme on the 'Resource Nexus for Regions in Transformation'. He has about 20 years of research and teaching experience related to hydrology, water quality, and aquatic resources management, including projects in Germany, Central Asia, South Asia, and Sub-Saharan Africa. Prior to joining UNU-FLORES, Daniel served as an Associate Professor of Environmental Engineering and Vice Rector for Research at the German-Mongolian Institute for Resources and Technology, in Nalaikh, Mongolia and a research fellow at the Helmholtz Centre for Environmental Research in Magdeburg, Germany. His research interests include the Resource Nexus with a particular focus on science-based management concepts for environmental resources, including water, soil, and air. Daniel currently works on the sustainability of transformation processes in (post-)coal mining regions. He co-chairs the Commission for Hydrology in the German Geographical Society and serves as Vice Chair of the Commission for Water Sustainability in the International Geographical Union.

Prof. Dr. Rees Kassen

University of Ottawa, Kanada, rees.kassen@uottawa.ca

Rees Kassen is a Full Professor and Cystic Fibrosis Canada Researcher at the University of Ottawa. He is internationally recognized for his work with microbes as models for studying the evolution of biodiversity. Rees is also active at the interface between science, society, and policy, serving currently as Vice-Chair of the Science and Innovation Advisory Council at the Institute on Governance, a member of the World Economic Forum's Global Future Council on Scientific Collaboration, and as a public voice for research through media interviews, op-eds and blogs, as well as collaborations with artists and journalists. He previously chaired the Partnership Group for Science and Engineering (PAGSE; www.pagse.org), an association of 26 professional and scientific organizations acting on behalf of over 60,000 members from academia, industry and government in Canada, and was a founder and Co-Chair of the Global Young Academy (www.globalyoungacademy.net), an international organization of early-career researchers acting as the voice of young scientists around the world. Rees completed his PhD at McGill University (2001) and went on to an NSERC Postdoctoral Fellowship and Elizabeth Wordsworth Research Fellowship at St Hugh's College, Oxford, joining the University of Ottawa in 2003 where he is currently Full Professor and Cystic Fibrosis Canada Researcher. He is a member of the Banff Forum (2015) and was a Leopold Leadership Fellow (2013), NSERC Steacie Fellow (2010), and a World Economic Forum Young Scientist (2010-2012).

Dr. Thomas Kastner

Senckenberg Biodiversity and Climate Research Centre Deutschland,
thomas.kastner@senckenberg.de

Dr. Patrick Keilbart

Dept. for Southeast Asian Studies, Goethe University Frankfurt, Deutschland,
keilbart@em.uni-frankfurt.de

Patrick Keilbart is trained as an Ethnologist and Cultural Anthropologist, and currently works as a senior lecturer in the Department of Southeast Asian Studies at Goethe University Frankfurt. Patrick studied at the University of Passau, where he majored in Southeast Asian Studies, and at the High Conservatory for Indonesian Arts (STSI) in Bandung, Indonesia.

His PhD thesis on martial arts and media practices in Indonesia is set at the intersections between media anthropology, anthropology of religion, and anthropology of the senses. It offers an

ethnography of mediatization processes in Indonesia. The PhD project was situated at the Department of Social and Cultural Anthropology at the University of Cologne.

Patrick has worked as a research assistant and coordinator in the BMBF project "Dynamics of Religion in Southeast Asia (DORISEA)" at Georg-August University Göttingen, and as a post-doc fellow in the BMBF project "IndORGANIC – The societal transformation of agriculture into bioeconomy. Turning Indonesia organic?" at the University of Passau. His current research interest lies in entangled "natural" and technological environments, and a sustainable shaping of (media-)technological developments."

Dr. Daphne Keilmann-Gondhalekar

Chair of Urban Water Systems Engineering, Technical University of Munich (TUM), Deutschland, d.gondhalekar@tum.de

Dr. Daphne Gondhalekar is an urban planner and research scientist at the Chair of Urban Water Systems Engineering, Technical University of Munich, Germany. Her research focus is integrated urban planning, Water-Energy-Food Nexus, and multi-stakeholder processes in India, Niger and Germany. She holds a Ph.D. in Urban Planning and a Masters and Bachelor in Architecture and Urban Design, has worked as Postdoctoral Associate at Department of Urban Studies and Planning at Massachusetts Institute of Technology (MIT), Cambridge, MA, USA and Center for Development Research (ZEF), University of Bonn, Germany.

Sarah Kessler

Geography, Ludwig-Maximilians-Universität München, Deutschland, sarah.kessler@geographie.uni-muenchen.de

Sarah Kessler hat an der Durham University (UK) Sozialwissenschaften (B.A.) und anschließend in Cambridge internationale Zusammenarbeit und Entwicklung (MPhil) studiert. Danach war sie als Projektmanagerin bei einer Personaldienstleistung tätig und hat sich parallel zu den Themen Entrepreneurship und social Start-Ups weitergebildet. Seit September 2018 untersucht sie als Doktorandin an der LMU München gesellschaftliche Perspektiven zum Klimawandel im Rahmen des unter der Schirmherrschaft des bayerischen Klimaforschungsnetzwerks bayklif stehenden Forschungsprojekts BAYSICS.

Nixon Kiratu

Justus-Liebig University of Giessen, Giessen, Germany, Deutschland, nixonstudy@gmail.com

Nixon Murathi Kiratu joined JLU as a PhD candidate of the International PhD Program for Agricultural Economics, Bioeconomy and Rural Development in the Department of Agricultural Policy and Market Research in October 2019. He holds a Collaborative Masters in Agricultural and Applied Economics (CMAAE) for Eastern, Central and Southern Africa from Egerton University in collaboration with the University of Pretoria (2014) and a Bachelor's degree in agribusiness management from Egerton University (2011). His current PhD research focuses on linking irrigation to nutritional outcomes in East Africa.

Prof. Dr. Silja Klepp

Geography, Kiel University, Deutschland, klepp@geographie.uni-kiel.de

Silja Klepp is Professor of Human Geography at Kiel University. She is a trained social anthropologist. Her research group "Social Dynamics in Coastal and Marine Areas" deals with human-environment relations in the Anthropocene. In her current research on climate change migration and adaptation, she integrates postcolonial perspectives and critical theories in the study of the social effects of climate change. She is especially interested how social and cultural diversity can be integrated into adaptation governance and how self-determination of the affected communities can be assured. Silja's field research experience includes countries such as Kiribati, Vanuatu, New Zealand, Italy, Libya, Malta, and Zambia. For her PhD on refugees and border control in the Mediterranean Sea she won several awards, such as the Christiane Rajewsky Award of the German Association for Peace and Conflict Studies. She is Alumna of the German Young Academy of Scientists (Die Junge Akademie) and an appointed member of the Council for Migration and the scientific advisory board of Heinrich Böll Foundation, amongst other transdisciplinary engagements. Together with others she founded the transdisciplinary network of environmental justice EnJust. In order to achieve more inclusive and creative ways of making science she works with transdisciplinary approaches and artistic research.

Fields of research: environmental and climate justice, social effects of climate change, political ecology, legal anthropology; migration and refugees; Science and Technology Studies (STS), Inter- and Transdisciplinary Methods, Oceania, Kiribati, Fiji, European Union, Italy, Northern Germany, Mediterranean Region.

Prof. Dr. Carola Klöck

CERI, Sciences Po Paris, Frankreich, carola.kloeck@sciencespo.fr

Carola Klöck is assistant professor of political science at Sciences Po Paris. Her work examines the politics of adaptation broadly, from global climate negotiation and adaptation finance to local adaptation to coastal erosion - all with a special focus on small island states.

Adolf Klope-Lesch

SDSN Europe, Deutschland, klope-lesch@sdsngermany.de

Adolf Klope-Lesch is a member of the global SDSN's Leadership Council, Co-Chair of SDSN Europe, and former Executive Director of SDSN Germany. He has been an Associate Fellow and Senior Advisor with the German Development Institute/Deutsches Institut für Entwicklungspolitik (D.I.E.) since August 2012. He has also served as Managing Director at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); and Director General (Global Policies; Multilateral Development Policy; Africa, Middle East) at the German Federal Ministry for Economic Cooperation and Development (BMZ).

Luise Knauber

Zentrum für Betriebswirtschaft im Gartenbau e.V., Deutschland, knauber@zbg.uni-hannover.de

Sustainability with its social, ecological and economic dimension is getting more and more a considered topic and essential to adapt to changing conditions in the world. In my research I want to figure out how sustainability assessment can be improved in the sector of horticulture.

Prof. Dr. Jörg Knieling

Urban Planning, HafenCity Universität Hamburg, Deutschland, joerg.knieling@hcu-hamburg.de

Jörg Knieling is Professor of Urban Planning and Regional Development at HafenCity University Hamburg (HCU). His academic background is in urban, regional and environmental planning, and in political sciences and sociology, he holds a Ph.D. from the University of Hanover. His research team includes about 15 young researcher from different disciplinary backgrounds.

He is member of the German Academy for Territorial Development in the Leibniz Association (ARL) and the Advisory Board for Territorial Development of the German Federal Ministry of the Interior, and was 'Directeur d'Etudes Associé' of the Institute of Advanced Studies (IEA) in Paris and Visiting Professor at Politecnico di Milano.

The institute's main research fields are sustainable urban and regional development, climate change mitigation and adaptation, territorial innovation (e.g. circular city), and related aspects of (transition) governance and planning theory.

The institute has been participating in many international and national research projects, recently e.g. REPAIR, FORCE, Cities-4-People, mySMARTLife and CLEVER Cities under the HORIZON 2020 framework, and the German Excellence Cluster CLICCS on climate change. Current book publications have been on Pathways to Great Transformation (2017), Climate Adaptation Governance (2016), Cities in Crisis (2016), and Soft Spaces in Europe (2015).

Further information: <https://www.hcu-hamburg.de/en/master/urban-planning/arbeitsgebiete/joerg-knieling/>

Dr. Alexander Koch

Earth sciences, University of Hong Kong, Hongkong, akoch@hku.hk

I am interested in land-based negative emissions strategies, how future climate change might impact them, and their potential when considering the full Earth system response. Mostly using process based models (ESMs and DGVMs)

Johanna Köchling

Universität Konstanz, Deutschland, johanna.k@steinmetz-koechling.de

Julia Koller

Psychology, University of Konstanz, Deutschland, julia.koller@uni-konstanz.de

Matthias Koller

Federal Environment Agency, Deutschland, matthias.koller@uba.de

Alexandra König

Deutsches Zentrum für Luft- und Raumfahrt, Deutschland, alexandra.koenig@dlr.de

Meri Korhonen

Universität Hamburg, Deutschland, meri.korhonen@uni-hamburg.de

Dr. Kai Kornhuber

Earth Institute, Columbia University, Deutschland, kk3397@columbia.edu

Prof. Dr. Artem Korzhenevych

Leibniz Institute of Ecological Urban and Regional Deveopment, Deutschland, a.korzhenevych@ioer.de

R. Andreas Kraemer

Ecologic Institute, Deutschland, Kraemer@Ecologic.eu

R. Andreas Kraemer, Founder & Director Emeritus of Ecologic Institute in Berlin, Germany, and Chairman (pro bono) of Ecologic Institute US in Washington DC, is currently non-executive Director of the Fundação Oceano Azul in Lisboa (Portugal), and Visiting Assistant Professor of Political Science and Adjunct Professor of German Studies at Duke University. He serves as Chairman of the Supervisory Board of Agora Energiewende, Berlin, Germany, and is also Initiator and Convenor of the Arctic Summer College, a joint programme of Ecologic Institute and The Arctic Institute in Washington DC. His research focuses on the role and functions of science-based policy institutes or "think tanks" in theory and the practice in different political systems, the interactions among policy domains and international relations, and global governance on environment, resources, climate and energy.

Pia Krause

Institute of Acoustics and Building Physics, University of Stuttgart, Deutschland,
pia.krause@iabb.uni-stuttgart.de

- (Urban) building physics and climate-adapted constructions for people in cities, quarters and buildings for sustainable spaces
- Building physics study on the potential of house trees (green structures in cities)
- Use of the resource wastewater to improve the urban climate through increased evaporation"

Dr. Tina Krönert

German Committee Future Earth, Deutschland, tina.kroenert@posteo.de

Dr. Tina Krönert has been Scientific Officer of the DKN secretariat since January 2020. After studying marine biology at the University of Bremen (DE) / Qingdao (CN), Tina Krönert did her PhD at the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, on the influence of temperature on the ecophysiology of Antarctic fish. Afterwards she investigated the consequences of climate change on marine organisms in Europe at the University of Hamburg and worked in project management in the economic environment.

Prof. Dr. Tobias Krueger

Geography / IRI THESys, Humboldt-Universität zu Berlin, Deutschland, tobias.krueger@hu-berlin.de

Dr. Cornelia Krug

Institute for Evolutionary Biology and Environmental Studies, University of Zurich, Schweiz,
cornelia.krug@uzh.ch

Trained as an ecologist and zoologist, working since 2010 at the interface of science, policy and society. Director of the Future Earth Global Research Project bioDISCOVERY, organiser of the World Biodiversity Forum.

Prof. Dr. Klaus Kümmerer

Institute of Sustainable Chemistry and Material Resources, Leuphana University, Deutschland,
klaus.kuemmerer@leuphana.de

Klaus Kümmerer is Director of the Institute of Sustainable Chemistry (<https://www.leuphana.de/en/institutes/insc.html>) and holds the chair of Sustainable Chemistry and Material Resources at the public Leuphana University Lüneburg. He is also Director of the Research and Education Hub of the International Sustainable Chemistry Collaborative Centre (ISC3, www.isc3.org) in Bonn. His research and teaching are focused on Sustainable Chemistry, Sustainable Pharmacy, Material Resources, Aquatic Environmental Chemistry with a focus on micropollutants, and Time in Environmental and Sustainability Research. He developed and leads the newly developed extra-occupational master programme "Sustainable Chemistry" at Leuphana University. He published extensively in international scientific peer reviewed journals, edited 15 scientific books and published > 100 book contributions, and gave many invited, keynote and plenary lectures. He received national

and international awards for his interdisciplinary work. He serves and served in national (e.g. DFG Senate Commission for Water Research, Board of the Division of Sustainable Chemistry of German Chemical Society GDCh) and international committees including Global Chemical Outlook by UNEP and the EU Technology Platform SusChem Europe as well as IUPAC Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD) and also is an Active Voting Member in the European Chemical Society (EuChemS) and recently member of the European Commission's High Level Roundtable on the Chemicals Strategy for Sustainability. He is also chair of the annual interdisciplinary Green and Sustainable Chemistry Conference and the international interdisciplinary annual Summer School Sustainable Chemistry for Sustainable Development. He is founding editor and editor-in-chief of Sustainable Chemistry and Pharmacy (IF 3.2), and Current Opinion in Sustainable Chemistry journals as well as associate editor of Chemosphere and Environmental Pollution.

