

**Contributions in honour of
Dirk Messner's 60th anniversary**

Introduction

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It is an academic tradition in Germany to honour the achievements of members of the scientific community by publishing edited volumes on the occasion of their 60th birthday. As our dear friend and colleague Dirk Messner celebrates his 60th birthday in April 2022, we follow this tradition by publishing this book, with contributions from researchers and policy-makers who share our admiration of Dirk's achievements and have been important companions and supporters of Dirk's academic and professional life. We are proud to present this selection of articles and essays, each with the specific imprint of the thinking, convictions and experiences that characterises each individual and the working relationship she or he has with Dirk Messner.

Although not everyone we invited could participate – mostly due to pressing obligations at the science-policy interface in climate and development – this volume assembles an impressive collection of persons along Dirk's lifeline as researcher and policy advisor. Franz Nuscheler, Heidemarie Wieczorek-Zeul and Svenja Schulze saw Dirk's exceptional capabilities at identifying new issues on the international horizon and at making them accessible for innovative policymaking, and they gave him the opportunity to put these capabilities at the service of research institutions committed to the grand challenges of the planet and of world society. In his contribution, Franz Nuscheler revisits their joint work on global governance, emphasises the need to anchor global governance in rule of law, democracy, participation and respect for human rights at national and local levels and discusses how the World Bank and the OECD Development Assistance Committee referred to these concepts. Heidemarie Wieczorek-Zeul describes the challenges ahead for international cooperation devoted to inclusive, peaceful and sustainable societies and is confident that Dirk will continue making valuable intellectual and political contributions to mastering them. Svenja Schulze, finally, reflects on the different roles of scientists and policymakers in pushing the great transformation towards sustainability forward. As exemplified by Dirk Messner, especially in his transformative leadership of the German Environment Agency (UBA),

their roles are most productive if anchored in dialogue, cooperation and respect for their complementarity.

Of course we also miss important names in this volume – Klaus Esser, Leopoldo Mármora and Jörg Meyer-Stamer were close to Dirk's mind and heart in the early years, and they are very much remembered and missed.

But we are happy to have so many exceptional companions with us in this volume: from his time at the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE, 1989–1995 and 2003–2018), at the Institute for Development and Peace / Institut für Entwicklung und Frieden, University of Duisburg-Essen (INEF, 1995–2003), the German Advisory Council on Global Change (WBGU, 2004–2019), the United Nations University – Institute for Human and Environmental Security (2018–2019) and from the German Environmental Agency (Umweltbundesamt – UBA) which he leads since 2020. The editors reflect the main stages of Dirk's professional career: Imme Scholz worked with Dirk at DIE since 1992, Thomas Fues did the same at INEF and at DIE, and Lilian Busse is Dirk's deputy at UBA. We have contributions of colleagues from China, Brazil, Mexico, Indonesia, India and South Africa who constructed the Managing Global Governance Programme together with Dirk and Thomas Fues at DIE and were deeply inspired by his work at the Käte Hamburger Kolleg / Centre for Global Cooperation Research, Duisburg. We have leading climate policy researchers from Germany, the UK and the U.S. and colleagues from the German chapter of the Sustainable Development Solutions Network (SDSN) which he founded together with Klaus Töpfer, former German environmental minister and executive director of the United Nations Environment Programme (UNEP). We also have contributions from the Ministry of the Environment, Nature Conservation and Nuclear Safety – Dirk Meyer, an old childhood friend, and two of his close colleagues at UBA, Franziska Wehinger and Wolfgang Seidel.

Dirk Messner's approach in his many roles as academic researcher, institutional leader, policy advisor and global networker is characterised by a unique blend of intellectual curiosity, out-of-the-box thinking, impressive communicative skills and personal kindness. He has a natural inclination towards the great panorama, telling grand narratives which link micro-level and global phenomena within an integrated, interdisciplinary framework. A key feature of Dirk's multi-perspective approach to research and discourse is his keen interest in culture and arts. As can be learned from his hexagon, non-cognitive interpersonal dimensions play a fundamental role in facilitating, or blocking, cooperation. In this context, the arts can help in forging a global we-identity across states and cultures. A prominent

demonstration of his interaction with the cultural sector came about during his time as co-director of the Duisburg Centre for Global Cooperation Research where he organised extensive exchanges with the Ruhrtriennale Festival of the Arts.

