Imme Scholz | Lilian Busse | Thomas Fues [Eds.]

Transboundary Cooperation and Global Governance for Inclusive Sustainable Development

Contributions in Honour of Dirk Messner's 60th Birthday

Nomos

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Table of Contents

Table of Contents

Table of Contents

8

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

Introduction

Lilian Busse, Thomas Fues, Imme Scholz

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 policymakers 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 grassroot 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-facetted 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."

Global Governance needs to be based on, and embedded in, Good Governance

Franz Nuscheler[1]
Franz Nuscheler, former Director Institute for Development and Peace and Professor Emeritus, University Essen-Duisburg. He served as policy advisor in many capacities, including as expert member of the Enquête Commission on the Globalization of the World Economy of the Bundestag, member of the German Advisory Council on Global Change, member of the scientific advisory boards of the Goethe Institute, the German Overseas Institute, the Otto Benecke Foundation and the Austrian Foreign Ministry as well as deputy chairman of the Development and Peace Foundation.
Franz Nuscheler appointed Dirk Messner as Academic Director of the Institute for Development and Peace at the University Essen-Duisburg in 1995. They co-authored numerous publications with a particular focus on global governance until 2003, when Dirk left the Institute to become Director of the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

Dirk Messner and the author of this text played a key role in introducing the report of the Global Commission on Global Governance (1995) into German debates. While this turned out to be an important contribution to academic and public discourses, their approach missed out on one indispensable factor for effective transnational problem-solving, namely good governance within societies and their political systems. The concept of global governance does not aim at a world government, a misunderstanding often encountered. Instead, it is similar to the vision of a federation of free republics envisaged by Immanuel Kant's "Ewiger Frieden". As global body, the United Nations claim to represent the premier institutional framework for international cooperation, moving from the analysis of structural changes to policy proposals for good governance at multilateral and national levels.

The debates on good governance demonstrate the wide and diverse uses of the concept in theories of international relations, regulation, networks and management reforms for public and private sectors. The European Commission (2001) followed this approach in its important White Paper

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1 This summary was written by Thomas Fues.

"European Governance". Here, the concept of good governance extends to the local level including the role of civil society actors and the (supranational) regional level as practised within the European Union.

Since the end of the East-West conflict, governance has evolved as a powerful framework for the explanation of success or failure in international development. There is a clear link between the transformation of the global order and the fact that international development agencies had largely neglected political factors until the late 1980s. This did not only depend on the World Bank's position of political neutrality, which inhibits the institution from criticising known practices of governmental corruption, but also on diplomatic restraint of UN organisations which do not want to antagonise the majority of member states. The East-West conflict also influenced many donor governments in choosing not to move against kleptocratic actors on the recipient side as long as they stayed "friends of the West". This only changed after the terror acts of "9/11" in 2001, when development cooperation assumed a security dimension and "bad governance" was understood as source of violence-ridden domestic political conflict and regional instability.

However, the renewed interest in good governance does not represent the success of the "idealist school" but rather comes as a result of embedding this term in the realist concept of "extended security". The "war on terror" has therefore meant that, again, double standards are in place in human rights policies. The same holds true in the attitude of "the West" towards the suppliers of petroleum, the "lubricant of the global economy".

How the concept of good governance came about

It was the World Bank which took up insights from institutional economics and adopted the governance framework for its development discourse. It is remarkable how quickly the United Nations Development Programme and bilateral donors followed suit and even surpassed the World Bank regarding political reform demands. In 1989, the World Bank offered a new analytical framework explaining the development crisis in Sub-Sahara Africa by attributing failed efforts, including its own projects, to "poor governance", thus shifting responsibility to African governments and exonerating itself from the charge of having caused the crisis.

The beginning of the 21st century saw the inflationary use of the guiding principles of good governance. While the World Bank abstained from articulating an openly political reform agenda for Southern countries with reference to its apolitical mandate, other international organisations

and bilateral donors introduced a heavy normative dose into their programmes. This dynamic was spearheaded by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development where donors come together to coordinate their activities. In 1993, the DAC accepted a document entitled "Orientations on Participatory Development and Good Governance" which picked up principle elements defined by the World Bank, namely rule of law, improved public sector management and corruption control. Additionally, the DAC added four highly political requirements: participatory development, respect of human rights, democratisation and reduction of military expenses. Germany's Ministry for Economic Cooperation and Development (BMZ) basically followed DAC guidelines by adding the commitment to a market economy. These principles are used until today in German development policies.

However, the good governance approach does not set any priorities nor does it inform how such changes could be realised on the donor side. Two questions have to be answered when the objective of democratisation is pursued:

a) How can democratisation be supported from the outside when there is broad consensus that this has to come about through internal processes and the support of enlightened elites?
b) Should democratisation be seen as instrumental to economic and social development or rather be regarded as desired outcome beyond functional considerations?

Empirical findings from the World Bank seem to substantiate that it is not democracies but rather more or less autocratic systems with well organised public management that can demonstrate a relatively good degree of development performance. Another counter argument to the pivotal importance of good governance points to the impact of globalisation on developing countries, particularly in Africa. This raises the question if a highly ambitious concept of good governance ignores realities on the ground. Perhaps the World Bank concept, which first aims to stabilise legal and administrative structures, can claim a more realistic outlook. The European Union has put special emphasis on principles of a market economy in its development framework. However, it needs to be questioned if this is a constitutive condition of good governance or rather a hidden effort for the global expansion of capitalism. Moralising in the name of good governance has the taint of neglecting the involvement of donor nations in creating and perpetuating an unjust global system, e.g. regarding discriminatory trade policies which cause much damage in the Global

South. And it does not confront the self-reflexive question to what extent "aid" has contributed to corruption on the recipient side.

At the level of the United Nations, several international agreements at the turn of the millennium underlined the importance of good governance for development, particularly with regard to attracting domestic and international investors. Among these agreements, the Millennium Declaration adopted by the United Nations General Assembly in the year 2000 deserves special attention. It emphasises the crucial importance of human rights, democracy and good governance for the realisation of the Millennium Development Goals which are meant to overcome the most extreme forms of poverty by 2015. However, the contradiction between well-sounding international documents and actual policies has contributed to the legitimacy crisis of development cooperation. The attack of the Trump Administration in the U.S. on the United Nations system undermined international efforts for good governance and effectively blocked further donor coordination within the DAC. Good governance was no longer the mantra of development programmes as "America First" became the battle cry.