Prof. Dr. Tobias Kuemmerle

Geographisches Institut, Humboldt-Universität zu Berlin, Berlin, Germany

Pia Laborgne

European Institute for Energy Research, Deutschland, pia.laborgne@eifer.uni-karlsruhe.de

Pia Laborgne is sociologist and researcher, focusing on urban energy, climate, and sustainability strategies, e.g. regarding local governance, participation, knowledge co-creation and transdisciplinary research as well as sustainable consumption and social acceptance. She is a board member of ESA RN 12 Environment and Society, coordinator of the Energy & Society Network and co-chairs the Urban Europe Research Alliance (UERA) thematic working group on urban governance and participation.

Currently she is coordinating the JPI UE and Belmont Forum Sugi Nexus project Creating Interfaces (2018-2021) <https://creatinginterfaces.eifer.kit.edu/>

P. Lakshana

Bachelor of Architecture, Aalim Muhammed salegh academy of Architecture, Indien, lakshanapandian4@gmail.com

Prof. Dr. Werner Lang

Lehrstuhl für energieeffizientes und nachhaltiges Planen und Bauen, Technische Universität München, München, Germany, w.lang@tum.de

Werner Lang has headed the Chair of Energy Efficient and Sustainable Planning and Building (ENPB) and the Center for Sustainable Building (ZNB) at the Technical University of Munich (TUM) since 2010. In addition to minimizing the consumption of resources (efficiency) and the use of renewable energies as well as renewable building materials in construction (consistency), a major goal of the chair's work is to develop methods for implementing a positive ecological footprint in construction, taking sufficiency into account. The Chair ENPB is a "joint appointment" of the Faculty of Engineering BauGeoUmwelt and the Faculty of Architecture, TUM. In addition to his university activities, he has been director of the Oskar von Miller Forum, Munich, since 2010 and partner and shareholder of the architecture firm LangHuggerRampp GmbH Architekten, Munich, since 2006.

Wiebke Lass

RD 2 Climate Resilience, Potsdam Institute for Climate Impact Research (PIK), Deutschland, wiebke.lass@pik-potsdam.de

Prof. Dr. Melissa Leach

Institute of Development Studies, Vereinigtes Königreich, m.leach@ids.ac.uk

Halim Lee

UNU-FLORES, Deutschland, halim.lee@unu.edu

Halim Lee is a senior research assistant in the 'Resource Nexus for Regions in Transformation' program at UNU-FLORES. She holds a master's degree in environmental sciences and ecological engineering from Korea University, Seoul, South Korea and has previous working experiences in the private sector as well as with UN Environment.

Prof. Dr. Philip Leistner

University of Stuttgart, Institute for Acoustics and Buildings Physics IABP, Deutschland, philip.leistner@iabp.uni-stuttgart.de

Dr. Carsten Lemmen

Institute of Coastal Systems Analysis and Modeling, Helmholtz-Zentrum Hereon, Deutschland, carsten.lemmen@hereon.de

My primary work at Hereon is in computer modelling of the ecological and biogeochemical processes of the North Sea, as well as the further development of coupled model systems for regional marginal seas, under multiple natural and anthropogenic stressors, and for the past and future marine system. Currently, I focus on a dynamic model of macrobenthos to better understand benthic-pelagic exchange. My secondary interest is the socio-ecological modeling of (ancient) cultures. I have published on the spread of agriculture-based subsistence in Europe, the USA and South Asia, the associated carbon emissions and fire activities and possible drivers, including climate change, that modulated the spread of agriculture.

Christian D. León

Center for Interdisciplinary Risk and Innovation Studies (ZIRIUS), University of Stuttgart, Deutschland, christian.leon@ziri.us.uni-stuttgart.de

Dr. Katja Leyendecker

Northumbria university, Vereinigtes Königreich, leyendecker.katja@gmail.com

Katja completed her PhD thesis 'Women activists' experience of local cycling politics' in 2019. In her thesis she makes use of the academic theory of the post political to gain a wider understanding of the socio-political processes at play between 2010 and 2017 in Newcastle (UK) and Bremen (Germany). She also is an environmental engineer and before 2015 has worked extensively as a consultant and project manager, both in the private and in the public sector. In 2010 she co-founded newcycling.org with Claire Prospert. The campaign group lobbies decision makers to implement people-friendly urban designs and build cycleways. Katja's publications are listed on Researchgate https://www.researchgate.net/profile/Katja_Leyendecker.

Dr. Zih-Ee (Vanessa) Lin

National Taiwan University, Taiwan, d03541009@ntu.edu.tw

Dr. Yi-Chun Lin

Future Earth Taipei, Taiwan, yclin2020@gate.sinica.edu.tw

This is Yi-Chun Lin, a science office of Future Earth Taipei in Taiwan.

Prof. Dr. Anne-Kathrin Lindau

Geography, Catholic University of Eichstätt-Ingolstadt, Deutschland, anne.lindau@ku.de

Professor Anne-Kathrin Lindau has been active in research and teaching in the geography education since 2002. For about ten years now, she has been increasingly concerned with the field of ESD in schools and universities. Anne-Kathrin Lindau studied teaching Geography and German at grammar schools. After her studies she completed her teacher training at a grammar school. Afterwards she did her doctorate at the Martin-Luther-University Halle-Wittenberg interdisciplinary in Geoecology and Geography Education. In teaching, she is committed to the increased implementation of ESD in schools as well as in teacher training courses, especially in Geography. Her research interests include teacher professionalisation, excursions in geography and wilderness education with a special focus on ESD. Since December 2019 Anne-Kathrin Lindau, the Professor of Didactics of Geography and Education for Sustainable Development at the Catholic University of Eichstätt-Ingolstadt, has been working in the field of ESD and since 2020 she has been the coordinator of sustainability at the KU.

Dr. Andre Lindner

School of Civil and Environmental Engineering, Technische Universität Dresden, Deutschland, andre.lindner@tu-dresden.de

I am an ecologist with an emphasis on tropical environments. After coordinating a project on climate change adaptation with partners in Peru and Bolivia 2011-2014 I worked at the Centre for International Postgraduate Studies of Environmental Management (CIPSEM) at Technische Universität Dresden (Germany) as deputy director, lecturer and coordinator of the course programme supported by UNEP, UNESCO and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). Since 2020 I am the Managing Director of the School of Civil and Environmental Engineering at Technische Universität Dresden, comprising the faculties of Environmental Sciences, Civil Engineering, Architecture, Traffic Sciences and Economics. My interests are within a continuous implementation of education for sustainable development, especially regarding ecosystem health and valuation of biodiversity.

Dr. Christian Linke

S4F Bochum, Deutschland, s4f-christian@web.de

Atmospheric physicist and on the coordination team of the Bochum regional group of Scientists for Future.

Dr. Gerd Lintz

Leibniz Institute of Ecological Urban and Regional Development, Deutschland, g.lintz@ioer.de

Prof. Dr. Yuei-An Liou

Center for Space and Remote Sensing Research, National Central University, Taiwan, yueian@csrnr.ncu.edu.tw

Dr. Liou's current research interests include global eco-environmental risk (vulnerability) assessment; extreme weather (typhoon, drought) and natural disasters; urban greenspace & heat island; land surface moisture/temperature monitoring; and use of artificial intelligence, satellite remote sensing & geoinformatics for environment in resolving the previously-mentioned research topics.

He is currently a member of the "Future Earth Taipei - Sustainability in the Digital Age Working Group" Republic of China, TAIWAN. He is a PI of various projects supported by Ministry of Science and Technology of Taiwan, including two collaborating projects with European partners entitled "GIS and remote sensing assessment framework for urban greenspaces vulnerability to typhoons in Taiwan" (EU-Life Program) and "Copernicus data and information for monitoring agricultural crop water usage" (Framework Partnership Agreement on Copernicus User Uptake (FPCUP)).

He is interested in collaborating with European scientists on a wide spectrum of environmental issues to seek for a better and more sustainable environment for the humanity.

Lisa M. Sarida Lippert

Carl Friedrich von Weizsäcker-Centre for Science and Peace Research (ZNF), University of Hamburg, Deutschland, lisa.lippert@uni-hamburg.de

Having studied political science and peace and conflict studies in Hannover, Magdeburg and Dakar, in 2018 Lisa Lippert joined the interdisciplinary research group "Conflicting use of land and water" at the ZNF, University of Hamburg. Since then, she works in the group's project on participatory development of sustainable production systems in rural Tunisia (south of Bouhedma National Park). Last year she began her PhD, which, through a practice theory lens, investigates how rural communities in arid areas promote local peace in the face of climate change, water scarcity and desertification.

Yuyuan Liu

Applied Geoscience, Tuebingen University, China, yuyuan.liu@student.uni-tuebingen.de

Christine Lottje

FAKT, Deutschland, christine.lottje@fakt-consult.de

I am a consultant on climate finance, climate change adaptation and sustainable agriculture. My thematic foci are monitoring international and German climate finance and developing climate-related assessment and monitoring tools with a particular focus on participatory and community-based approaches.

Prof. Dr. Karen Lucas

Geography, University of Manchester, Vereinigtes Königreich, karen.lucas@manchester.ac.uk

Dr. Alexandra Lux

ISOE - Institute for Social-Ecological Research, Deutschland, lux@isoe.de

Alexandra Lux has been a research scientist at ISOE since 2000, and since April 2015 she is head of the research unit Transdisciplinary Methods and Concepts. Since 2009 she is associated with the Senckenberg Biodiversity and Climate Research Center. Alexandra studied economics at the Carl von Ossietzky University Oldenburg and received there her doctorate in the field of infrastructure development for a thesis dealing with public water supply and demographic shrinkage. Her Expertise is in the conceptualization and mapping of the societal and scientific effects of transdisciplinary research with many years of experience in the methodological accompaniment and analysis of transdisciplinary research projects and funding priorities as well as in the setting up of science-policy interfaces; research interests: transdisciplinary integration concepts, social-ecological perspectives in water management and biodiversity policy.

Dr. Nandani Lynton

Organizational Growth, Siemens Energy, Deutschland, nandani.lynton@siemens-energy.com

As head of organizational growth for Siemens Energy, a newly listed company shifting its portfolio towards decarbonization, digitalization and decentralization, I focus on building the organizational capacity needed to make the shift possible. Previously as professor of Global Leadership at CEIBS and other business schools, my central topic was learning ways of responding to change. This included research in Chinese and Western approaches to change and leadership, international comparisons of changing values in Generation Y, and a focus on Chinese leadership.

Dr. Barbara Malburg-Graf

German Committee Future Earth / DKN, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, barbara.malburg-graf@hereon.de

Dr. Barbara Malburg-Graf has been working as a Scientific Officer for the DKN secretariat on a part time basis since September 2016. She holds a doctorate in geography and a degree in librarianship and she completed a mediation training. From 1998 to 2010, she worked as a researcher and lecturer at the Institute of Geography at the University of Stuttgart, where she dealt with issues of sustainable land use and spatial development. The science-based and practice-oriented strategies of sustainable (spatial) development are still in the focus of her interest. In addition to her work for the DKN, she accompanies and supports actors in local and regional development through moderation, spatial analyses as well as project and process management.

Verena Maleska

IOER, Deutschland, v.maleska@ioer.de

Dr. Bishawjit Mallick

Chair of Environmental Development and Risk Management, Technische Universität Dresden (TUD), Deutschland, bishawjit.mallick@tu-dresden.de

Bishawjit Mallick is currently a Marie Skłodowska-Curie Global Fellow at the Institute of Behavioral Science (IBS) at the University of Colorado Boulder, USA, and holds a researcher position at Chair of Environmental Development and Risk Management at TU Dresden, Germany. He has obtained a Ph.D. in Regional Planning from Graduate School of Climate and Environment (GRACE) of the Karlsruhe Institute of Technology (KIT), a master's degree in Regional Planning from the Institute of Regional Science (IFR) of KIT, and a bachelor degree from Urban and Rural Planning Discipline of Khulna University, Bangladesh. His background includes research into the field of environmental (non-)migration, refugee and rehabilitation, disaster risk reduction (DRR), climate culture, vulnerability and resilience, good governance, COVID and Public health planning, and social science research methodology. His current research focuses on the historical grounding of non-migration: why people voluntarily remain in place; how the social, environmental, and political regime contributes to staying put; why and when do people perceive (non-)migration as an individual or family strategy to better their livelihoods?

Dr. Maria Manez Costa

GERICS, Deutschland, maria.manez@hereon.de

María Mánéz Costa works at the Department of Climate Impact and Economics and leads the work on system dynamics modelling. She is trained as a physical geographer with a PhD in agricultural economics.

She applies system thinking and analysis to support climate services development. María is an expert in participatory modelling and has been working in the last 20 years on the development of participatory processes and models. Her research focuses on innovative transdisciplinary approaches to support the transitions to resilient societies. Her work repeatedly lies at the interface between science and society. Topic-wise, María works on adaptation themes as water management under drought conditions, urban resilience, agri-environmental services, or nature based solutions. María has been involved in the development of the field of climate services since 2009.

Since the academic year 2013, she is a visiting professor at the Polytechnic University of Valencia and teaches Participatory Modelling and System Dynamics successfully. She also supervises PhDs and Master Students in different institutions.