It is precisely in these times of societal polarisation and imminent ecological disaster that we need to break down disciplinary confines, linking analysis with action. Humanity has by now arrived at a crossroads of sustainability transformation or perdition, and pathways towards collective survival must be based on multiple perspectives from around the globe. As the diverse group of his collaborators and friends assembled in this publication attests, Dirk has, in all stages of his career, reached out to people of different world views and value systems, driven by the search for common ground in global problem-solving.

When asking for contributions to this volume, we suggested that authors focus on the ideational spheres and practice-oriented spaces which have consistently characterised Dirk's path. These include steps at the national, regional or global level to effectively accelerate the shift towards planetary sustainability; measures to forge or strengthen cross-sectoral, transboundary, multi-actor alliances for sustainable transformation; and key elements of universal ethics and shared norms which foster transnational cooperation for the global common good. This resulted in three thematic clusters represented in this book, namely science and policy for the sustainability transformation, tackling climate and environmental change and, finally, cooperation for the global common good.

Bridging the gap between science and policy has been a major focus of Dirk's work. In her contribution, Anna-Katharina Hornidge highlights the role of science for facilitating transformational processes towards sustainability, and she analyses the deficiencies of the current science system. She strongly argues for a global science landscape with diverse funding structures and offers several solutions to achieve science for the global common good.

With great conviction, Uwe Schneidewind and Hans Haake lay out why transformative science and trespassing the borders between science and policy are needed to make the sustainability transformation successful. According to the authors, "ideally, between politically inclined scientists and scientifically inclined politicians, a relatively seamless integration of knowledge can occur", which can bring the 'Great Transformation' one step closer to successful implementation.

Jörg Faust explains why and how democracies outperform autocracies in providing welfare for majorities by fostering economic growth, productivity and social well-being. In the 21st century, however, globalisation

limits their regulative capacity, calling either for further democratisation of global governance mechanisms or reducing globalisation.

To overcome the climate crisis and the major environmental challenges, Dirk Meyer takes a closer look at the stakeholders and highlights the need to understand their different perspectives and interests. In the current stage of phasing out coal and decarbonising the economy while at the same time phasing in digitalisation, science can, and must, play a role. Dirk Meyer offers a realistic view into the future on how politics can solve the major challenges of our times.

Franziska Wehinger und Wolfgang Seidel lay out the need for players at the interface of science and policy to transform themselves in order to play an active role in the shift towards a sustainable society. They use the German Environment Agency as an example on how this can be put into practice and can make the agency an even stronger player in transformation processes.

Achim Steiner highlights the important role of bottom-up dynamics in overcoming the climate crisis. To effectively support grassroots solutions and innovative businesses, however, laws and regulations as well as the financial sector need to change. Including additional indicators beyond purely economic ones when measuring overall national performance is also important. One example is the inclusion of a country's per capita carbon dioxide emissions and its material footprint into UNDP's Human Development Index.

After an analysis of the climate crisis and the drivers of the transformation processes as well as the Global New Green Deal, Simon Maxwell addresses the lessons to be learnt by knowledge workers, social activists and leaders in order to tackle these challenges and be successful. Leaders, according to Maxwell, must do the following: First, make the case for action. Second, build a coalition to deliver change. Third, engage with the complexity of policy-making. And fourth, learn and adapt.

Referring to various reports of the Intergovernmental Panel on Climate Change (IPCC), Andrew Norton articulates the urgency of transformational action on the escalating climate crisis. He points to the need for a fundamental reorientation of norms and values if humanity is to avoid disaster. His vision for solutions to multiple crises builds on values of global solidarity and mutual aid, respect for the natural world, and the promise of delivering healthy and equitable societies.