Summing up, we can observe the following nuances in the interpretation of the concept of good governance. The World Bank emphasises the management qualities of governments in the efficient and transparent use of scarce resources. The United Nations Development Programme promotes the political dimensions like accountability of governments, free elections, empowerment and administrative decentralisation. The European Union focusses on the rule of law, democratic processes, protection of human rights and anti-corruption efforts.

Critical perspectives

Some voices in the development community see the Bretton Woods Institutions, i.e. World Bank and International Monetary Fund, as instruments of Western hegemony. From this angle, good governance can be understood as a fresh effort to "sell" the old modernisation paradigm with new packaging while reasserting old patterns of dominance. However, this line of argument is hard to sustain since democracy and human rights, which are key elements of good governance, are universally accepted goals. But one can still speculate what motivated the World Bank to opt for the framework of good governance. One possible explanation could be the intention to shift responsibility for development failures to governments in the Global South and to implant political systems from the outside.

However, development partners have become more assertive in demanding that they take the "driver's seat".

Simultaneously, the empirical fact that democratically ruled countries are more successful in economic terms has generated more learning effects than the threat of sanctions or the prospect of a good governance bonus. In addition, opposition parties and civil society groups have used core criteria of good governance like transparency of public policies and accountability of governments for their purposes, often supported by international foundations and external non-governmental organisations. Transnational networking and communication systems have also been helpful for democratisation, as guided by the universal normative framework of good governance.

Still, the overall assessment shows that international organisations and national development agencies imposed policy guidelines which they consider instrumental for overcoming structural problems in partner countries. Thereby they run into the risk of provoking resistance against external conditionalities and ignore their own involvement in causing development failures. For geopolitical and commercial reasons, bilateral and multilateral donors have contributed to clientelistic structures and corruption by cooperating with regimes considered prone to corruption. The "war against terror" and the competition for natural resources have undermined the commitment to good governance and the universality of political and social human rights.

Good governance and fragile statehood

Considering the phenomenon of fragile statehood, the question must be addressed whether development cooperation should reward good performers or rather focus on "low income countries under stress" (World Bank), helping them to overcome structural deficits and avoid sliding back to bad governance constellations. This would imply to first work on structural stabilisation by state building before pursuing good governance goals.

This issue has been of high relevance for the special support programmes directed towards Sub-Sahara Africa by the G8 summits of Gleneagles (2005) and Heiligendamm (2007). How can additional financial resources be utilised productively in a continent often considered as "over-aided" due to limited absorptive capacities? Many countries internationally classified as failed states are part of this region. A "big push" approach in the shape of massive public transfers by donors runs the risk of being jeopardised by unstable legal and administrative systems. It could weaken

the accountability of governments towards their own populations, thus undermining democracy. In addition, it could inflate bureaucracies and promote corruption. Another negative impact lies in the danger of thwarting efforts to tax well-to-do groups and mobilise internal resources in a more just way. Finally, excessive external support could undermine the "ownership principle".

Summary

The end of the bipolar world order in 1989/90 liberated international development cooperation from the shackles of the Cold War and quickly led to the adoption of good governance principles by United Nations organisations and Western donors. Despite all ambivalences and inconsistencies, the new normative paradigm represents a universal framework of statehood which builds on effective public administration, human rights, rule of law, economic efficiency, popular participation and social balance.

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Global Governance braucht den Unter- und Überbau von Good Governance

Franz Nuscheler

Es gab einmal im Duisburger INEF (Institut für Entwicklung und Frieden) ein produktives Tandem von dem zu Ehrenden, Dirk Messner, und dem Autor dieses Beitrages. Dieses Tandem elaborierte im gemeinsamen Bemühen das Konstrukt von Global Governance, vernachlässigte aber ein unverzichtbares Bauelement dieses Konstrukts, nämlich den Unterbau dieses Höhenfluges der internationalen Beziehungen: Good Governance.

Dieser Beitrag zu Ehren eines konstruktiven Denkers der Entwicklungen in der Weltpolitik soll aufzeigen, warum Global Governance ohne Verankerung in Good-Governance-Strukturen und Verhaltensweisen ein zerbrechliches Konstrukt bleiben muss. Deshalb lautet der Merksatz im Titel: Global Governance braucht den Unterbau von Good Governance.

Was bedeutet diese Anforderung an die nationalen Politiken in aller Welt? Um eine Antwort bemühte sich Franz Nuscheler in Zusammenarbeit mit Veronika Wittmann, dem guten Geist der Global Studies an der Johannes Kepler Universität im österreichischen Linz, in einem hier zugrunde liegenden Studienbrief für die TU Kaiserslautern zu nachhaltiger Zusammenarbeit (Nuscheler & Wittmann 2017). In der Tat: Global Governance kann ohne den Unterbau von Good Governance nicht nachhaltig sein. Den Überbau liefert die internationale Governance-Diskussion.

1. Struktur- und Organisationselemente von Global Governance

Kritiker karikierten das INEF-Tandem Dirk Messner/Franz Nuscheler, das den Bericht der *Commission on Global Governance* (1995) in die deutsche Diskussion einführte, als „globale Gouvernanten". Diese Karikatur beruhte auf dem Missverständnis, dass das Tandem einem Weltstaat das Wort geredet habe. Wofür und wogegen die beiden argumentierten, kam jedoch der von Kant im Traktat über den *Ewigen Frieden* begründeten Vision einer „Föderation freier Republiken" oder Otfried Höffes (1999) philosophischem Konstrukt einer „subsidiären und föderalen Weltrepublik" viel näher als der Schimäre eines Weltstaates.

Die Vereinten Nationen bemühten sich als globale Organisation darum, sich als institutionelles Rückgrat von Global Governance zu profilieren. Die *United Nations University* startete die Zeitschrift *Global Governance*, die den Multilateralismus als Mittel und Weg zum *Global Public Management* von globalen Problemen propagierte. Mit dieser qualitativen Veränderung von einer empirischen Analyse der Strukturveränderungen der Weltpolitik hin zu programmatischen Rezepten zur Gestaltung der Globalisierung ging die normative Erweiterung von Governance zu Good Governance auf der multilateralen und der nationalstaatlichen Ebene einher. Der Blick auf die globale Klima- und Umweltpolitik sowie auf die Corona-Pandemie verdeutlicht den globalpolitischen Imperativ: Die globale Politik der Nachhaltigkeit braucht Global Governance.