Dr. Natasa Manojlovic

Wasserbau, TUHH, Deutschland, natasa.manojlovic@tuhh.de

Evi Mariana

International PhD Program of Agriculture Economics, Bioeconomy, and Rural Development, Justus-Liebig University of Giessen, Deutschland, Evi.Mariana@agrar.uni-giessen.de

I am a first year PhD student at IPPAE Justus-Liebig University of Giessen. My research topic is smallholder farmers' integration to the coffee value chain in Indonesia.

Rachel Martin

Elsevier, Niederlande, r.martin@elsevier.com

Adriana Martin

Alexander von Humboldt Stiftung | GERICS, Deutschland, adriana.martin@hereon.de

I am working on climate adaptation with a focus on food production systems. I am one of the International Climate Protection Programme fellows of the Alexander von Humboldt Foundation in Germany. My interest relies on innovation, climate services, and locally-led responses.

Prof. Dr. Jannika Mattes

Social Sciences, Carl von Ossietzky-Universität Oldenburg, Deutschland, jannika.mattes@uol.de

Research fields: transition research, innovation research, organisational sociology and economic geography. <https://uol.de/orginn>

Matthias Mayer

Economics, University Marburg, Deutschland, matthias.mayer@wiwi.uni-marburg.de

I am working as a Ph.D. student at the working group of Prof. Dr. Volland "sustainable use of natural resources" at the University of Marburg. In my research, I use experimental methods and behavioral theories to investigate the formation and adaptation of beliefs in the face of climate change and the COVID-19 epidemic as well as people's migration and adaptation decisions. I enjoy teaching and have been centrally involved in developing the teaching program of the chair.

I am interested in experimental and behavioral economics with a focus on field studies using surveys, workshops, and focus group discussions in the Asia-Pacific region, the U.S., and Europe. Thematically I am interested in motivated reasoning, especially confirmation bias and information avoidance, and (non-)migration of people highly exposed to rising sea levels. I conducted extended field research in Solomon Islands and Vietnam including training and supervision of local research team and supervised research projects in Bangladesh and Yemen as well as conducting online survey experiments in Germany and the United States.

Prof. Dr. Jacqueline McGlade

Institute for Global Prosperity / Institute for Public Policy and Management, University College London / Strathmore University Business School, Kenya, jacquie.mcglade@ucl.ac.uk

Professor McGlade, FLS, FRSA, is Professor of Sustainable Development and Resilience at the Institute for Global Prosperity, University College London, UK, Frank Jackson Professor of the Environment, Gresham College (lectures online), and Professor in International Public Policy and Governance at Strathmore University Business School, Kenya. She is Chief Scientist of the start-up EcoBalance which has developed a global high resolution geospatial AI platform for land stewardship, natural capital and carbon farming. Her current work is focused on developing nature based solutions to climate adaptation and mitigation, ocean and human health, the circular bioeconomy, earth observations and ecosystem modelling, impacts of pollution on human and ecosystem health, and intergenerational prosperity. Previously she was UN Environment's Chief Scientist, Executive Director of the European Environment Agency, Director UK Centre for Coastal and Marine Sciences, Professor Biological Sciences Univ. Warwick, Director Theoretical Ecology, FZ Jülich and Senior Scientist, Fisheries and Oceans Government of Canada. She is a Non Executive Director Northumbria Water and advises the European Bank for Reconstruction and Development, UK Space Agencies, Kenya Open Government Platform and the Wellbeing Economy Alliance. Previously she was a Board member of the Environment Agency (England and Wales), Earth Centre Millennium Commission and the European Space Agency. She has published more than 200 research publications and books, produced award winning films and radio series (ABC Ocean Planet, Planet reThink, Environmental Film Atlas, BBC Nature's Numbers, Chaos, Ocean Planet, The Life Scientific). Awards for her science include Honorary degrees (Keele, Kent, Wales), (Knight of the Order of St James (Monaco); 2013 Global Citizen; 2017 Geospatial Ambassador, Il monitor del Giardino Award (Italy); Masaryk Gold Medal (Czech Republic); 1992 Minerva Prize (Germany); 1991 Jubileum Award (Sweden).

Joanna McMillan

IREUS, University of Stuttgart, Deutschland, joanna.mcmillan@ireus.uni-stuttgart.de

I am a research associate and PhD candidate at the University of Stuttgart specialising in GIS analysis applied to questions of climate vulnerability and spatial planning. I studied at the Australian National University and the Stuttgart University of Applied Sciences and have a background in geography, human ecology and urban planning. My research highlights include a project about incorporating climate risk information into planning processes with spatial planners in Thailand, as well as my current work supporting the IPCC 6th Assessment Report on adaptation and vulnerability, in which a central question is how to map human vulnerability to climate change globally. At the German Sustainability Science Summit 2021, my colleagues and I are presenting a poster about our current research on methods to spatially analyse vulnerability and adaptation needs in the region of Stuttgart.

Dr. Rebecca McPherson

AWI, Deutschland, rebecca.mcpherson@awi.de

Prof. Dr. Reinhard Mechler

Systemic Risk&Resilience, ASA Program, IIASA - International Institute for Applied Systems Analysis, Österreich, mechler@iiasa.ac.at

Reinhard Mechler has more than 20 years of experience with analysing and addressing socio-economic aspects of disaster and climate change risks. His interest is to provide evidence-based advice to a wide range of public and private sector stakeholders in order to improve resilience-focussed decision-making for disaster, climate and other risks. As the head of the 'Systemic Risk and Resilience' Group, Advancing Systems Analysis Program at the International Institute for Applied Systems Analysis (IIASA), he currently leads a team of about 15 economists, political scientists, geographers, GIS experts, sociologists and mathematicians. He has been acting as a visiting professor at the University of Graz, as well as a senior lecturer at the University for Economics and Business in Vienna. Dr. Mechler has been leading and contributing to many international research and consultancy projects and is currently leading research for the Flood Resilience Alliance, which brings together researchers, international NGOs and the private sector to build disaster and climate resilience across the globe. He acted as a lead author on IPCC's special report on adaptation to extreme events (SREX), the 5th assessment report and the report on 1.5 °C global warming, and is currently a lead author on IPCC's 6th assessment report.

Prof. Dr. Matthias Menter

Friedrich-Schiller-Universität Jena, Deutschland, matthias.menter@uni-jena.de

Kira Meyer

Department of Philosophy Christian-Albrechts-Universität Kiel, Deutschland, kirameyer@philsem.uni-kiel.de

Kira Meyer is research associate and doctoral candidate at the department of philosophy, Christian-Albrechts-University Kiel. In her dissertation project she aims to develop an eco-phenomenological conception nature which helps to justify strong sustainability by establishing a relational conception of freedom. Her general interests are environmental ethics, phenomenology and the concept of political freedom.

Amelie Michalke

Chair of Applied Geography and Sustainability Science, University of Greifswald, Deutschland, amelie.michalke@uni-greifswald.de

Dr. Michael Miess

Climate Change Mitigation & Emission Inventories, Umweltbundesamt (AT), Österreich, Michael.Miess@umweltbundesamt.at

Michael Miess joined Environment Agency Austria (EAA) as a senior ecological macroeconomist in March 2021. Before this, Michael was a post-doctoral researcher at the Institute for Ecological Economics at the Vienna University of Economics and Business (WU Wien), at the research group Macroeconomics and Economic Policies of the Institute for Advanced Studies in Vienna (IHS), and at the Advanced Systems Analysis (ASA) program of the Institute for Applied Systems Analysis (IIASA). On the method side, he is focused on empirical macroeconomic modelling (agent-based, input-output, stock-flow consistent, and general equilibrium models), modelling the low-carbon transition, linking financial and real economy, as well as financialization and its relation to sustainable economic development and distributional issues. He has coordinated several national and international research and modelling projects with partners across Europe. Michael has been researching on a wide range of

topics, including ecological macroeconomics, empirical agent-based modelling (ABM) and forecasting, empirical stock-flow consistent (SFC), DSGE and CGE macroeconomic modelling for policy analysis, endogenous credit-driven financial cycles, the economic costs of electromobility, bioeconomy transition pathways, and smoothing the low-carbon transition. Michael's PhD thesis aimed at expanding the technological frontier of macroeconomic empirical agent-based modelling. The main purpose of his research is to uncover the macroeconomic determinants for a successful social-ecological transformation to a low or even zero carbon economy by mid-century.

Prof. Dr. Dann Mitchell

Cabot Institute for the Environment, University of Bristol, Deutschland, d.m.mitchell@bristol.ac.uk

Nora Mittelstädt

Bioenergy, Helmholtz-Centre for Environmental Research, Deutschland, nora.mittelstaedt@ufz.de

Nora Mittelstädt is part of the Future Earth Working Group: "Sustainable, transformative, and circular bioeconomy: issues, governance, and implementation aspects". She is a scientist in the field of bioeconomy in relation to monitoring, regulatory and policy aspects.

Prof. Dr. Volker Mosbrugger

Senckenberg Gesellschaft für Naturforschung, Deutschland, vj.mosbrugger@senckenberg.de

Katharina Moser

MOSAİK - Designing European Experiences, Österreich, Katharina.moser@mosaik-agency.eu

Dr. David Mugo

Mathematics, Computing and Information Technology, University of Embu, Kenya, davemugo2005@gmail.com

Dr. David Muchangi Mugo, a Kenyan Citizen, is a PhD holder of Information Systems from Kenyatta University, Kenya. He has a Master's of Science (MSc) Degree in Computer Science from Technical University of Hamburg, Germany and a Masters of Business Administration (MBA) where he specialized in Technology Management from Northern Institute of Technology Management, Hamburg, Germany. Professionally, Dr. David Mugo is renowned Knowledge Management Consultant, a certified IBM Big Data Engineer, certified IBM Cloud Developer and also an IBM certified Artificial Intelligence Analyst. Dr. David Mugo has been a lecturer for more than ten years and is currently lecturing at the University of Embu, Kenya. Additionally, he is the current Chairman, Department of Mathematics, Computing and Information Technology (MCIT), University of Embu.

Regina Mukhamedzyanova

Lehrstuhl für BWL, ins. Marketing, Heinrich-Heine-Universität Düsseldorf, Deutschland, regina.mukhamedzyanova@hhu.de

Prof. Dr. Andreas Mulch

Senckenberg Society for Nature Research, Leibniz Institution for Biodiversity and Earth System Research (SGN), Deutschland, andreas.mulch@senckenberg.de

Dr. Christoph Müller

PIK, Deutschland, cmueller@pik-potsdam.de

Mustafa Nasiri

Institute for Agricultural Policy and Market Research, Justus Liebig University Giessen, Afghanistan, mustafa.nasiri@agrar.uni-giessen.de

I am a PhD researcher at the JLU Giessen University and affiliated to the International PhD Program for Agricultural Economics, Bioeconomy and Rural Development (IPPAE) - funded by the DAAD. I am investigating food safety issues from the lens of consumers in the developing countries. More specifically I investigate consumers' perception of and preferences for food safety and the role of economics preferences (Risk and Time) in food safety demand in developing country context. I am also interested in studying the role of food safety research in achieving SDG goals, since food safety is an integral part of food security. And hence, crucial in achieving many of the SDG goals, particularly SDG1 (No hunger), SDG2 (No poverty), and SDG3 (Good health). My overall research is interest lie primarily in the area of development economics, agricultural development, food security, food economics, and behavioral & experimental economics.

Subhashree Nath

Leibniz Institute of Ecological Urban and Regional Development, Deutschland, s.nath@dlgs.ioer.de

Subhashree Nath holds a Bachelor of Architecture degree from IP University, New Delhi, India, and an MSc. in Integrated Urban Development & Design from Bauhaus University, Germany. She is currently working on her doctoral research which aims to enable community-based adaption of heat resilience through a decision support system. Her focus is on participatory action research to bridge the knowledge gap between climate experts and location action takers, especially in informal settlements. Her recent paper, published in MDPI Urban Sciences, 'Using Fuzzy Cognitive Maps to assess liveability in slum upgrading schemes: Case of Pune, India' is a proof-of-concept of a novel method of assessing resident-centric liveability.

Prof. Dr. Andreas Neef

Development Studies, School of Social Sciences, University of Auckland, Neuseeland, a.neef@auckland.ac.nz

Andreas Neef is Professor in Development Studies at the University of Auckland, New Zealand. He has researched and published in the areas of climate change adaptation, land and resource grabbing, development- and disaster-induced displacement, post-disaster response and recovery, participatory approaches to research and development, and community resilience. He is currently leading a large research consortium of more than 30 academics from 15 universities across five continents on "Climate-Induced Migration: Global Scope, Regional Impacts and National Policy Frameworks", funded by the Worldwide Universities Network (WUN). Together with Prof. Dr. Bjoern Volla, Philipps-Universität Marburg, he is also a principal investigator of the collaborative research project "International Climate Migration and Climatic Poverty Traps in the Asia-Pacific Region (INTERCEPT)", jointly funded by the Royal Society of New Zealand and the German Ministry of Education and Research. Prof Neef is currently co-editing the De Gruyter Handbook of "Climate Migration and Climate Mobility Justice.

Dr. Barbara Neumann

Institut für transformative Nachhaltigkeitsforschung / Institute for Advanced Sustainability Studies (IASS), Deutschland, barbara.neumann@iass-potsdam.de

Susanne Nicolai

Department of Geography and Geology, University of Greifswald, Deutschland, susanne.nicolai@uni-greifswald.de

Susanne Nicolai is a doctoral candidate at the Department of Geography and Geology at the University of Greifswald (Germany). Her main research interest lies in the relation of justice sensibility, moral emotions and climate just behavior.

Maike Nicolai

Climate Service Center Germany (GERICS) / Hereon, Deutschland, maike.nicolai@hereon.de

Maike Nicolai is a journalist and cultural scientist with a focus on language and communication as well as media and public relations. Based at Climate Service Center Germany (GERICS), she supports knowledge transfer and stakeholder integration at the Hamburg Cluster of Excellence CLICCS (Climate, Climatic Change, and Society). Previously, she was Communications Officer at the Intergovernmental Panel on Climate Change (IPCC) Working Group II and worked at the Dean's Office of the Faculty of Mathematics, Informatics and Natural Sciences (MIN) at Hamburg University and GEOMAR Helmholtz Centre for Ocean Research Kiel.