In her timely contribution, Sabine Schlacke turns to a recent historic decision by Germany's Federal Constitutional Court on emission reduction targets by the government in order to protect fundamental rights of current and future generations based on intertemporal freedom protec-

tion. She shows how the court explicitly relied on the budget approach, pioneered by the Advisory Council on Global Change of the German Government in which she collaborated with Dirk Messner.

Recounting his long-time academic association with Dirk Messner, Otmar Edenhofer tells the story of how both understood the importance of planetary boundaries for global sustainable development, recognising that they can only be implemented as global guardrails when user rights for common-pool resources are established. He is confident that the evolving attention to governance of the commons at different scales is now ushering in the next paradigm shift in global sustainability research, and he commends Dirk for incorporating the ultimate goal to improve human welfare and to decrease inequality in all endeavours.

Ani Dasgupta and Manish Bapna turn to the interconnected crises in health, inequity, poverty and climate change in the wake of the COVID-19 pandemic. The task ahead is to respond to these challenges simultaneously through low-carbon, climate-resilient development. The authors see cities as the key drivers for “building back better” strategies. For this to happen, national governments need to strengthen and restructure urban investment, also from private sources, towards inclusive sustainability, e.g. in public transport and water resilience.

Sabine Nallinger explores the opportunities related to making climate protection the business model of the century. As Dirk has also emphasised all along, companies offering the greenest solutions will be most successful on global markets. Unfortunately, policy makers seem to fall behind many in the business community regarding climate-friendly approaches. In order to overcome this gap, the author calls for regulatory ecological standards as the core element of renewed industrial policies.

Nebojsa Nakicenovic highlights the unfolding climate crisis and demonstrates how drastically emissions would need to be reduced in order to arrive at the target value of zero by mid-century. Building on similar disruptive transformations that happened before within short time periods, the author explains the huge potential of technological, particularly digital innovation for global sustainability. On this basis, humans can accomplish the necessary transformational shift within the next three decades if they collectively mobilise the political will for survival.

Bringing in experiences from Indonesia, Medelina K. Hendytio emphasises the crucial importance of local communities for effectively implementing green economy concepts. Elite policies are bound to fail due to a lack of incentives for changing values and habits rooted in customs and culture. The author posits that the way forward lies in the design of

programmes which foster community control and ensure that benefits are directly beneficial to the local population.

In a similar vein, Enrique Saravia explores the connections between culture and environment, particularly climate change. Citing some Brazilian cases where public interventions and regulations went against traditional habits, such as the pursuit of (illegal) economic objectives, or was confronted with certain conditions as, e.g., limited capacities of agricultural producers, the author points to the need of adapting policies to local concerns and constraints.

Contributing a perspective from China, Pan Jiahua uses a budget approach towards the management of land and water resources on which humans and all other beings depend as life community. He emphasises that technological innovation can only relax the physical rigidities of ecosystems to a limited extent. The overall balance of natural spaces should be safeguarded by designating some 25 to 30 percent of total land surface exclusively for wilderness protection, with the quota for agriculture and forest production to be set at 65 to 70 percent and urban and industrial use at 5 percent.

Zita Sebesvari turns her attention towards nature-based solutions as cost-effective, low-regret solutions in addressing a wide range of societal challenges. She argues that cost-benefit analysis has to integrate multiple co-benefits such as food, clean water and air, biodiversity, pollination and the regulation of climate. By focusing on overall goals and targets rather than on the cost-effectiveness of single measures, systemic solutions can successfully create the space for creativity and collaboration across sectors.

Leading the contributions in the third, and final, cluster on cooperation for the global common good, Siddharth Mallavarapu addresses the challenge of universal ethics, a subject of key importance in Dirk's thinking. Assuming a normative perspective in support of sustainability and international cooperation, the author identifies five sensibilities which are needed for progress, namely permeability, empathy, equity, anger and malleability. He calls on us as individual and collective actors to move forward with an ethical urgency and pragmatic outlook if we want to maintain hope for global sustainability and meaningful international cooperation.