2. Zwischenbilanz zum Stand der Governance-Forschung als Vorstufe zum Good-Governance-Diskurs

Die Rekonstruktion der Governance-Debatte zeigt, dass der Governance-Begriff in verschiedenen Begründungszusammenhängen, Bedeutungen und Anwendungsfeldern auftauchte. Governance-Konzepte fanden sich in den Theorien der internationalen Beziehungen und in den Konzepten von Global Governance, in den Steuerungsdebatten, in Organisations- und Netzwerktheorien oder in dem wichtigen Weißbuch der EU mit dem Titel *Europäisches Regieren* (Europäische Kommission 2001). Gleichzeitig bildeten sich in den aufblühenden Managementtheorien sektorale Anwendungsbereiche aus, die den Governance-Begriff für Reformstrategien sowohl in privatwirtschaftlichen Unternehmen als auch in der öffentlichen Verwaltung einsetzten.

Das „Regieren in komplexen Regelsystemen" findet mehr oder weniger ausgeprägt auf allen politischen Handlungsebenen statt, von der lokalen über die nationale und regionale bis zur globalen Ebene. Es gibt bereits eine umfangreiche Literatur über *Local Governance*, wo sich bürgerschaftliches Engagement in vielfältigen Formen entfalten kann, sowie über die in der EU am weitesten entwickelte, aber auch in anderen regionalen Organisationen praktizierte *Regional Governance*. Die Theorie und Praxis dieser Operationsfelder von Governance werden im Hagener *Handbuch Governance* umfassend und leicht zugänglich behandelt (Benz et al. 2007).

3. Von Governance zu Good Governance

Governance gilt seit dem Ende des Kalten Krieges im internationalen Entwicklungsdiskurs als Schlüsselbegriff für die Erklärung von Erfolg oder Versagen der Entwicklungspolitik. Es gibt einen Zusammenhang zwischen der weltpolitischen Zeitenwende, die sich auch auf die Nord-Süd-Beziehungen auswirkte, und dem Tatbestand, dass die internationalen Entwicklungsorganisationen – im Unterschied zu den *development sciences* – bis in die späten 1980er-Jahre politische Faktoren bei der Analyse von Entwicklungsprozessen weitgehend ausblendeten.

Dies lag nicht nur am Statut, das die Weltbank zur politischen Neutralität anhielt und sie z. B. daran hinderte, die ihr bekannten Korruptionspraktiken von Regierungen offen zu kritisieren, oder am diplomatischen Zögern von UN-Organisationen, die Staatenmehrheit in den Vereinten Nationen mit Kritik zu brüskieren. Es lag vielmehr auch an der vom Ost-West-Konflikt diktierten und korrumpierten Haltung vieler Geberländer, die mit einer Politik der „doppelten Standards" auch kleptokratische Regime von Kritik oder gar dem Entzug von Subsidien verschonten, wenn sie sich in der geostrategischen Systemkonkurrenz als „Freunde des Westens" gerierten (vgl. Nuscheler & Wittmann 2017).

Das sich abzeichnende Ende des Kalten Krieges befreite die Entwicklungspolitik, die immer in außen- und sicherheitspolitische Interessen eingebettet war, von diesen Zwängen und diplomatischen Rücksichtnahmen. Die Dissertation von Thomas Fuster (1998) über die Good-Governance-Diskussion an der Wende und zu Beginn der 1990er-Jahre ergänzte dieses geopolitische Umfeld mit einem von der „neoinstitutionellen Synthese" geprägten entwicklungstheoretischen Umfeld sowie mit einem von Pessimismus geprägten entwicklungspolitischen Umfeld.

Es gab damals eben keine aus der „Friedensdividende" gespeiste „Entwicklungsdividende" und kein Umschmieden von Schwertern zu Pflugscharen, wie viele Friedens- und Entwicklungsforscher erhofft hatten. Vielmehr nahm die Überwindung der auch in der weltpolitischen Peripherie ausgetragenen Ost-West-Konfrontation der Entwicklungspolitik die sicherheitspolitische Schubkraft, mit der Folge, dass die Entwicklungshaushalte erheblich gekürzt wurden. Auch dieses Umfeld beförderte ein neues Denken und Planen, das darauf abzielte, die knapper werdenden ODA-Mittel nicht weiter in den berüchtigten „Fässern ohne Boden" versickern zu lassen. Hier diente die Governance-Debatte auch als Rechtfertigung für das Abschmelzen von Entwicklungshaushalten.

Die Terroranschläge vom 11. September 2001 verliehen der westlichen Entwicklungspolitik wieder eine sicherheitspolitische Bedeutung und dem

Konzept von Good Governance eine sicherheitspolitische Präventivfunktion, weil Bad Governance als Brutstätte des Terrorismus und als Ursache für neue Bürgerkriege mit ihren destabilisierenden Auswirkungen auf ganze Regionen ausgemacht wurde. Die entwicklungs- und sicherheitspolitische Konjunktur des Konzepts ist also nicht einem Siegeszug der „idealistischen Schule" in den Theorien der Internationalen Beziehungen, sondern eher der Einbettung in das realistische Konzept der „erweiterten Sicherheit" zu verdanken.

Der „Krieg gegen den Terror" hatte zur Folge, dass in der Menschenrechtspolitik wieder doppelte Standards gepflegt wurden, d. h. ein Paktieren mit autokratischen Regimen, die – wie Saudi-Arabien oder Turkmenistan – mit geostrategischen Pfunden wuchern konnten. Die weltweite Konkurrenz um Energiequellen verschonte auch die Anbieter dieses nachgefragten „Schmieröls der Weltwirtschaft" von politischen Bekehrungsversuchen zu Good Governance. Die meisten erdölexportierenden Staaten in Westafrika, am Golf und in Zentralasien sind vom energiehungrigen Westen umworbene Autokratien.

3.1 Lehren der Weltbank aus der afrikanischen „crisis of governance"

Es war die Weltbank, welche die Zeichen der Zeit erkannte, Erkenntnisse der Institutionenökonomik aufgriff und den Governance-Begriff in die entwicklungspolitische Diskussion einführte. Sie erwies sich wieder einmal als *agenda setting agency* mit einer beachtlichen Definitions- und Deutungsmacht. Es ist bemerkenswert, wie schnell das UN-Entwicklungsprogramm (UNDP), die Organisation für wirtschaftliche Zusammenarbeit und Entwicklung (OECD) und die Europäische Union (EU) in entwicklungspolitischen Grundsatzerklärungen sowie einzelne Geberländer auf diesen Governance-Zug aufsprangen und dann die Weltbank mit politischen Reformforderungen sogar überboten.