Dr. Ingeborg Niestroy

Science Platform Sustainability 2030 & IASS, Deutschland, inge.niestroy@ps4sd.eu

EU and Europe liaison @ Science Platform Sustainability 2030 and the Institute for Advanced Sustainability Studies (IASS), researcher in the TDTEC team - Transdisciplinary Theory, Evaluation and Culture, activist in the civil society alliance SDG Watch Europe, currently setting up one of the Horizon 2020 European Green Deal projects as a deep transdisciplinary one.

Milica Ninosevic

Fraunhofer IBP, Deutschland, milica.ninosevic@ibp.fraunhofer.de

I am a PhD student at Technical University of Munich, at the department for Building Physics.

The aim of my dissertation is to develop a new evaluation system that should provide a base for urban planners to optimize urban surfaces regarding aspects of sustainability concerning building

physics factors. The attention will be to establish which factors are of importance for optimization addressing not only the reduction in causes of climate change but also circumventing its consequences. Additionally, the objective is to classify the parameters of urban surfaces according to different sustainable demands and requirements, to generate them and to establish how impacts can be measured. Based on this, it is expected to develop an evaluation system for sustainability assessment to measure, compare and evaluate already existing and newly developed factors describing the building physics influence of urban surfaces."

Dr. Eduardo Noboa

BMW Foundation, Deutschland, eduardo.noboa@bmw-foundation.org

Eduardo Noboa holds a master's degree in sustainable resource management from the Technical University of Munich (TUM), obtained his MBA in Energy Management at the Universidad de Nebrija in Madrid and completed his PhD in Sustainability Transformation Governance from the Leuphana University in Lüneburg.

He performed functions such as Renewable Energy and Environment Coordinator at the Latin American Energy Organization (OLADE) and represented Latin America in the capacity of an Expert Member of the Technology Executive Committee at the United Nations Framework Convention on Climate Change (UNFCCC).

Over the last ten years, he has collaborated with public and private sector entities, academia and civil society on how to articulate multi-sectoral networks for participatory sustainable planning at city and national levels.

Prof. Dr. Ute Nöthlings

Department of Nutrition and Food Sciences, Bonn University, Deutschland, noethlings@uni-bonn.de

Prof. Dr. Ute Nöthlings is Professor for Nutritional Epidemiology at the Institute of Nutrition and Food Science of the University of Bonn, Scientific Director of the DONALD study and member of the Permanent Senate Commission on Food Safety of the DFG. Her research interests are methods of nutritional surveys in epidemiological studies, nutrition as a risk factor for chronic diseases and nutrition and lifestyle pattern analysis.

Dr. Steffi Ober

NABU, Deutschland, steffi.ober@nabu.de

Dr. Steffi Ober has a PhD in veterinary medicine and a Master's degree in Public Policy. Currently, she is the team leader for economy and research policy at NABU (Nature And Biodiversity Conservation Union), one of the largest and oldest environment associations in Germany. Furthermore, she is the initiator and co-speaker of a civic-involvement platform („Forschungswende“) that supports communication and knowledge transfer between civil society organizations and research institutions. The platform advocates for more participation and transparency in research- and innovation policy. Furthermore, the platform is committed and for a reframing of research policy to current social challenges like the climate change, the overexploitation of natural and fossil resources, or the global food crisis. She is guest lecturer at Eberswalde University for Sustainable Development

Dr. Vladimir Otrachshenko

Center for international Development and Environmental Research Justus Liebig Universität, Deutschland, vladimir.otrachshenko@zeu.uni-giessen.de

Vladimir Otrachshenko is a Senior Researcher at the Center for International Development and Environmental Research (ZEU), Justus Liebig University Giessen, Germany and a Research Fellow at Far Eastern Federal University, Russia. Previously, he worked as a Research Fellow at Nova School of Business and Economics and at the Fondazione Eni Enrico Mattei. He received his Ph.D. in Economics from Nova School of Business and Economics. His research interests include environmental and resource economics, climate change, health and population economics, quality of life, and tourism. His research has been published in such journals as Economic Inquiry, Environmental and Resource Economics, Ecological Economics, Land Economics, Journal of Comparative Economics, and Review of Income and Wealth.

Prof. Dr. Konrad Ott

Philosophy, University Kiel, Deutschland, ott@philsem.uni-kiel.de

Prof. Dr. Konrad Ott is Professor for Philosophy and Ethics of the Environment at the Christian-Albrechts-University in Kiel and head of the Gustav-Radbruch-Network for Philosophy and Ethics of the Environment and member of the DKN. His current research interest concerns a social-theoretical foundation of environmental ethics, sustainability.

Prof. Dr. Martina Padmanabhan

Lehrstuhl für Vergleichende Entwicklungs- und Kulturforschung, Universität Passau, Deutschland, martina.padmanabhan@uni-passau.de

MA Sustainability Research: Analyse! Valuate! Shape!

1. Analysing sustainable knowledge for reflexive competencies

Sustainability is complex and heterogeneous – As a scientific and social discourse as well as a social-ecological phenomenon. This calls for a reflective competence to actively shape sustainable practices. This requires knowledge on different voices in the sustainability discourse, their genealogy and their positionality. Social sciences and the humanities provide analytical and practical tools to deal in a constructive way with this heterogeneity. To shape the digital society in a sustainable fashion, we critically reflect on phenomena of digitalisation.

2. Valuating sustainable structures for contextualising competencies

Agency is always shaped by context – In modern societies coordinated action takes place in socially and materially prestructured contexts. Acting is embedded in institutions like the legal or tax systems, while organisations operate under specific social-ecological conditions like public works, services or water availability. Beyond these classical dimensions is digitalisation an increasingly relevant structural condition as material infrastructure and communication patterns are changing. Social and material contexts are framework conditions for organisations and equally shaped by them. Valuating sustainable structures requires to contextualise and reflect on criteria, values and trade-offs.

3. Shaping sustainable imaginaries for competencies to act

Transition is rethinking and enacting. Global challenges like negative external effects of economic processes result in climate change. This asks for a fundamental paradigm shift in companies and administrations towards responsible and sustainable management. A reflection of economic and management ethics and concepts like corporate social responsibility, degrowth and community economies highlight alternative imaginaries. Incorporating and critically analysing possibilities.

Natalie Paez

Technical University of Munich, Deutschland, natalie.paez@tum.de

Karsh Patel

TU Delft, Niederlande, karsh.patel15@gmail.com

Deborah Peters

Westfälische Wilhelms-Universität Münster, Deutschland, d_pete17@uni-muenster.de

Rebecca Peters

Environmental Systems Analysis, University of Tuebingen, Deutschland, rebecca.peters@uni-tuebingen.de

I work on the development of sustainable renewable energy in sub-Saharan Africa. My work focuses on wind, hydro, and solar energy using integrated impact assessments. I also study the potential and demand for renewable energy under changing climatic and socio-economic conditions.

Ann-Kathrin Petersen

GIZ, Deutschland, ann-kathrin.petersen@giz.de

Prof. Dr. Martin Petrick

Center for International Development and Environmental Research (ZEU), Justus Liebig University Giessen, Deutschland, martin.petrick@agrar.uni-giessen.de

I am a professor of agricultural, food and environmental policy at Justus Liebig University Giessen, Germany, and a member of the Centre for international Development and Environmental Research (ZEU) at Justus Liebig University. I am also a Visiting Researcher at the Leibniz-Institute of Agricultural Development in Transition Economies (IAMO) in Halle (Saale). In ZEU's DAAD-funded Exceed Center SDG Nexus Network I hold the post of a Principal Investigator (www.sdg-nexus.net).

Dr. Simone Pfeiffer

Georg-August-University Göttingen, Deutschland, spfeiff@gwdg.de

Coordinator at the Centre of Biodiversity and Sustainable Land Use (CBL) at the University of Göttingen

Dr. Olga Pilipczuk

Institute of Management, University of Szczecin, Polen, olga.pilipczuk@usz.edu.pl

Currently I am working at the University of Szczecin and conduct the research on large-scale event perception and cognition towards well-being and sustainable future.

Prof. Dr. Karen Pittel

Energy, Climate and Resources, ifo Institute and LMU Munich, Deutschland, pittel@ifo.de

Karen Pittel is Professor of Economics at Ludwig-Maximilians-Universität München and Director of the Center for Energy, Climate and Resources at the ifo Institute. Pittel is Co-Chair of the German Advisory Council on Global Change (WBGU) and Deputy Chair of the Steering Committee of the German Climate Protection Science Platform. She is also Deputy Chair of "Energy Systems of the Future" of the German Science Academies and a member of the Bavarian Climate Council. Karen Pittel's research interests are in the areas of energy, climate and resource economics with a focus on the transformation of energy systems and the long-term effectiveness and efficiency of climate and energy policies.

Prof. Dr. Julia Pongratz

Ludwig-Maximilians-Universität München, Deutschland, julia.pongratz@lmu.de

Stefan Pottmann

German Aerospace Center, Deutschland, pottmannstefan@gmail.com

Prof. Dr. Michael Pregernig

Chair of Sustainability Governance, University of Freiburg, Deutschland, michael.pregernig@envgov.uni-freiburg.de

Dr. Tanu Priya Uteng

Mobility and Organisation, Institute of Transport Economics, Norwegen, tpu@toi.no

Dr. Michael J. Puma

Center for Climate Systems Research, Columbia University, USA - Vereinigte Staaten, mjp38@columbia.edu

Dr. Puma is currently Director of the Center for Climate Systems Research, part of the Columbia Climate School at Columbia University, which is co-located with the NASA Goddard Institute for Space Studies. The center has over 30 scientists and staff working closely with NASA on earth science and climate impacts research. His research is focused on global food security, hydro-climatology, and human migration and has been funded by a variety of institutions including the National Science Foundation, NASA, the US Department of Defense, and the United Nations Development Programme. He is especially interested in understanding the sensitivity of complex socioeconomic systems to non-predictable extremes including megadroughts, volcanic eruptions, conflict, and both governmental and market failures. He is currently leading multiple efforts to understand food security around the world with a particular focus on international trade disruptions. Additionally, he is working to advance theories and quantitative modeling of human migration, especially as driven by food insecurity. He received his doctorate from Princeton University in civil and environmental engineering, has a master of international affairs degree from the School of International and Public Affairs at Columbia University, and a bachelor of science degree from Columbia University's School of Engineering and Applied Science.

Prof. Dr. Martin Quaas

Biodiversity Economics, German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Deutschland, martin.quaas@idiv.de

Prof. Dr. Martin Quaas is head of the research group Biodiversity Economics at the German Centre for Integrative Biodiversity Research (iDiv) Halle - Jena - Leipzig and Professor of Biodiversity Economics at the University of Leipzig. His research focus is on the interactions between economy and biodiversity.

Areeba Ilyas Qureshi

NEXUS@TUM, Technical University of Munich, Deutschland, areeba.qureshi@tum.de

Prof. Dr. Dierk Raabe

Max-Planck-Institut für Eisenforschung, Deutschland, d.raabe@mpie.de

Dierk Raabe studied music, metallurgy and metal physics. After his doctorate 1992 and habilitation 1997 at RWTH Aachen he worked at Carnegie Mellon University (Pittsburgh) and at the National High Magnet Field Lab (Tallahassee) and joined Max Planck Society as a director in 1999. His interests are in sustainable materials, sustainable metallurgy, hydrogen, alloy design and computational materials science. He received the Leibniz award and an ERC Advanced Grant.

Henriette Rau

Chair of Sustainability Science and Applied Geography, University of Greifswald, Deutschland, henriette.rau@uni-greifswald.de

Henriette Rau is a doctoral candidate at the Department of Geography and Geology at the University of Greifswald (Germany). Her research focuses on behavior change interventions, with special interests in health co-benefits as well as science communication.

Dr. Marvin Ravan

Institute of Spatial and Regional Planning, Stuttgart Universität, Deutschland, marvin.ravan@ireus.uni-stuttgart.de

- Disaster resilience and climate change adaptation in urban and regional planning
- Vulnerability and risk assessment methodologies and tools
- Disaster risk management for cultural heritage and historic cities
- Environmental/Heritage Impact Assessment (EIA/HIA) in urban and regional development

Prof. Dr. Markus Reichstein

Department of Biogeochemical Integration, Max-Planck-Institute for Biogeochemistry, Deutschland, reichstein-office@bgc-jena.mpg.de

Markus Reichstein is Director of the Biogeochemical Integration Department at the Max-Planck-Institute for Biogeochemistry, Professor for Global Geoecology at the FSU Jena, and founding Director at the Michael-Stifel-Center Jena for Data-driven and Simulation Science. His main research interests revolve around the response and feedback of ecosystems (vegetation and soils) to climatic variability with a Earth system perspective, considering coupled carbon, water and nutrient cycles. He is specifically interested in the interplay of climate extremes with ecosystem and societal resilience and addresses these topics via a model-data integration approach, combining data-driven machine learning with systems modelling of experimental, ground- and satellite-based observations.

Dr. Andrea Reimuth

Geography, LMU Munich, Deutschland, andrea.reimuth@lmu.de

I am a Post-Doc Researcher at LMU in the field of climate adaptation. I am focussing on the modeling of future urbanization trends and their impacts on risk to environmental hazards.

Prof. Dr. Ortwin Renn

Directorate, IASS, Deutschland, ortwin.renn@iass-potsdam.de

Ortwin Renn is scientific director at the International Institute for Advanced Sustainability Studies (IASS) in Potsdam (Germany) and professor for environmental sociology and technology assessment at the University of Stuttgart. He also directs the non-profit company DIALOGIK, a research institute for the investigation of communication and participation processes. Renn is Adjunct Professor for "Integrated Risk Analysis" at Stavanger University (Norway), Honorary Professor at the Technical University Munich and Affiliate Professor for "Risk Governance" at Beijing Normal University. His research interests include risk governance (analysis perception, communication), stakeholder and public involvement in environmental decision making, transformation processes in economics, politics and society and sustainable development.