Claus Leggewie illustrates how the concept of 'homo cooperativus' can, and should, become the foundation for a new culture of international relations. His approach is guided by the insights of modern anthropology which has found that sharing and helping have been essential prerequisites for human evolution and civilisational progress. The author posits that international politics need to be transformed with respect to the ecological

and financial debts we leave to posterity while also giving a voice to animals, plants and even inanimate nature.

Ariel Hernández takes up the role of power and asks whether achievement of the Sustainable Development Goals (SDGs) requires the prior dismantling of inequities that reinforce power asymmetry. He sees a disquieting trend that SDGs increasingly enter into conflict scenarios and then become entangled in culture wars. In order to avoid the power trap, the author frames transformation to sustainability as a complex social process of cooperation which can assume four different modes, i.e. collaboration, coordination, deliberation and orchestration. Collaboration in international politics along these lines helps to account for power asymmetries by assigning differentiated responsibilities and contributions in problem solving.

Adolf Kloke-Lesch and Imme Scholz recount how Dirk (and colleagues) introduced the concept of global governance into the German development discourse in the 1990s (“Duisburg School”) and, twenty years later, developed the heuristic cooperation hexagon built on the human inclination for trust and we-identities. However, implementation of answers to sustainable development and climate challenges has been highly deficient even after the 2015 landmark decisions, due to a systemic disregard of universality in assigning transformative obligations and commitments. The authors argue that the world needs to move beyond unidirectional patterns in North-South and South-South cooperation, instead embracing reciprocal learning and mutual support regardless of income levels.

Carlos Domínguez highlights Dirk’s interdisciplinary and multi-perspective approach which breaks with the specialisation pattern so often encountered in the social sciences. While commending the innovative value of the cooperation hexagon in this regard, he points to the limits of scaling it up to the international level. Human propensity to associate with like-minded people poses the threat of disconnected echo chambers. This can negatively impact global governance when right-wing populism gains support on ideological grounds and anti-elitist sentiments which operate against we-identity and reciprocal problem solving.

Elizabeth Sidiropoulos brings in the humanist African philosophy of Ubuntu, based on the principle ‘I am because we are’. The concept extends beyond human beings to include animals and the totality of the universe. Ubuntu’s ethics provide values and norms towards a new universal contract for social equity and ecological balance, Dirk’s overriding goal and purpose. The veneration of nature and the collective quest for social justice embodied in the Ubuntu cosmology could help in making transnational cooperation for the global common good smoother and more effective.

In a fitting concluding chapter, Jürgen Renn tackles the elephant in the room, namely the role of the technosphere in understanding our predicament in the Anthropocene. Starting from the perspective of Earth system science, he reaches out to the humanities and social and behavioural sciences with the aim of conceptualising the fabric of industrial technologies, infrastructures, social institutions and powers as well as knowledge and belief systems as the distinct framework for global cooperation. In order to foster the flourishing of societies and enhance collective problem-solving, humanity needs to get a better handle on the dynamics of the new Earth sphere. For this to happen, the global community needs to openly address conflicts, rather than repressing them, and create a new societal knowledge economy based on the multi-faceted narratives in the world, each one with equal merits of its own.

In all their diversity and collective beauty as colourful kaleidoscope, the contributions to this volume reflect Dirk's special personality characterised by deeply rooted empathy and excellent scholarship. He is a researcher from the heart, but he knew early on that it is crucial to transfer the scientific results into the political arena. Dirk is a master in bridging the gap between science and policy. With his current position as the president of the German Environment Agency with almost 1,700 employees he is in the perfect position to advocate for the much needed social, ecological and economic transformation in Germany and beyond. He seems to be the right person at the right time at the right place.

It is in admiration of Dirk's intellectual curiosity and leadership and in support of his engagement that we worked on this book, in full accordance with Jürgen Renn's assessment: "This combination of a Renaissance-like intellectual scope and incorruptible pragmatism is rare, if not unique, and makes him one of the most important voices in today's discussions about humanity's global challenges." And all three editors concur with Simon Maxwell: "We are lucky to be able to work with him."