Die Weltbank lieferte mit ihrer 1989 veröffentlichten Studie über die Entwicklungskrise im subsaharischen Afrika einen Neuansatz in der Krisendiagnose, indem sie die Fehlentwicklungen, aber auch das Scheitern vieler ihrer eigenen kostenintensiven Projekte, vor allem einer „crisis of governance" bzw. einer „poor governance" anlastete. Sie erschwerte damit nicht nur den afrikanischen Regierungen den üblichen Versuch, die Ursachen der Misere den Hypotheken des Kolonialismus und weltwirtschaftlichen Benachteiligungen anzulasten, sondern entlastete auch die westliche Gebergemeinschaft vom Vorwurf der Dependenz- und Imperialismustheoretiker, die Misere verschuldet zu haben.

Die Weltbank identifizierte nun in ihrer Krisendiagnose eine Reihe von hausgemachten politischen Fehlentwicklungen im institutionellen Umfeld von Staat und Verwaltung, welche die wirtschaftliche, soziale und politische Entwicklung in vielen afrikanischen Ländern behinderten. Diese Fehlentwicklungen in den postkolonialen Staatsretorten gehörten allerdings in der wissenschaftlichen Afrika-Literatur, die den „schwachen Staat" und klientelistische Herrschaftsstrukturen als Entwicklungsblockaden entdeckt hatte, schon längst zum Grundwissen.

Die Weltbank (1992: 60) definierte Governance zunächst in ziemlich technokratischer und entwicklungsökonomischer Manier als „the manner in which power is exercised in the management of a country's economic and social resources for development". Diese Definition war auf den Kernbereich der öffentlichen Verwaltung und auf das *Public Management* der Wirtschaft fokussiert, weil die Weltbank im Einklang mit der Institutionenökonomik davon ausging, dass nur funktionsfähige staatliche Institutionen die notwendigen makroökonomischen Reformen umsetzen können.

3.2 Die normative Profilierung von Good Governance durch die im DAC organisierte Gebergemeinschaft

Während sich die Weltbank mit Berufung auf ihr unpolitisches Mandat bei politischen Reformforderungen im Namen von Good Governance zurückhielt, preschten andere internationale Organisationen und vor allem die von den diplomatischen Zwängen des Kalten Krieges befreiten Geberländer mit einer normativen Erweiterung des Konzepts vor. Sie sorgten dafür, dass Good Governance zum Schlüsselbegriff und handlungsleitenden Programm der westlichen Gebergemeinschaft wurde, die zudem über ihre Stimmrechte auch Einfluss auf das Handeln der Bretton-Woods-Institutionen hat.

Eine programmatische Vorreiterrolle spielte dabei der DAC, das *Development Assistance Committee* der OECD, in dem sich die Geberländer zusammenschlossen und zumindest eine Koordination ihrer entwicklungspolitischen Aktivitäten versuchten. Das DAC verabschiedete Ende 1993 die *Orientations on Participatory Development and Good Governance*. Diese Orientierungen griffen zunächst auf die bereits von der Weltbank definierten Kernelemente zurück: also auf *rule of law*, verbessertes *Public Sector Management* und Korruptionskontrolle. Diesen Kernelementen fügte der DAC vier hochpolitische Forderungen hinzu:

- partizipative Entwicklung
- Respektierung der Menschenrechte
- Demokratisierung
- Verringerung übermäßiger Militärausgaben

3.3 Die schrittweise Universalisierung eines normativen Leitbildes

Zu Beginn des 21. Jahrhunderts fand nicht nur eine Universalisierung, sondern auch eine Inflationierung des Leitbildes Good Governance statt. Selbst der für seine korrupten Praktiken berüchtigte Fußball-Weltverband FIFA richtete eine Good-Governance-Kommission ein, die sich allerdings als wenig fähig und willens erwies, die eingespielten Korruptionspraktiken in der Führung des Weltverbandes auszumerzen. Wo Macht und Geld eine Rolle spielen, stoßen Verhaltensnormen an enge Grenzen.

Nach der weltpolitischen Zeitenwende von 1989/90 rückten alle mit Entwicklung befassten internationalen Organisationen sowie die nationalen Entwicklungsbehörden das vom DAC mit politischen Zielsetzungen angereicherte Leitbild von Good Governance in den Mittelpunkt ihrer Programmatik und Rechtfertigungsrhetorik. Denn die sich verschärfende Kritik an den Leistungen der Entwicklungszusammenarbeit konzentrierte sich vor allem auf den Vorwurf, dass sie Korruptionspraktiken sogar gefördert und Kleptokratien mit Subsidien gefüttert habe. Diese Kritik fand in dem Bestseller von Dambisa Moyo (2010) mit dem vielsagenden Titel *Dead Aid* eine überzeugende Begründung.

Das Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ) goss die Vorgaben des DAC in einen nur wenig veränderten Prinzipienkatalog, der als „Spranger-Duftmarken", benannt nach dem damaligen Minister im BMZ, in die Geschichte der deutschen Entwicklungspolitik einging und bis heute handlungsorientierende Richtlinien bildet:

- Förderung von Rechtsstaatlichkeit und Good Governance
- Förderung der Demokratisierung und Verbesserung der Menschenrechtslage
- Partizipation der Bevölkerung an politischen Entscheidungsprozessen
- Drängen auf eine stärkere „Entwicklungsorientierung" der Eliten durch Korruptionsbekämpfung und Verringerung der Rüstungsausgaben
- Unterstützung von marktwirtschaftlichen Reformen

Dieser Zielkatalog setzte keine Prioritäten und gab auch keine Auskunft, wie die Ziele erreicht werden sollen. Wenn das Ziel der Demokratisierung postuliert wird, stellen sich immer zwei grundsätzliche Fragen:

(1) Wie kann die Demokratisierung von außen gefördert werden, da weitgehend Konsens besteht, dass sie von innen, von endogenen Demokratiebewegungen und aufgeklärten Eliten kommen muss und deshalb von außen allenfalls unterstützt werden kann? Es gibt eine sehr kontroverse Debatte über die Chancen und Grenzen der externen Demokratieförderung. Demokratieförderung von außen ist in der Tat ein „mühsames Geschäft" (so Adam 2013). Jochen Hippler (1994) deutete mit dem Buchtitel *Demokratisierung der Machtlosigkeit* auch die Schwierigkeiten an, unter den strukturellen Bedingungen vieler Entwicklungsländer funktionsfähige Demokratien aufzubauen. Aber der auf vielen Konferenzen geäußerte Merksatz, dass unter einem Pro-Kopf-Einkommen von 5.000 US-Dollar Demokratie nicht funktionieren könne, wird nicht zuletzt durch die „größte Demokratie der Welt" in Indien widerlegt. Ein beredter Verteidiger der in diesem Milliardenvolk ermöglichten „freedom of choice" ist der Nobelpreisträger Amartya Sen.