Ortwin Renn has a doctoral degree in social psychology from the University of Cologne. His career includes teaching and research positions at Clark University (Worcester, USA), the Swiss Institute of Technology (Zuerich) and the Center of Technology Assessment (Stuttgart). His honours include the National Cross of Merit Order, honorary doctorates from the Swiss Institute of Technology and the Midsweden University, the "Outstanding Research Award" of the Society for Integrated Disaster and Risk Management (IDRIM) and the "Distinguished Achievement Award" of the Society for Risk Analysis (SRA). In 2019, he was awarded the Order of Merit from the State of Baden-Württemberg for special achievements in scientific policy advice. Renn has published more than 30 monographs and over 250

peer reviewed articles. His most prominent English publication is the book "Risk Governance. Coping with Uncertainty in a Complex World (London: Earthscan 2008)."

Prof. Dr. Britta Renner

Psychology, University of Konstanz, Deutschland, britta.renner@uni-konstanz.de

Prof. Dr. Britta Renner is Professor for Health Psychology at the Department of Psychology of the University of Konstanz, Vice chair of the Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection at the Federal Ministry of Food and Agriculture and the German Nutrition Society. Her work focuses on psychological determinants of eating and health behavior change.

Dr. Jun Rentschler

The World Bank, USA - Vereinigte Staaten, jrentschler@worldbank.org

Gaby Rerig

Scientific Affairs, DFG, Deutschland, gaby.rerig@dfg.de

Dr. Joachim Retzbach

FEaA | Senckenberg Gesellschaft für Naturforschung, Deutschland, joachim.retzbach@senckenberg.de

Dr. Fritz Reusswig

RD 2: Climate Resilience, Potsdam Institute for Climate Impact Research (PIK), Deutschland, fritz@pik-potsdam.de

Fritz Reusswig is a sociologist and philosopher by training (Goethe University Frankfurt), a senior researcher at the Potsdam Institute for Climate Impact Research (PIK), and is teaching environmental sociology at Berlin's Humboldt University. His foci of research include Social aspects of global environmental change, including biodiversity loss and climate change, the environmental impacts of modern lifestyles and consumption patterns, climate change, mitigation and adaptation in urban areas, and city development under conditions of climate change. More recently, he has been leading research projects on the impact of populism on the energy transition and public climate discourse.

Cristobal Reveco

GERICS, Deutschland, cristobal.reveco@hereon.de

Researcher on the use of climate information in cities.

Maryna Reznichenko

Sustainable Management, MBA Candidate, Deutschland, marrja@ukr.net

I am current student of MBA program in CBS Cologne with the specialization in Sustainable Management, developing myself in the topic of sustainable supply chain as an unable for the current business model to deliver efficient operations and transparent sourcing with the evident advocacy for the final consumer.

Dr. Maraja Riechers

Faculty of Sustainability, Leuphana University Lüneburg, Deutschland, Riechers@leuphana.de

I am a member of the DKN Working group "Anticipating and transforming future coasts". My background is social science and I have been working on topics such as: Leverage Points; Social-ecological systems; Sustainability science; human-nature connectedness; human-wildlife conflicts. My methodological approach is diverse and covers quantitative and qualitative social research methods as well as participatory and transdisciplinary processes.

Dr. Sarah Robinson

Center for International Development and Environmental Research (ZEU), Justus Liebig University Giessen, Frankreich, sarah.robinson09@gmail.com

My research interests focus on livestock and rangeland systems, specialising in the former Soviet Union. I am currently a visiting researcher at the Interdisciplinary Centre for Conservation Science at Oxford University and a member of the SDGnexus Network at Justus Liebig University, Giessen

Prof. Dr. Johan Rockström

Directorate, Potsdam Institute for Climate Impact Research, Deutschland, director@pik-potsdam.de

Johan Rockström is Director of the Potsdam Institute for Climate Impact Research and Professor in Earth System Science at the University of Potsdam. He is an internationally recognized scientist on global sustainability issues and led the development of the Planetary Boundaries framework for

human development in the current era of rapid global change. Professor Rockström is a leading scientist on global water resources, with more than 25 years experience in applied water research in tropical regions, and more than 150 research publications in fields ranging from applied land and water management to global sustainability. He is i.a. member of European Commission expert group: Mission Board for adaptation to climate change including societal transformation, chair of the Earth Commission, Chief Scientist of Conservation International, and elected member of the German Academy of Sciences Leopoldina.

Lena Rölfer

Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, lana.roelfer@hereon.de

Lena Rölfer is a PhD Candidate at Leuphana University Lüneburg, Germany, and at the Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon. She has a background in Environmental Science and Marine Ecology and is particularly interested in inter- and transdisciplinary approaches for coastal social-ecological systems that advance sustainable and climate resilient planning practices.

Prof. Dr. Mark Rounsevell

IMK-IFU, Karlsruhe Institute of Technology, Deutschland, mark.rounsevell@kit.edu

My research focuses on the human dimensions of environmental change, including the analysis of socio-ecological systems, land use and land cover change and the impacts of climate change on natural resources. I develop and apply social simulation models to undertake experiments on human-environment interactions from local to global scale levels, both in the present and for future environmental change scenarios.

I am co-chair of the Future Earth AIMES project (Analysis, Integration and Modelling of the Earth System), and was co-chair of the IPBES regional assessment for Europe & Central Asia. I was also a lead author to the 2nd, 3rd, 4th and 5th IPCC Assessment Reports (Working Group II), and the IPCC Special Report on Climate Change & Land.

I coordinated the European Commission funded OPERAs project (OPerationalizing Ecosystem Research Applications, www.operas-project.eu) and contributed to the LUC4C project (Land-use change: assessing the net climate forcing, and options for climate change mitigation and adaptation, luc4c.eu) and IMPRESSIONS project (Impacts and risks from high-end scenarios: Strategies for innovative solutions, www.impressions-project.eu)."

Antje Sachs

Paritätisches Bildungswerk Brandenburg, Deutschland, antje.sachs@pbw-brandenburg.de

Education for sustainable development, transsectoral cooperation.

Andreas Safron

Österreich, andreas.safron@gmail.com

Antonia Samakovlis

TU Dortmund, Deutschland, antonia.samakovlis@tu-dortmund.de

Prof. Dr. Sannasi Annamalaisamy Sannasiraj

Ocean Engineering, Indian Institute of Technology Madras, Indien, sasraj@iitm.ac.in

Dr. S. A. SANNASIRAJ is the Professor of the Department of Ocean Engineering, IITMadras. His area of specialization includes breaking waves, wind-wave modeling, numerical simulation of nonlinear wave-structure interaction and, coastal erosion and protection. He has supervised 14 phd scholars in the above specialization. Since 2003, he has completed 14 sponsored research projects. At his credit, he has 74 peer-reviewed journal publication and participated over 100 technical conferences. He has successfully executed more than 250 industrial projects of nature port and harbours, intake/ outfall systems, design of coastal protection structures and wind-wave prediction. He was awarded Endeavour India Executive Award from Australian Government during 2007. Further, he has organized about 20 short Courses and Workshops for Researchers, Field Engineers, Faculties & Senior Managers. He has been carrying out the DST sponsored project on Climate change impact on coastal infrastructures and its adaptation strategies through numerical, physical modelling and field monitoring tools. Further, he is the lead Indian coordinator of DAAD sponsored Global water and climate adaptation centre. At present, he is the Chair of Ocean Engineering Society, IEEE Madras section and, the executive council member of APD-IAHR.

Tieza Santos

Dresden Leibniz Graduate School, Deutschland, t.santos@dlgs.ioer.de

Tieza Santos is currently a Ph.D. candidate at the Dresden Leibniz Graduate School. Her research interests include systems transformation, sustainable and resilient urban transformation in the Global South, resource governance of water-food-energy nexus, and climate change.

Dr. Jorge Saturno

Physikalisch-Technische Bundesanstalt, Deutschland, jorge.saturno@ptb.de

Experience in aerosol measurements, air quality, black carbon. Currently working on aerosol metrology. Project coordinator for EMPIR MetroPEMS - <https://metropems.ptb.de>

Prof. Dr. Jochen Schanze

Leibniz Institute of Ecological Urban and Regional Development (IOER) + Technische Universität Dresden, Deutschland, j.schanze@ioer.de

Jochen Schanze is head of the Knowledge Integration Hub of the Leibniz Institute of Ecological Urban and Regional Development (IOER) and Professor of Environmental Development and Risk Management at the Technische Universität Dresden. He is internationally renowned as expert in the environmental sciences bridging natural and social science concepts and methods also in the context of environmental governance. Amongst others functions, he is vice chairman of the board PRISMA – Centre for Sustainability Assessment and Policy.

Professor Schanze's field ranges from coupled modelling of human-environmental systems on various spatio-temporal scales to the study of resilience capacity of people considering the Global North and South. He was one of the founding editors of the Journal of Flood Risk Management (Wiley) and the Journal Climate Services (Elsevier) and served as reviewer to international and national bodies such as the World Health Organisation, European Commission, German Wissenschaftsrat, German Science Foundation as well as the German Federal Parliament.

As spokesperson of the Leibniz Research Network "Integrated Earth System Research", he is one of the conveners of the Session "Sustainability from an Integrated Earth System Research View" (SSI 6) at the German Sustainability Science Summit 08 – 09 July 2021.

Dr. Jonas Schaper

Universität Tübingen, Deutschland, jonas.schaper@uni-tuebingen.de

Dr. Martin G. Scharffenberg

German Committee Future Earth / DKN, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, martin.scharffenberg@hereon.de

Dr. Martin Scharffenberg is an earth system scientist and since April 2021 works as scientific officer for the German Committee Future Earth (DKN). Martin holds a PhD in physical oceanography from the Universität Hamburg, has studied oceanography and meteorology at the Universität Kiel (GEOMAR), as well as at UC San Diego (SIO, USA) and was involved in several interdisciplinary research cruises. His passion is in climate research where he has worked at the MIT (EAPS, USA), as well as at the Universität Hamburg in international projects, studying ocean currents and sea level changes. Martin is also an experienced project coordinator and manager, most recently for the Center for Sustainable Research Data Management at the Universität Hamburg as part of the Hamburg Open Science Programme, as well as for the project Underway Data for the German Research Fleet Coordination Center at the Universität Hamburg. His support for the German Committee Future Earth enables him to focus intensely on topics related to sustainable earth system research and sustainable science in general.

Selina Scheer

Biogeography, Global Change Ecology, University of Bayreuth, Deutschland, Selina.Scheer@uni-bayreuth.de

I am currently studying in the international Master Program "Global Change Ecology" as well as in the additional study of German Environmental Law at the University of Bayreuth (Germany). As an interdisciplinary environmental student I am particularly interested in the intersection of natural science, the components and processes of the environment and social science as international climate policy, globalization of the environment, climate diplomacy as well as global and German environmental and climate law. As part of the Klimawald Bayreuth, I contribute to local environmental protection with planting trees for a resilient and diverse forest in the future regarding climate change.

Prof. Dr. Jürgen Scheffran

Institute of Geography, University of Hamburg, Deutschland, juergen.scheffran@uni-hamburg.de

Jürgen Scheffran is a professor of Integrative Geography and Chair of the Research Group Climate Change and Security (CLISEC) in the CLICCS Cluster of Excellence and the Center for Earth System Research and Sustainability at University of Hamburg. He works on security, migration and conflict associated with climate change. For the physicist-by-education further key areas of research include renewable energy and sustainable land use, human-nature interactions in the Anthropocene and modeling of complex systems, technology assessment, arms control and international security. He has been appointed to the German commission on refugees and is member of the DKN Working Group HERMITIAN.

Alina Scheitza

FZ RISK, UniBw M, Deutschland, alina.scheitza@unibw.de

Prof. Dr. Peter Schlosser

Julie Ann Wrigley Global Futures Laboratory, Arizona State University, USA - Vereinigte Staaten, schlosser@asu.edu

Peter Schlosser is the Vice President and Vice Provost for Global Futures and the University Global Futures Professor at Arizona State University. He leads the Julie Ann Wrigley Global Futures Laboratory and is the Director of the Global Institute of Sustainability and Innovation. He holds joint appointments in the School of Sustainability in the College of Global Futures, the School of Earth and Space Exploration in the College of Liberal Arts and Sciences, and the School of Sustainable Engineering and the Built Environment in the Ira A. Fulton Schools of Engineering. Schlosser's research focuses on the hydrosphere, primarily the circulation of water in the oceans and groundwater including studies of problems caused by human impact. He is Co-Chair of the Earth League, Chair of the Steering Group of the International Study of Arctic Change, and member of the Boards of the Sustaining Arctic Observing Network and The Sustainability Consortium. He is a member of the German National Academy of Science, and Fellow of the American Geophysical Union, the American Association for the Advancement of Science, and the Explorers Club. He has served on numerous national and international science steering and advisory committees.

Anke Schlünsen-Rico

Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Germany, anke.schlunsen-rico@hereon.de

Anke Schlünsen-Rico joined GERICS in 2019 as an assistant for the Helmholtz Institute for Climate Service Science (HICSS) and the Coordination Office for Regional Activities (CORA) of the WCRP. She has a Master's degree in Romance Studies and Science of Arts and as such, always aimed to combine art and language in order to convey socially relevant topics in a holistically sustainable way. Responsible for the new GERICS project Climate Service and Art since end of 2021, she draws on her background as a cultural manager and curator. Among others, she realized exhibitions for the GIZ at the UN-Habitat III in Quito, the NGO fern at the European Parliament in Brussels and Greenpeace International at the COP24 in Katowice.

Lisa-Marie Schmidbauer

School of Sustainability CAU, Deutschland, lisa-marie.schmidbauer@posteo.de

Marie Schmidbauer is currently a Master Student in Sustainability, Society and the Environment at Kiel University. Their research interest is mainly focusing on food security and sustainable agriculture. While in the past they have been involved with feminist geographies and are currently working for a mentoring program for female PhDs.