(2) Können von einer Demokratisierung auch die erhofften Impulse für die wirtschaftliche und soziale Entwicklung ausgehen oder muss die Demokratie jenseits funktionaler Überlegungen als erstrebenswertes Ziel angesehen werden?

Die Datenkompendien der Weltbank scheinen zu belegen, dass nicht Demokratien, sondern mehr oder weniger autokratische, aber im Public Management gut funktionierende Autokratien, allen voran die ostasiatischen Schwellenländer, in denen die Weltbank das *East Asian Miracle* entdeckte, eine relativ gute entwicklungspolitische Performance nachweisen.

Später, als viele Afrika-Experten dem Kontinent schon bessere Perspektiven in Aussicht stellten, sperrte ihn Rainer Tetzlaff (2008) in der „Globalisierungsfalle" ein. Die Frage ist also, ob ein mit sehr hohen Zielen angereichertes Konzept von Good Governance nicht den Boden der Realitäten verlässt und das Governance-Konzept der Weltbank, das zunächst auf die Stabilisierung von Rechts- und Verwaltungsstrukturen abzielt, nicht doch mehr Realismus beanspruchen kann.

Wenn hier wieder das subsaharische Afrika im Mittelpunkt steht, dann liegt es erstens daran, dass hier die „crisis of governance" entdeckt wurde und dieser Kontinent zweitens im Besonderen mit den berüchtigten acht Ks (Konflikte, Krisen, Kriege, Kriminalität, Korruption, Krankheiten, Katastrophen, Kapitalflucht) zu kämpfen hatte. Es gab auch in anderen

Kontinenten solche Krisen und „fragile Staaten" von Haiti über einige Mitglieder der Gemeinschaft Unabhängiger Staaten (GUS) bis zu den Salomonen. Dies war ja auch ein Problem der Good-Governance-Blaupause, dass sie auf sehr verschiedene Problemlagen je spezifische Problemlösungen finden sollte.

Die nationalen Entwicklungspolitiken waren zunehmend in multilaterale Koordinationsmechanismen des DAC und der EU eingebunden. Deren Projekt einer Gemeinsamen Außen- und Sicherheitspolitik forderte auch eine schrittweise Harmonisierung der Entwicklungspolitik, die am leichtesten in Grundsatzfragen erreicht wurde. Der Rat der EU-EntwicklungsministerInnen verabschiedete am 28. November 1991 eine Entschließung über „Menschenrechte, Demokratie und Entwicklung", die den Partnerländern eine Reihe „allgemeiner Grundsätze des Regierens" vorgab:

„Eine vernünftige Wirtschafts- und Sozialpolitik, demokratische Beschlussfassung, angemessene Transparenz des Regierens und finanzielle Verantwortlichkeit, Schaffung eines mit marktwirtschaftlichen Grundsätzen kompatiblen Entwicklungsumfeldes, Maßnahmen zur Bekämpfung der Korruption sowie Wahrung der Rechtsstaatlichkeit, der Menschenrechte sowie der Presse- und Meinungsfreiheit."

Solche Prinzipienkataloge wiederholten sich, klärten aber nicht, inwieweit das Bekenntnis zu einer marktwirtschaftlichen Ordnung oder die „Schaffung eines mit marktwirtschaftlichen Grundsätzen kompatiblen Entwicklungsumfeldes" konstitutive Bedingungen von Good Governance bilden. Dann könnte die Kritik z. B. von Susan George (1994) Nahrung erhalten, dass sich der Wolf wirtschaftspolitischer Konditionalitäten im Schafspelz hehrer politischer Prinzipien verstecke und Good Governance am Ende doch nur auf eine weltweite Verbreitung des Kapitalismus abziele.

Solche Belehrungen haben auch den faden Beigeschmack, dass sie den moralischen Finger nicht an die eigene Adresse richten und z. B. die diskriminierende Handelspolitik, die viel Schaden anrichtet, nicht anklagen. Sie stellen auch nicht die selbstkritische Frage, wieweit mit „Entwicklungshilfe" die beklagten Korruptionsstrukturen aufgebaut wurden.

3.4 Die Vereinten Nationen als Promotoren von Good Governance

Die Universalität von Normen wird immer dann unterstellt, wenn sich UN-Organisationen oder gar die UN-Generalversammlung programmatisch positionieren. Letztere wiederholte in ihrer Resolution 50/225 von 1996 zu *Public Administration and Development* viele Reformforderungen,

die schon in vielen Dokumenten der Weltbank auftauchten. Die Staaten-
mehrheit in der Generalversammlung schätzt nicht immer die Kreditpoli-
tik der Weltbank, aber ihre politische Abstinenz, die sich vor allem in
ihrer Zurückhaltung niederschlug, die Korruption beim Namen zu nen-
nen. Sie zog es vielmehr vor, die Untersuchung von Korruptionspraktiken
institutionell auszulagern, nämlich an die vom ehemaligen Worldbanker
Peter Eigen geleitete Nichtregierungsorganisation namens *Transparency In-
ternational* (TI).

Zur Jahrhundertwende bekräftigten mehrere internationale Vereinba-
rungen die Bedeutung von Good Governance für die gesamtgesellschaftli-
che und nachhaltige Entwicklung, weil Good Governance als Kernelement
von entwicklungsfördernden Rahmenbedingungen und als Voraussetzung
für in- und ausländische Investoren galt. Unter diesen internationalen Ver-
einbarungen gewann die vor großer Besetzung aus allen Weltregionen im
Jahr 2000 in New York unterzeichnete *Millennium-Erklärung* eine besonde-
re Bedeutung. Ihr Kapitel über „Menschenrechte, Demokratie und Good
Governance" betonte die zentrale Bedeutung dieser Werte auch für die
Verwirklichung der Millennium-Entwicklungsziele (MDGs), die bis zum
Jahr 2015 die schlimmsten Formen extremer Armut überwinden sollten.

Der damalige UN-Generalsekretär Kofi Annan räumte in seinem pro-
grammatischen Bericht zum Millennium+5-Gipfel (2005) unter dem Titel
In Larger Freedom einer stabilen Demokratie einen ebenso hohen Stellen-
wert wie der Friedenssicherung ein. Diese Gewichtung ist bemerkenswert,
weil die Friedenssicherung die von der UN-Charta definierte Hauptaufga-
be der Vereinten Nationen bildet, obwohl inzwischen das Völkerrecht
und im Besonderen das Entwicklungsvölkerrecht den Friedens- und Si-
cherheitsbegriff erheblich erweitert hatten.

Noch einmal bekräftigte das Abschlussdokument der von den Verein-
ten Nationen im Jahr 2002 im mexikanischen Monterrey veranstalteten
Zweiten Weltkonferenz zur Entwicklungsfinanzierung (*Financing for Deve-
lopment*), was inzwischen schon viele Konferenzbeschlüsse und Festreden
gewichtiger Repräsentanten der Staatengemeinschaft bekundeten: „Good
Governance ist entscheidend für nachhaltige Entwicklung." Aber die Wie-
derholung solcher Aussagen hatte inzwischen eher einen kontraproduk-
tiven Effekt, weil sie auch Kleptokraten unterschreiben konnten, ohne
befürchten zu müssen, zur Rechenschaft gezogen zu werden. Dieser Wi-
derspruch zwischen wohlfeiler Rhetorik und dem praktischen Handeln
trug nicht unerheblich zur Legitimationskrise der Entwicklungspolitik
bei. Litaneien befördern nicht das Nachdenken. Die programmatische
Vordenker- und Vorreiterrolle der Vereinten Nationen und einzelner ihrer
Sonderorganisationen und Programme bei der Konzeptionalisierung und

Propagierung von Good Governance fiel dann auch der vom damaligen US-Präsidenten Donald Trump eröffneten Attacke auf das UN-System und den von seinen beiden Amtsvorgängern zur Demokratieförderung eingerichteten *Millennium Challenge Account* (MCA) zum Opfer.

Diese weltpolitische Kehrtwende der US-Administration hatte tiefere Auswirkungen auf die im DAC koordinierte Entwicklungspolitik der OECD-Staaten als alle Forderungen von UN-Konferenzen, welche die US-Administration unter Anleitung ihres Präsidenten zu ignorieren pflegte. Nicht Good Governance, sondern *America First* stand nun auf der umwelt- und entwicklungspolitischen Agenda. Auch in diesem Politikfeld fand eine Zeitenwende statt, die sich demonstrativ im Ausstieg aus dem Pariser Klimaabkommen niederschlug.

Man kann die Normen und Wunschvorstellungen, die UN-Dokumente, Resolutionen von Welt- und Regionalkonferenzen, entwicklungspolitische Grundsatzerklärungen des DAC und der EU sowie einzelne Wissenschaftler mit dem Begriff „Good Governance" verbanden, grafisch in dem von Dieter Senghaas (1994: 24) konstruierten *zivilisatorischen Hexagon* verdichten, das Bausteine für ein friedliches Zusammenleben der Menschen und Staaten in Wechselbeziehungen zueinander bringt. Zwar fehlte in diesem Hexagon das wirtschaftliche Wachstum, das für die Weltbank den Dreh- und Angelpunkt von Entwicklung bildet, aber Senghaas fügte hinzu, dass die „materielle Anreicherung von Rechtsstaatlichkeit" und die Sicherung der Grundbedürfnisse eine „konstitutive Bedingung der Lebensfähigkeit von rechtsstaatlichen Ordnungen und damit des inneren Friedens" bilden.

Zusammenfassend kann man sowohl beim Begriff „Governance" als auch beim Begriff „Good Governance" die folgenden unterschiedlichen Akzentsetzungen erkennen:

- Die Weltbank betont die Management-Qualitäten der Regierungen, mit knappen ökonomischen, ökologischen und sozialen Ressourcen effizient und transparent umzugehen.
- Für das UNDP sind die folgenden politischen Qualitäten für Good Governance entscheidend: die Rechenschaftspflicht der Regierungen gegenüber den Regierten (*accountability*), freie Wahlen, *Empowerment*, Dezentralisierung der Verwaltungsstrukturen sowie die Transparenz bei der Verwendung öffentlicher Mittel.
- Die EU stellte rechtsstaatliche und demokratische Strukturen, den Schutz der Menschenrechte und den Kampf gegen die Korruption in den Vordergrund (vgl. Conzelmann 2003).

Allen Konzepten gemeinsam sind die Prinzipien Verantwortlichkeit, Transparenz und Partizipation. Besonders beredt konnte der ehemali-

ge UN-Generalsekretär Kofi Annan über die Bedingung von Good Governance für Entwicklung reden und schreiben. Als Afrikaner konnte er sich in Afrika eher Gehör verschaffen als westliche Politiker. Er schrieb bzw. ließ in einem Beitrag für den *African Governance Report* von 2005 unter dem Titel *Striving for Good Governance in Africa* das Folgende schreiben:

„Gute Regierungsführung und nachhaltige Entwicklung lassen sich nicht trennen. Das ist die Lehre aus all unseren Bemühungen und Erfahrungen von Afrika über Asien und Lateinamerika. Ohne gute Regierungsführung – ohne Rechtsstaatlichkeit, verlässliches Regierungshandeln, legitimierte Machtausübung und bürgernahe Regelsetzung – werden uns alle Gelder und alle Wohltätigkeit dieser Welt nicht auf den Weg zum Wohlstand bringen."