Dr. Falk Schmidt

German Science Platform Sustainability 2030, Deutschland, falk.schmidt@iass-potsdam.de

Prof. Dr. Uwe Schneidewind

Stadt Wuppertal, Deutschland, oberbuergermeister@stadt.wuppertal.de

Uwe Schneidewind ist seit November 2020 Oberbürgermeister der Stadt Wuppertal. Von 2010-2020 war er Präsident und wissenschaftlicher Geschäftsführer des Wuppertal Instituts und Professor für „Innovationsmanagement und Nachhaltigkeit“ am Fachbereich Wirtschaftswissenschaft der Bergischen Universität Wuppertal. Zuvor ist er zunächst Dekan und anschließend Präsident der Universität Oldenburg gewesen. Seine Promotion und Habilitation erfolgte an der Universität St. Gallen. Neben vergangener Mitgliedschaften u. a. im Wissenschaftlichen Beirat der Bundesregierung Globale Umweltveränderungen (WBGU) und dem Hochschulrat der Universität Kassel, ist er Mitglied

des Club of Rome und Vorsitzender des Aufsichtsrates der Universität Witten/Herdecke sowie der Kammer für Nachhaltige Entwicklung der Evangelischen Kirche in Deutschland (EKD).

Claas Schneiderheinze

PhD cand., Kiel Institute for the World Economy, Kiel, Germany, claas.schneiderheinze@ifw-kiel.de

Dr. Antje Schnoor

Strategy and Policy, Deutsche Forschungsgemeinschaft (DFG), Deutschland, Antje.Schnoor@dfg.de

Prof. Dr. Imme Scholz

German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Deutschland, imme.scholz@die-gdi.de

Imme Scholz is Deputy Director of the German Development Institute (DIE) and Honorary Professor of the Centre for Ethics and Responsibility at Hochschule Bonn-Rhein-Sieg. Imme studied sociology at the Freie Universität Berlin. She joined DIE as a researcher in 1992 and worked on trade regulations for environmental requirements to products and production processes. With her PhD she tried to understand the limited effect of certification schemes for sustainable forestry on the sustainability of the timber trade in the Brazilian Amazon region. From 1999-2002 she was an environmental policy advisor in the Amazon region of Brazil on behalf of German development cooperation, as part of a large pilot programme for the protection of Brazilian rainforests. On her return to DIE she took over the newly founded environmental department where she created a research group on adaptation to climate change. In 2009 she was appointed as deputy director of the Institute. Imme is very active at the science-policy interface, within the T20, the European Think Tanks Group and on sustainability policy. She is co-chair of the UN Independent Group of Scientists which is tasked with the Global Sustainable Development Report 2023. She is also deputy chair of the German Council for Sustainable Development and a member of the German Committee Future Earth (DKN Future Earth).

Dr. Anna-Mara Schön

Hochschule Fulda, Deutschland, anna-mara.schoen@w.hs-fulda.de

While my dissertation topic, which I finished in 2020, was related to self-reliance of refugees in camps with a special focus on power relations and women, I am now working on short regional food supply chains in Germany, their challenges and opportunities, and how they must function to compete on the market. Though these topics differ very much, they are both linked to the question of how we can achieve the SDGs, here as well as on a global scale.

Dr. Sibylle Schroer

Ecology, Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Deutschland, Schroer@igb-berlin.de

Dr. Sibylle Schroer is scientific coordinator for research about biodiversity in freshwater and light pollution at Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB). Her interests are the protection of insects, stakeholder networking, involving citizens in science, and increasing awareness of the general public about vulnerable ecosystems and the specific roles of insects. She holds a doctorate in Agricultural science and has developed strategies for insect protection at the University of Florida, the German Federal Research Centre for Cultivated Plants, and the CAU in Kiel. Since 2010, she is coordinating the working group "Light Pollution and Ecophysiology" at the IGB communicating about light pollution between academic fields, to local authorities, policymakers, the lighting business, and the general public. Among other projects, she coordinated the COST-Action "Loss of the Night Network" (ES1204, 2012-16) and established a stakeholder network about the effects of artificial light at night on the environment and society. She has contributed to the development of guidelines for sustainable and environmentally friendly outdoor lighting. In her current project, "Species protection through environmental friendly lighting" (<https://www.tatort-strassenbeleuchtung.de/en/>), she is transferring this knowledge into practice in four German communities. From 2021 onwards she will expand her services to freshwater biodiversity research. Her tasks are to communicate between stakeholders, recruit third-party funding and network.

Sebastian Schuhmann

Chair of Economic Policy, Friedrich-Schiller-University Jena, Deutschland, sebastian.schuhmann@uni-jena.de

Dr. Alexander Schulan

Philosophy, CAU Kiel, Deutschland, schulan@philsem.uni-kiel.de

Prof. Dr. Nynke Schulp

Institute for Environmental Studies, Environmental Geography Group, Vrije Universiteit Amsterdam, Nederlande, nynke.schulp@vu.nl

Ralf Schulte

Department of Nature Conservation and Environmental Policy, NABU e.V., Berlin, Germany, Ralf.Schulte@NABU.de

Dr. Sabrina Schulz

Sustainable Development Solutions Network (SDSN) Germany, Deutschland, sabrina.schulz@sdsngermany.de

Dr. Christoph Schünemann

Leibniz Institut für ökologische Raumentwicklung e.V., Deutschland, c.schuenemann@ioer.de

Prof. Dr. Ulrich Schurr

IBG-2 Plant Sciences, Forschungszentrum Jülich, Deutschland, u.schurr@fz-juelich.de

Uli Schurr is a plant physiologist and heads the Institute of Plant Sciences at Forschungszentrum Jülich (Research Center Jülich - IBG: 2 Plant Sciences). The institute is a world leader in plant phenotyping, developing quantitative methods for analyzing plant architecture and function in controlled environmental conditions and in the field, and translating these methods with partners into practical applications in horticulture, agriculture and breeding. He initiated and coordinates the German Plant Phenotyping Network DPPN www.dppn.de; is the chairman of the ESFRI project EMPHASIS <https://emphasis.plant-phenotyping.eu/> and president of the global International Plant Phenotyping Network (IPPN) <https://www.plant-phenotyping.org/>. Uli Schurr has been leading the Bioeconomy Science Center (www.biosc.de), the largest European research network on sustainable bioeconomy based on the cooperation of the Universities of Bonn, Aachen, Düsseldorf and the Research Center Jülich, for 10 years. He initiated the BioeconomyREVIEW initiative (www.biooekonomiereview.de) to establish a model region for sustainable bioeconomy in the context of structural change in the coal-phase out in one of the coal-phase out regions in Germany. Uli Schurr is member of the International Advisory Council for Global Bioeconomy (IACGB).

Prof. Dr. Holger Schüttrumpf

Institute of Hydraulic Engineering and Water Resources Management, RWTH Aachen University (RWTH), Aachen, Germany

Christian Schwägerl

RiffReporter eG, Deutschland, christian.schwaegerl@riffreporter.de

Christian Schwägerl is a journalist in the fields of environment, science and politics. He worked as a correspondent for the Berliner Zeitung (1997-2001), the Frankfurter Allgemeine Zeitung (2001-2008) and SPIEGEL (2008-2012) and has been working freelance for media such as GEO, FAZ and Yale E360 since 2013. His books include "Menschenzeit" on the Anthropocene, "11 threatening wars" on global conflict risks (with A. Rinke) and "Analoge Revolution" on the future of digital technologies. Since 2014, he has led the "Masterclass Science Journalism" funded by the Robert Bosch Stiftung. Schwägerl has a Master of Science degree in biology. He is co-founder and board member of RiffReporter. He has received numerous awards for his journalistic work, including the Georg von Holtzbrinck Prize for Science Journalism (2007) and the Otto Brenner Prize for Critical Journalism (2020, with J. Budde).

Dr. Clemens Schwingshackl

LMU Munich, Deutschland, clemens.schwingshackl@geographie.uni-muenchen.de

In my recent work I have focused on quantifying the future impacts of heat stress on human health based on physical climate models. In this context, adaptation plays an important role as it can change very strongly the extent to which hazards related to high heat threaten human health. Including social and political dynamics is thus crucial to project the future risk from heat stress.

In my current position I am analysing how vegetation and land use affect the carbon cycle, which has important implications for nature-based solutions to mitigate climate change. The competition for land use (e.g., usage for agriculture, storage for carbon, habitat for vegetation and animals,...) requires integrating the social and political dimension for developing sustainable ways of land use.

Raghid Shehayeb

DLGS/IOER, Deutschland, r.shehayeb@dlgs.ioer.de

My PhD research is focused on the risk assessment of drought and heat hazards on urban green and blue spaces, considering the sustainability aspects in addition to the hazard, vulnerability, and exposure components of risk.

Dr. Taukondjo Shikongo

Nagoya Protocol Unit, Convention on Biological Diversity Canada, tauko.shikongo@cbd.int

Prof. Dr. Bernd Siebenhüner

Wirtschafts- und Rechtswissenschaften, Carl von Ossietzky Universität Oldenburg, Deutschland, bernd.siebenhuener@uol.de

Bernd Siebenhüner is professor for ecological economics at Carl von Ossietzky University of Oldenburg, Germany. He held positions at the Potsdam Institute for Climate Impact Research (PIK), Harvard University, and the Nelson Mandela University, South Africa. As member of the Scientific Steering Committee of the Earth System Governance Project he contributed to its first Science Plan. He has lead and co-lead numerous transdisciplinary research projects funded by the European Union, the German Research Foundation (DFG), the German Ministry for Education and Research (BMBF), the Volkswagen-Foundation, or the German Academic Exchange Service. In his research, he focusses on social learning, international organizations, climate adaptation, and biodiversity governance, and the role of science in global environmental governance. Book publications include *Adaptiveness – Changing Earth System Governance* (Eds. With Riyanti Djalante, CUP, 2021), *Long-Term Policies: Governing Socio-Ecological Change* (Eds. With Marlen Arnold, Klaus Eisenack, Klaus Jacob, Routledge, 2013), *Managers of Global Change. Explaining the Influence of International Environmental Bureaucracies* (Eds. With Frank Biermann, MIT Press, 2009).

Dr. Michael Siebert

GIZ, Deutschland, michael.siebert@giz.de

Dr. Jana Sillmann

CICERO, Norwegen, jana.sillmann@cicero.oslo.no

Dr. Jana Sillmann is Research Director at CICERO (Center for International Climate Research Oslo) and leads the Climate Impacts group. She has a PhD degree in Earth System Sciences and is an internationally recognized expert in the field of climate extremes and development of indicators for impact and risk assessment. She is a lead author of the 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), co-chair of the Development Team of the Knowledge Action Network on Emergent Risks and Extreme Events (Risk KAN), co-lead of the WCRP Grand Challenge on Weather and Climate Extremes, and a Steering Committee member of the IRDR.

André Silva

Ecology and Genetics, Uppsala University, Schweden, pintodasilva.a@gmail.com

Working on effects of environmental change and spatial strategies for biodiversity conservation in South Asia.

Dr. Manjeet Singh

R&D, Roshni Biotech Inc, Kanada, drmsinghmore@gmail.com

Prof. Dr. Simron Singh

Faculty of Environment, University of Waterloo, Kanada, simron.singh@uwaterloo.ca

Dr. Simron Singh is a Professor at the University of Waterloo, Canada. His research aims to inform science and policy on ways small island economies can achieve resource and infrastructure security to meet socio-economic goals while building system resilience against the impacts of climate change. He is founder and lead of the research program “Metabolism of Islands”, Chairs the inaugural board of “Island Industrial Ecology”, and leads the working group “Metabolic Risk on Islands” within the Emergent Risks and Extreme Events (or Risk-KAN), a joint initiative of Future Earth, Integrated Research on Disaster Risk (IRDR), the World Climate Research Programme (WCRP), and the World Weather Research Programme (WWRP).

Shabani Soah

Zoology and Wildlife Conservation, University of Dar es salaam, Tanzania, soahshabani@yahoo.com

I am Shabani a biodiversity conservationist and Botanist from Tanzania. I have over 7 working experience with communities living adjacent to protected areas as outreach program Officer particularly the coastal areas of Tanzania.

I am among team members of project entitled Building Urban Community Network's for sustainable cities-Africa abbreviated UCOMNETSUS. I am glad to be joined to this wonderful forum of which I believe will mold me to be a good researcher and be helpful to my country Tanzania and the world as well.

Sabine Soeder

CoCreativeFlow, Deutschland, sabine@cocreativeflow.com

Graphic Recorder

Prof. Dr. William Solecki

Geography and Environmental Science, City University of New York - Hunter College, USA - Vereinigte Staaten, wsolecki@hunter.cuny.edu

William Solecki's research focuses on urban environmental change, resilience, and environmental transitions generally, and urban climate vulnerability and adaptation specifically.

Linda Söller

Institute of Physical Geography, Goethe-University Frankfurt, Deutschland, Soeller@geo.uni-frankfurt.de

I am a PhD candidate as part of a transdisciplinary BMBF-funded research project which investigates groundwater management challenges across Europe against the background of the institutional framework of the Water Framework Directive (regulate: <http://regulate-project.eu/>). In an interdisciplinary research approach, the disciplines aquatic ecology, hydrology (that's my position), political ecology and social anthropology will collectively study several case studies in Europe to support sustainable groundwater management. In collaboration with local stakeholders, we aim to develop methods and solutions to groundwater problems such as pollution or over-extraction, considering power inequalities and everyday groundwater use practices – neither of which the WFD addresses so far. Due to my disciplinary background in global water modelling, I realized that decision-making processes under uncertainties are a key challenge in groundwater management. For instance, uncertainties exist not only pertaining to the effects of climate change on groundwater resources but also related to the development of future societal water demand. These factors of uncertainty are not going to decrease in the near future. Therefore, in the scope of my PhD research, my aim is to investigate decision-making processes under uncertainties using participatory modeling techniques in a comparative research setting for cases in Germany (Saxony-Anhalt) and the Balkans (Adriatic Coast).

Dr. Sebastian Sonntag

German Committee Future Earth / DKN, Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon, Deutschland, sebastian.sonntag@hereon.de

Dr. Sebastian Sonntag has been the Executive Director of the DKN since November 2019. As head of the DKN secretariat, he is concerned with the strategic development of the research and research landscape in the context of global change. Previously, Sebastian Sonntag worked at GERICS as scientific coordinator of the Earth League and at the Max Planck Institute for Meteorology as a scientist in the field of climate science. Sebastian Sonntag studied physics at the Albert-Ludwigs-University Freiburg and received his PhD in geosciences from the University of Hamburg. Sebastian Sonntag has a special interest in the targeted communication of scientific content to different groups as well as in the interdisciplinary networking of science.

Dr. Joachim H. Spangenberg

SERI Germany, Deutschland, joachim.spangenberg@seri.de

After his retirement from full time remunerated work in March 2021, Dr. Joachim H. Spangenberg is volunteering as vice chair of the Sustainable Europe Research Institute SERI Germany in Cologne and as non-executive director of the Environment Europe Stichting, Amsterdam. With a PhD in economics, but an academic background biology and ecology, he is an inter- and transdisciplinary researcher by education and dedication. He works on sustainable development strategies, sustainable consumption, biodiversity conservation by pressure reduction, ecosystem services and their valuation incl. limits of economic growth.

Joachim is a member of the Scientific Committee of the European Environment Agency, Copenhagen, and a former member of the OECD Green Growth and Sustainable Development Task Force and the European Commission High Level Economists' Expert Group on Resource Efficiency. He serves on the executive committee of the International Network of Engineers and Scientists for Global Responsibility INES, and in the Steering Committee of the Ecosystem Services Partnership ESP.

His publication record includes about than 600 publications, thereof about 100 in international peer reviewed journals, and 15 books. In Google Scholar, his total citations surpass 11,000, and 1,000 p.a. since 2018, contributing to a h-index of 51. For presentations, publications, etc. please visit https://www.researchgate.net/profile/Joachim_Spangenberg or <http://seri.academia.edu/JoachimHSpangenberg>.

Dr. Philipp Sprenger

BMBF Research Initiative for the Conservation of Biodiversity (FEa), Senckenberg Research Institute, Deutschland, philipp.sprenger@senckenberg.de

Dr. Gudrun Sproesser

Psychology, University of Konstanz, Deutschland, gudrun.sproesser@uni-konstanz.de

I am interested in how people can be supported to engage in more sustainable behaviors. Currently, I am examining how more sustainable meals are perceived and evaluated.

Prof. Dr. Jürgen Stamm

Civil Engineering, Technische Universität Dresden, Deutschland, juergen.stamm@tu-dresden.de
ORCID iD 0000-0002-3729-0166

After the dissertation in groundwater hydraulics and remediation of CHC at Karlsruher Institute of Technology (KIT) I changed to Federal Waterways Engineering and Research Institute (BAW) in Karlsruhe, Germany, as Head of Department "Hydraulic Engineering in Inland Areas", with a focus on navigational issues. Challenging projects were linked to hydraulic structures (lock and dams, weirs, river training measures like groins and longitudinal dikes) under consideration of flood risk management, fluvial sediment management and optimization of ship navigation. Last not least the relevance of investigations of the impact of navigation onto the ecological conditions increased and yield to nature-based solutions for river bank stabilization and the construction of fish paths. In 2008, I was appointed full professor of hydraulic engineering at the Dresden University of Technology (TUD) and have been director of IWD.

This was followed by project work, e.g. on optimising water reservoir management strategies, hydraulic structural design, dike protection by means of gel injection, influence of riparian vegetation on hydromorphological conditions (In_StröHmunG), urban flood risk management (FloRiCiMo), habitat modelling, optimisation of land use with regard to the influence on water bodies (OLGA), ethohydraulic issues for the optimisation of fishways, fish tracking experiments in the laboratory for the development of a robotic fish (RETERO), nature conservation assessment of the use of open-cast mining lakes, studies on recreational navigation, investigation of the slope stability of lakes under wind-induced wave impact, etc. I am member of DIN, DWA, DTK, HTG, PIANC and FTBGU.

Since 2021, the establishment of the Global Water and Climate Adaptation Centre as a joint project with RWTH Aachen University, IITM Chennai, AIT Bangkok and the UNU-FLORES Institute has been a central concern, focusing on water security in the global south in climate change. "

Dr. Wolfgang Stefinger

Member of German Parliament & Committees on Education, Research and Technology Assessment, and on Economic Cooperation and Development, Germany

Lennart Stein

Chair of Sustainability Science and Applied Geography, Universität Greifswald, Deutschland, lennart.stein@hotmail.de

Lennart Stein, B.Sc., Sustainable Geographer, Research Assistant, Chair of Sustainability Science and Applied Geography, University of Greifswald.

Nils Stockmann

Institute of Political Science, University of Münster, Deutschland, nils.stockmann@uni-muenster.de

Prof. Dr. Susanne Stoll-Kleemann

Department of Geography and Geology, University of Greifswald, Deutschland,
stollkle@uni-greifswald.de

Susanne Stoll-Kleemann is a University Professor and currently works as Chair of Sustainability Science and Applied Geography, University of Greifswald (Germany). Susanne does research on conditions for a real transformation to sustainability and individual and collective behaviour change.

Dr. Hanna Straß-Senol

RCC, LMU München, Deutschland, hanna.strass-senol@rcc.lmu.de

Dr. Saravanan Subramanian

Environmental Governance, German Development Institute, Deutschland,
saravanan.subramanian@die-gdi.de

I am a political and medical geographer, specializing in the institutions, processes, and mechanisms through which societies, governments, organizations, and individuals shape and reshape water management and its relation to energy, food, and public health.

Kadyrbek Sultakeev

Agricultural, food and environmental policy, Justus Liebig University Giessen, Kirgisistan,
Kadyrbek.Sultakeev@agrar.uni-giessen.de

Kadyrbek Sultakeev is currently a PhD candidate in the SUSADICA project at Justus Liebig University Giessen, Germany. Prior to that, he worked for nine years as a research assistant at the Kyrgyz-Turkish Manas University. In addition, he also had one-year research experience in the Institute of Development and Agricultural Economics at the Leibniz Hannover University (Germany) funded by DAAD Research Grant. His research interests are animal husbandry, poverty, changes in household behavior and weather shocks.

Dr. Lucy Szaboova

Geography, University of Exeter, Vereinigtes Königreich, l.szaboova@exeter.ac.uk

Lucy Szaboova is a Research Fellow at the University of Exeter. Her research interests centre around issues of resilience, sustainability and wellbeing in the context of global change processes. Her recent research explores the lived experiences of migration in the context of climate change, including issues of urban planning and governance, livelihoods and multidimensional wellbeing outcomes.

Dr. Julian Taffner

BMBF Research Initiative for the Conservation of Biodiversity (FEaA), Senckenberg Research Institute, Deutschland, julian.taffner@senckenberg.de

Kimberly Tatum

HafenCity Universität Hamburg, Deutschland, kimberly.tatum@hcu-hamburg.de

Prof. Dr. Daniela Thrän

Bioenergie, Helmholtz-Zentrum für Umweltforschung GmbH – UFZ, Deutschland,
daniela.thraen@ufz.de

Prof. Dr.-Ing. Daniela Thrän studied Environmental Engineering at the University of Berlin and received her doctorate at the Bauhaus University Weimar. As a scientist, she is researching how bioenergy and the bioeconomy can be developed in the most sustainable way. Since 2008 she has been head of the "Bioenergy Systems" department at the DBFZ in Leipzig. She has headed the Department of Bioenergy at the Helmholtz Centre for Environmental Research (UFZ) in Leipzig since 2011 and has held the chair of Bioenergy Systems at the University of Leipzig since then. She contributes her expertise on the sustainable use and production of biomass to numerous committees and is Co-Chairwoman of the German Bioeconomy Council. Professor Thrän leads research projects in the field of bioenergy, bioeconomics and the spatial impact of renewable energies and has developed the "Smart Bioenergy" approach, considering technologies and concepts needed for a more flexible bioenergy provision in future energy systems and has just published the book "Das System Bioökonomie".

Prof. Dr. Marzia Traverso

Institute of Sustainability in Civil Engineering, RWTH University Aachen, Deutschland, marzia.traverso@inab.rwth-aachen.de

Prof. Marzia Traverso, full professor and head of the Institute of Sustainability in Civil Engineering at RWTH Aachen University since 1st June 2017. PhD of Environmental Technical Physics of University of Palermo and environmental engineer, working in the field of Life Cycle Assessment and sustainability performance of building and transport sector and strategic environmental assessment to the transportation urban systems. From August 2008 to October 2011, she was post doc, scientific assistant and lecturer at the Chair of Sustainability Engineering of Technische Universität Berlin. Main research topics were the Life Cycle Sustainability Assessment and Social Life Cycle Assessment. From Nov. 2011 to March 2016 she was project manager at the research and innovation centre of BMW Group. She was responsible for the sustainability performance and LCA of several cars, such as: BMW i3, BMW i8, 7series. From May 2016 to April 2017 she was Scientific Officer at European Commission, JRC Seville in Product Bureau, responsible for the development of criteria for GPP on street lighting and traffic signals, GPP of Transport and Framework for Building Sector. Author and reviewer of several scientific papers in journals such as Sustainability, Int. Journal of Life Cycle Assessment, Industrial Ecology. Subject editor in Social life cycle Assessment in the Int. Journal of LCA. Member of several editorial boards such as: Int. Journal of LCA, Sustainable Development, Resources. Founder of a Non-Profit Organization "iSuD - Information for Sustainable Development" for disseminating sustainability concept among Italian consumers. President of Directorboard of the „Forum for Sustainability through Life Cycle Innovation“ - FSLCI. Chair of (Technical Listening) Global Listening Centre. And part of the expert panel for „Ingenieure retten die Erde e.V.“ - Organigramm. As well as Rapporteur of the Technical Working Group in the European Platform of Sustainable Finance since October 2020.

Dr. Stefanie Trümper

Climate Service Center Germany (GERICS), Deutschland, stefanie.truemper@hereon.de

Prof. Dr. Petra Tschakert

Geography and Planning, University of Western Australia, Australien, petra.tschakert@uwa.edu.au

Professor Tschakert is trained as a human-environment geographer and conducts research at the intersection of political ecology, climate change adaptation, climate and mobility justice, and livelihood security. Her current work explores intangible harm in the context of climate change, with particular emphasis on poverty, vulnerability, and inequalities. She is a core member of the WUN-funded consortium on Climate-induced Migration and contributes on intersectionality and climate mobilities in a context of loss. She is also the principal investigator on the ARC-funded Discovery Project 'Locating Loss from Climate Change in Everyday Places', examining how people across eight communities in urban and rural Western Australia make trade-offs between the many things they value and, collectively, negotiate resilient trajectories through the climate crisis. Prof. Tschakert combines critical social science insights with grounded, participatory methods for collective learning and social change.

Prof. Tschakert played a crucial role as coordinating lead author (CLA) on two major assessments of the Intergovernmental Panel on Climate Change (IPCC): she was CLA on Chapter 5, Sustainable Development, Poverty Eradication and Reducing Inequalities and drafting author of the Summary for Policy Makers on the Special Report on Global Warming of 1.5°C (2018); and prior to that, she was CLA on Chapter 13, Livelihoods and Poverty, of the Fifth Assessment Report (AR5), Working Group II, and core writing team member for the Summary for Policy Makers, WGII, and the Synthesis Report (2014).

Michael Tschäni

Social Sciences, Group Sustainable Development and Research, Universität Basel, Schweiz, michael.tschaeni@unibas.ch

PhD candidate in Sustainability Research with a thesis Participation, Democracy and Sustainability in Urban Governance. Interested in how we use participative methods in cities with regards to the new or re-development of living or mixed areas in the planning, implementation and use phases.

Prof. Dr. Teja Tscharncke

Agroecology, University of Göttingen, Deutschland, tschar@gwdg.de

Teja Tscharncke has been Professor of Agroecology at the University of Göttingen since 1993. He studied sociology and biology in Marburg and Gießen, did his doctorate in Hamburg and habilitated in Karlsruhe. His research focuses on landscape perspectives on biodiversity patterns and associated ecosystem services of temperate and tropical regions, especially herbivory, biological pest control,

pollination and quantitative food webs. There is also a strong interest in multidisciplinary studies integrating socio-economic and ecological analyses. Homepage: www.agroecology.uni-goettingen.de

Dr. Jacqueline Uku

President of Western Indian Ocean Marine Science Association (WIOMSA) | Kenya Marine and Fisheries Research Institute (KMFRI), Mombasa, Kenya, juku988@gmail.com

Dr. Jorge Vasconcelos

Florence School of Regulation, European University Institute, Italien, JVasconcelos@newes.eu

Since 2007 Chairman of NEWES, New Energy Solutions. Member of the board of several energy undertakings, energy related funds and non-profit international scientific and technical organizations. Since 2018 chairman of the Advisory Board of IASS (Institute for Advanced Sustainability Studies), Potsdam. Part-time professor at the European University Institute (Florence). Invited professor at the Technical University of Lisbon - special programme MIT/Portugal on Sustainable Energy Systems. Advisor on energy matters to three Presidents of the European Commission. Author and editor of several books and articles on energy matters.

Dhruv Verma

Wetlands Internatinoal, Indien, dhruv.env18@gmail.com

I am an ecologist with professional experience in ecosystem conservation, largely urban forests and high altitude wetlands. My research interests lie in governance of internationally designated areas, citizen science for biodiversity conservation and urban ecosystem management.