Das ist die gehaltvollste Übersetzung von Good Governance, zumal aus der Feder des höchsten Repräsentanten der Staatengemeinschaft. Ebenso wichtig ist, dass er aus Afrika (Ghana) stammte und deshalb von afrikanischen Regenten nicht so leicht beschuldigt werden konnte, die Rolle eines Büttels des Westens zu spielen. Nicht minder glaubwürdig hatte der ehemalige tansanische Präsident Julius Nyerere die Korruptionspraktiken vieler seiner Amtskollegen angeklagt und in dem nach ihm benannten Bericht der Süd-Kommission von 1990 betont, dass eine verantwortliche Regierungsführung die Voraussetzung für Entwicklung bilde und ein unbedingtes Muss von Demokratie darstelle. Es gibt heute nur wenige afrikanische Führungsfiguren vom Format eines Julius Nyerere, Nelson Mandela und Kofi Annan.

3.5 Misstöne und Konkordanzen im Good-Governance-Wunschkonzert

Es gehört in der kritischen *development community* schon zum Ritual, die Bretton-Woods-Institutionen als Instrumente westlicher Hegemonialpolitik anzuklagen. Dann war auch der Verdacht nicht weit entfernt, dass die Good-Governance-Rezeptur nur einen neuen Versuch darstelle, die alten modernisierungstheoretischen Rezepte unter einem neuen Firmenzeichen weltweit zu verbreiten und den Rest der Welt doch wieder nach eigenem Vorbild gestalten zu wollen. Aber es war gar nicht so leicht, mit Demokratie und Menschenrechten auch Good Governance prinzipiell infrage zu stellen, weil sie allseits akzeptierte Ziele darstellen.

Die Attac-Aktivistin Susan George (1994: 208) stellte die rhetorische Frage, wie eine so mächtige Institution wie die Weltbank, die mit ihrer Massenproduktion von Berichten die entwicklungspolitische Agenda dominiert, sich plötzlich für die Demokratisierung einsetzt. Sie gab die

folgende Antwort, in der tiefes Misstrauen gegenüber den hintergründigen Absichten zum Ausdruck kommt, die Susan George auch dem Good-Governance-Konzept unterstellte:

„Governance ist das passende Mittel, um den nächsten Fehlschlag der Weltbank und ihrer ‚Entwicklung' zu rechtfertigen. Gerade weil Fehlschläge so gut wie sicher sind, braucht man sehr gute Entschuldigungen, und die Behauptung, die Staaten der Dritten Welt hätten sich nicht an die demokratischen Tugenden gehalten, ist eine sehr gute Entschuldigung … Ein im Kern so politischer Gesellschaftsbereich erscheint jetzt als völlig unpolitisch, eher technisch-administrativ, und wird auf diese Weise der Einmischung der Weltbank geöffnet."

Man mag diese Kritik als notorisches Nörgeln einer Aktivistin von Attac abtun, zu dessen bevorzugten Feindbildern immer die Bretton-Woods-Institutionen zählten. Aber so ganz unsinnig sind die verschwörungstheoretisch anmutenden Spekulationen über die Hintergründe und Zielsetzungen der Weltbank-Strategien nicht.

Es gab immer wieder eine mit ähnlichen Argumenten begründete Kritik am Good-Governance-Konzept. Noch schärfer als Susan George attackierte Jörg Goldberg (2008) den von ihm der westlichen Entwicklungspolitik unterstellten Versuch, mit Good Governance Max Weber nach Afrika exportieren zu wollen. Allerdings war die Erkenntnis nicht sonderlich originell, dass mit der Entwicklungszusammenarbeit nicht nur Geld und Expertise, sondern auch politische Konzepte transferiert werden; dass sich besonders die ärmsten Länder, deren öffentliche Investitionen größtenteils von außen finanziert werden, nur schwer gegen politische Konditionalitäten wehren können und hier *Ownership* zur Schimäre wird.

Die Konditionalitäten, welche die Bretton-Woods-Institutionen im Rahmen ihrer Strukturanpassungspolitik mit großer Härte durchgesetzt hatten, stießen inzwischen nicht nur auf selbstbewusster gewordene Partner, sondern konfligierten auch mit dem Recht auf *Ownership*, das die Weltbank selbst mit der Maxime umschrieb, dass die Partnerländer vom Beifahrersitz auf den Fahrersitz umsteigen sollten. Die von der OECD initiierte *Paris-Deklaration zur Wirksamkeit der Entwicklungszusammenarbeit* von 2005 gestand diesen ausdrücklich dieses Recht zu. Sie waren auch immer weniger gewillt, wie zu Zeiten der großen Verschuldungskrisen, Diktate aus Washington, D.C. hinzunehmen. Zwar stieß die von Samuel P. Huntington (1991) nach dem Ende des Ost-West-Konflikts prognostizierte „dritte Welle der Demokratisierung" an verschiedenen Orten auf Klippen, aber der Nachweis von Vergleichsindizes, dass demokratisch regierte Länder auch wirtschaftlich erfolgreich waren, erzeugte mehr Lerneffekte als Sanktionsandrohungen oder die Aussicht auf einen Good-Governance-Bonus.

Auch im Süden standen nicht so sehr die Prinzipien von Good Governance, die Susan George mit polemischer Häme überzog, zur Debatte, sondern aus ihnen ableitbare Sanktionen. So nutzten Oppositionsparteien und zivilgesellschaftliche Organisationen die Kernkriterien der Transparenz des Regierungs- und Verwaltungshandelns und der Verantwortlichkeit der Regierenden in Medien- und Wahlkampagnen. Dabei erhielten sie vom Netzwerk internationaler Stiftungen und Nichtregierungsorganisationen finanzielle und technische Unterstützung. Die digitale Vernetzung der Welt und die Einbindung der Medien in transnationale Kommunikationsstrukturen beförderten Demokratisierungsprozesse. Das universelle normative Leitbild von Good Governance lieferte dabei einen Referenzrahmen, nicht mehr, aber auch nicht weniger.

4. Good Governance in der internationalen und deutschen Entwicklungszusammenarbeit

Internationale Organisationen und nationale Entwicklungsagenturen haben mithilfe wissenschaftlicher Denkfabriken das Good-Governance-Konzept immer mehr verfeinert und Messinstrumente zur Überprüfung seiner Umsetzung entwickelt. Sie haben den Entwicklungs- und Transformationsländern mit dem mehr oder weniger konsequenten Einsatz von Zuckerbrot und Peitsche, also von Belohnungen für Wohlverhalten und Strafandrohungen für Zuwiderhandeln, ein Konzept aufgedrängt, das sie wegweisend für die Überwindung von Entwicklungsproblemen halten, und sich dabei auf die empirische Evidenz ihrer Indizes berufen können. Sie gehen dabei erstens das Risiko ein, dass sie Widerstände gegen von außen auferlegte Konditionalitäten provozieren, und sie blenden zweitens die eigene Mitverantwortung für Fehlentwicklungen aus. Die Entwicklungsländer wehren sich mit der Berufung auf das *Ownership*-Prinzip gegen ordnungspolitische Geberdiktate, obwohl sie sich selbst in vielen Erklärungen zum Good-Governance-Konzept bekannt haben. Und sie können sich auf die im achten MDG postulierte globale Partnerschaft berufen, die einseitige Diktate verbietet.