Dr. Kira Vinke

Potsdam Institute for Climate Impact Research, Deutschland, vinke@pik-potsdam.de

Prof. Dr. Martin Visbeck

GEOMAR Helmholtz Zentrum für Ozeanforschung Kiel and Kiel University, Deutschland, mvisbeck@geomar.de

Martin Visbeck is head of research unit Physical Oceanography at GEOMAR Helmholtz Centre for Ocean Research Kiel and professor at Kiel University, Germany. His research interests revolve around ocean's role in the climate system, ocean circulation, upwelling systems, integrated global ocean observation, digital-twins of the ocean and the ocean dimension of sustainable development. He led the 'Future Ocean' Network in Kiel to advance integrated marine sciences by bringing together different disciplines to work on marine issues. He has led the EU AtlantOS Project on sustained ocean observing in the Atlantic. He serves on a number of national and international advisory committees including the Governing Board of the International Science Council (ISC), Joint Scientific Committee of the World Climate Research Programme (WCRP), leadership council of the Sustainable Development Solutions Network (SDSN), Interim Decade Advisory Board for the UN Decade of Ocean Science Decade for Sustainable Development 2021-2030 and the Assembly supporting the development of the EU Horizon Europe Ocean Mission. He is the past President of The Oceanography Society (TOS), and was elected fellow of the AGU, AMS, TOS and the European Academy of Sciences. Martin Visbeck is involved in strategic planning and decision-making processes about the ocean and sustainable development at a national, European and global level.

Dr. Max Voegler

Research Networks, Elsevier, Deutschland, m.voegler@elsevier.com

Dr. Juliane Völker

Swiss Center for Affective Sciences, University of Geneva, Switzerland, juliane.voelker@unige.ch

I am a young researcher investigating emotional intelligence, emotions in music and in digital communication. On top of that, I am interested in how Psychology can contribute to topics in sustainable science and transdisciplinarity research and practice.

Prof. Dr. Björn Vollan

Department of Economics, Uni Marburg, Deutschland, bjoern.vollan@wiwi.uni-marburg.de

Björn Vollan is professor and head of the research group "Sustainable Use of Natural Resources" at the University of Marburg. As scholars in Sustainability Science, our group is committed to interdisciplinary work, using a mix of different theories and methods while our strength is the development of experimental designs applied in the field. Our work fits most in the categories of Ecological and Behavioral Economics. With our research and teaching, we aim at pointing out

pathways for more sustainable behavior that may contribute to a larger transformation of society that cares about sustainable resource use, environmental justice, and life satisfaction.

Maria von Dewitz

VDI/VDE Innovation und Technik GmbH, Deutschland, maria.vonDewitz@vdivde-it.de

Dr. Anne von Streit

Department of Geography, Ludwig-Maximilians-Universität Munich, Deutschland, anne.vonstreit@lmu.de

My research focuses on sustainability transitions and adaptation to climate change. I am especially interested in questions of governance and risk communication. From my recently completed transdisciplinary project INOLA (BMBF funded from 2014-2019) and the ongoing project KARE (BMBG funded from 2020-2023) I bring experience in assessing the impact of instruments aiming to influence sustainability transitions and adaption to climate change in practice like scenario-building, backcasting, participatory modeling and network-management.

Ilka Wagner

Nature Conservation and Sustainable Use of Natural Resources, German Environment Ministry, Deutschland, ilka.wagner@bmu.bund.de

Janneke Wagner

B Lab Deutschland, Deutschland, janneke@bcorporation.eu

Das "B Corp Movement" ist eine wachsende globale Bewegung von Unternehmen, die aktiv eine nachhaltige, soziale und faire Zukunft vorantreiben. Weltweit gibt es über 3.600 zertifizierte B Corporations, darunter Patagonia, The Guardian, Einhorn und Sympatex. Sie alle teilen die Ansicht, dass Unternehmertum verpflichtet und bekennen sich in ihren Statuten zu gesellschaftlichem Mehrwert und ökologischer Nachhaltigkeit.

B Corporations sind Unternehmen, die mehr Nachhaltigkeit erreichen wollen, und sich dazu verpflichten, ihren sozialen und ökologischen Impact regelmäßig zu messen und kontinuierlich zu verbessern. bcorporation.de

Dr. Defeng Wang

Institute of Mining and Special Civil Engineering, TU Freiberg, Deutschland, wangdefengvip@gmail.com

My current research field involves the control of land subsidence caused by mining activities and the comprehensive utilization of solid waste. Specifically, the Backfilling mining technology. As we all know, in the process of mineral resources being mined from the ground and in the later mineral processing process, a large amount of harmful solid matter will be produced. How to properly dispose of these wastes that accompany human production activities is a challenge and also the only way to achieve sustainable development for us. Backfilling mining method is a promising technology that can simultaneously solve the two problems of surface subsidence and waste disposal.

Dr. Peter Wangai

Environmental Studies & Community Development, Kenyatta University, Kenia, wangai.peter@ku.ac.ke

I have an academic career of 9 years. I have trained as an environmentalist and community developer, sustainable resource manager, ecosystems manager, and ecosystem services mapped and assessor. My experience is in teaching, research and consultancy work. In teaching, I conduct lectures for both undergraduate and postgraduate students, supervision of students' theses, fieldwork and excursions with students, and supervision of students on practicum/internship. My research work has been focusing on conservation, and ecosystem services mapping and assessment. The major theme of my previous research work is on human-environment interactions, and how the interactions could be understood for boosting biodiversity, human wellbeing and sustainability. Currently, I am coordinating a project entitled "Building urban community networks for sustainable cities in Africa", which is funded by Belmont Forum. The project is bringing together partners and experts from six countries. The research team is convinced that the challenges facing cities in Africa could be tackled through the transdisciplinary approach, co-conceptualisation of urban problems, and co-designing and co-implementation of solutions by all stakeholders. Beside the busy teaching and research schedule, I also provide short-term consultancies to local and international organisations such as the Greenpeace Africa, as well as voluntarily offering technical support to community-based organisation on development, livelihoods and sustainability issues.

Mia Wannewitz

Department of Geography Ludwig-Maximilians University (LMU) Munich, Deutschland,
mia.wannewitz@lmu.de

Prof. Dr. Joachim Weimann

Economics and management, Otto-von-Guericke Universität Magdeburg, Deutschland,
joachim.weimann@ovgu.de

As an economist, my research focuses on experimental economics and behavioral economics. In addition, I am involved in the environmental policy debate and try to bring the insights of environmental economics into the discussion, in particular to work towards the idea that a rational climate policy must be cost-efficient.

Britta Weisser

Institute of Spatial and Regional Planning, University of Stuttgart, Deutschland,
britta.weisser@ireus.uni-stuttgart.de

Britta Weisser studied Urbanism and Spatial Planning at the Bauhaus University Weimar and the Technical University Dortmund. Since January 2018, she has been working at the Institute of Spatial and Regional Planning at the University of Stuttgart. She is engaged in the topics of spatial risk and climate impact research and climate adaptation in spatial planning processes, particularly in the context of integrated and resilient urban and regional development.

Dr. Daniel Wendler

Wissenschaftliche Kommission Niedersachsen, Scientific Advisory Board Lower Saxony, Deutschland,
daniel.wendler@wk.niedersachsen.de

As a civil engineer for waste and (waste)water treatment I was always interested in finding the most sustainable treatment methods/solution for different currents. As a scientific consultant, dealing with engineering and natural sciences in general as well as Energy research and data science I look at Sustainability in a much broader/wider context.

Markus Winkelmann

ITAS, KIT, Deutschland, markus.winkelmann@kit.edu

Ronja Winkhardt-Enz

German Committee for Disaster Reduction (DKKV), Deutschland, ronja.winkhardt-enz@dkkv.org

Julia Wlasak

Zentrum für globalen Wandel und Nachhaltigkeit, BOKU Wien, Österreich, julia.wlasak@boku.ac.at

- Innovative teaching methods for Education for Sustainable Development (ESD)
- Contact person of the teaching platform "Sustainicum Collection"
- Coordination of the working group "AG BNE" of the Alliance Sustainable Universities in Austria
- ESD & sport/movement

Prof. Dr. Marc Wolfram

Leibniz Institute of Ecological Urban and Regional Development (IOER), Deutschland,
m.wolfram@ioer.de

Marc Wolfram is the Director of the Leibniz Institute of Ecological Urban and Regional Development (IOER) - a non-university science center conducting fundamental, interdisciplinary and transdisciplinary research, and member of the Leibniz Association. He is also full professor of spatial development and transformation at Dresden University of Technology (TUD), and the chair of the Dresden Leibniz Graduate School (DLGS).

His own research deals with the dynamics of urban and regional change, and the strategies and approaches for steering such change towards sustainability, focusing on the role of governance, policy, planning and design, and the spatial and physical dimensions involved. He has an interdisciplinary academic background including studies and resident research at the University of Stuttgart, BarcelonaTech, ENTPE (Lyon) and Maison des Sciences de l'Homme (Paris). He also has extensive professional experience as a consultant and senior investigator in Europe, doing collaborative research with stakeholders at all levels. Before joining IOER he worked as an associate professor at Yonsei University and Sungkyunkwan University in Seoul, pioneering research on urban transformative capacity, and advising global city networks and UN bodies.

His research has been published widely in leading journals and books related to urban sustainability. Marc Wolfram is also co-founder and editor-in-chief of the open access journal Urban Transformations. He is a board member of the International Sustainable Development Research Society (ISDRS), and co-founder of the thematic group on Urban Transitions and Transformations within the Sustainability Transitions Research Network (STRN).

Hsiaoofan Wu

Taiwan Sustainability Hub, Taiwan, hsiaoofan.wu@gmail.com

Greeting from Taiwan! I work as transition manager at the Forest Sustainability & Green Services site of Taiwan Sustainability Hub (TSH). We mainly conduct potential improvements for payments for forest ecosystem services policy through organizing conferences and focus interviews of stakeholders at this site. If you are interested in knowing more, welcome to visit

TSH website: <https://taiwansustainability.wixsite.com/tshub>. You are also welcome to contact me: <https://www.linkedin.com/in/hsiao-fan-wu-471401174/> Looking forward to hearing from you.

Dr. Yi-Jhen Wu

TU Dortmund, Deutschland, yi-jhen.wu@tu-dortmund.de

I work at The Center for Research on Education and School Development (IFS) at the TU Dortmund University. I have researched the topic of well-being for patient, general, and student populations. Now, I focus on the development of well-being in a school context.

Dr. Gabriela Wuelser

Sustainability Research Initiative, Swiss Academy of Sciences, Schweiz, gabriela.wuelser@scnat.ch

Gabriela Wuelser is head of the Sustainability Research Initiative (SRI) at SCNAT. She is an expert in sustainability science and trans-disciplinarity. She has been managing funding programmes on sustainability at universities and exploring tools for knowledge co-production. Gabriela is an Environmental Scientist by training and holds a doctorate from ETH Zurich. Her research has been in the field of science studies, focusing on sustainability research.

Dr. Lulu Zhang

United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Deutschland, lzhang@unu.edu

Lulu Zhang is an Associate Programme Officer at UNU-FLORES. Her research at UNU focuses on sustainable development regarding climate change mitigation and adaptation and integrative resource management.

Prof. Dr. Rafael Ziegler

Institut international des coopératives Alphonse-et-Dorimène-Desjardins, HEC Montréal, Kanada, rafael.ziegler@hec.ca

Rafael Ziegler is a professor at HEC Montréal. He holds a BSc. from the London School of Economics and a PhD from McGill University. He is associate editor of the Journal of Human Development and Capabilities and the Journal of Social Entrepreneurship. Rafael has published the books Creating Economic Space for Social Innovation (Oxford 2019, with Alex Nicholls) and Innovation, Ethics and Our Common Futures (Edward Elgar 2020). More information: <https://institutcoop.hec.ca/en/about/team/>

Dr. Rocco Zimmermann

Institute of Hydraulic Engineering and Technical Hydromechanics, Technische Universität Dresden, Deutschland, rocco.zimmermann@tu-dresden.de

Theresa Zimmermann

Freie Universität Berlin, Deutschland, theresa.zimmermann@fu-berlin.de

Dr. Jana Zscheischler

Land Use and Governance, Leibniz Centre for Agricultural Landscape Research, Deutschland, jana.zscheischler@zalf.de

My particular research interest is in processes of innovation and transformation in agricultural landscapes. Currently, I am especially concerned with developments in the bioeconomy and digitalisation. A particular focus is on transdisciplinary and transformative research approaches and their effective contribution to actively shape these transition processes towards a sustainability-oriented future.

Sabiha Gökcen Zwack

Global Change Ecology, University of Bayreuth, Deutschland, sg.zwack@gmail.com

Dr. Astrid Zwick

InsuResilience Global Partnership, Deutschland, astrid.zwick@insuresilience.org

Dr. Astrid Zwick is Head of InsuResilience Secretariat since 2017 supporting the V20-G20 led InsuResilience Global Partnership in its goal to foster climate and disaster risk finance and insurance.

From 2010 to 2016 Head of Department "Corporate Responsibility" of Munich Re Group in charge of set up and implementation of the Corporate Responsibility Strategy. She also chaired the UN Environment Finance Initiative's Principles for Sustainable Insurance Working Group (2010 to 2012). Among several other tasks Astrid Zwick was Member of the Board of the University Society of the Munich Ludwig Maximilians University and Member of the Board of a Foundation promoting voluntary social engagement. From 2000 to 2010 she headed the Allianz Group Sustainability Office. She was chairing the Steering Committee "Research for Sustainability" of the German Federal Ministry of Education and Research (2005 to 2008).

From 1994 to 1999 she joined the European Commission Institute for Technological Prospective Studies in charge of policy advice on climate change to the Commission Services and among others to WHO.

Holding a doctoral degree in climate change research (Institute for Ecological Chemistry/GSF, Helmholtz Center, Munich and Technical University, Munich-Weihenstephan) and a diploma in Geology/Paleontology (Ludwigs-Maximilians-University, Munich).

The logo consists of a large circle with a gradient border transitioning from green on the left to blue on the right. The text is centered within this circle. The background is a light gray gradient with several faint, thin white circles of varying sizes scattered around.

GERMAN SUSTAINABILITY SCIENCE SUMMIT

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INTERACTIVE VIRTUAL EVENT