Auch dies belegt die internationale Debatte über die Wirksamkeit der Entwicklungszusammenarbeit: Die bi- und multilateralen Geldgeber haben die Herausbildung klientelistischer Korruptionsstrukturen gefördert, und sie tun dies weiterhin, wenn sie aus außenpolitischen oder kommerziellen Gründen auch Regime unterstützen, denen der *Corruption Perception Index* von Transparency International eine hohe Korruptionsanfälligkeit bescheinigt. Sowohl der „Krieg gegen den Terror" als auch der internatio-

nale Wettbewerb um Rohstoffressourcen waren der Glaubwürdigkeit der Bekenntnisse zu Good Governance sowie zur Universalität und Unteilbarkeit politischer und sozialer Menschenrechte höchst abträglich. Weil z. B. die damalige Bush-Administration das in einer Konvention verankerte absolute Folterverbot relativierte, lieferte sie notorischen Folterregimen ein willkommenes Alibi.

Angesichts des Phänomens fragiler Staatlichkeit stellte sich auch die Frage, ob die Entwicklungspolitik bevorzugt *good performers* belohnen soll oder ob nicht vielmehr gezielt die von der Weltbank so bezeichneten *Low Income Countries Under Stress* (LICUS) gefördert werden sollen, damit sie ihre Strukturdefizite überwinden und Rückfälle in *Bad Governance* vermeiden können – ob also die strukturelle Stabilisierung durch *state building* den Zielen von Good Governance vorgeschaltet werden soll.

In den entwicklungspolitischen Debatten in Zeiten fragiler Staatlichkeit zeichnete sich die Forderung ab: „Stay Engaged" statt „Let Them Fail" (vgl. Debiel et al. 2007). Das Verhindern von Anarchie erhielt Vorrang vor Demokratie, das Zurückdrängen der entwicklungspolitisch fatalen Auswirkungen von *Bad Governance* Vorrang vor den hohen Zielen von Good Governance. Dies bedeutete für die Entwicklungszusammenarbeit, Operationspläne für den Umgang mit fragilen Staaten auszuarbeiten. Das BMZ (2007) legte das Konzept *Entwicklungsorientierte Transformation bei fragiler Staatlichkeit und schlechter Regierungsführung* vor, welches das Konzept der „vernetzten Sicherheit" operationalisierte.

Die z. B. auf den G 8-Gipfeln von Gleneagles (2005) und Heiligendamm (2007) beschlossenen Sonderprogramme für das subsaharische Afrika waren eben mit dieser Frage konfrontiert: Wie kann und soll das viele zusätzliche Geld in einem Kontinent, der aufgrund seiner institutionellen Absorptionsprobleme schon als „over-aided" gilt, sinnvoll eingesetzt werden? Das betrifft auch die Mehrheit der Staaten, die der *Failed States Index* als fragile Staaten mit einer schwach entwickelten Staatlichkeit ausweist. Nach dem *Governance Matters Index* der Weltbank mangelt es hier sogar an grundlegenden Governance-Strukturen. Sie sind zugleich am weitesten von den Zielvorgaben der MDGs und der Good-Governance-Konzepte entfernt. Also doch „Stay Engaged" trotz der vielfältigen Hürden für eine sinnvolle Entwicklungszusammenarbeit, welche die Weltbank in dieser LICUS-Staatengruppe entdeckte?

Auch der von Jeffrey Sachs geforderte *Big Push* in Gestalt massiver öffentlicher Kapitalspritzen beschwört besonders in den fragilen Staaten mit instabilen Rechts- und Verwaltungsstrukturen verschiedene Risiken herauf:

- dass er die Verantwortung der Regierungen und Parlamente gegenüber den eigenen Bevölkerungen schwächen und damit der Demokratie einen Bärendienst erweisen könnte;
- dass er Bürokratien aufblähen, klientelistische Strukturen alimentieren und die Korruption fördern könnte, weshalb Robert Calderisi (2006) statt einer Verdoppelung die Halbierung der Afrika-Hilfe forderte und das Hamburger GIGA (*German Institute of Global and Area Studies*) in einem Forschungsprojekt Zweifel an der Sinnhaftigkeit von größeren Geldströmen anmeldete;
- dass er das Bemühen unterminieren könnte, eine funktionierende Finanzverwaltung aufzubauen und auch bei wohlhabenden Gruppen Steuern einzutreiben, also die im Land vorhandenen finanziellen Ressourcen zu mobilisieren, obwohl doch auch viele arme Länder bei einer gerechteren Verteilung der vorhandenen Ressourcen die MDGs verwirklichen könnten;
- dass er *Ownership* endgültig zur Schimäre machen könnte, die eben nicht nur das Recht auf einen eigenen Entwicklungsweg fordere, sondern auch Eigenverantwortung einfordere, die durch das starke Engagement externer Akteure gewissermaßen externalisiert werde;
- dass er die eigenen Problemlösungsfähigkeiten und administrativen Kapazitäten schwächen könnte, weil die externen Akteure mit höheren Gehaltsangeboten die besten Fachkräfte abwerben.

4.1 Good Governance in der deutschen Entwicklungszusammenarbeit

Die deutsche Entwicklungspolitik und ihre Durchführungsorganisationen haben sich nach ihrer Befreiung aus den geopolitischen Zwängen des Kalten Krieges seit Beginn der 1990er-Jahre in den vom DAC und von der EU konzertierten entwicklungspolitischen Strategiewechsel eingefügt. Good Governance wurde zu einer Querschnittsaufgabe der bilateralen Entwicklungszusammenarbeit. Die damalige GTZ baute den Schwerpunkt „Demokratie, Zivilgesellschaft und öffentliche Verwaltung" auf und vereinbarte mit zahlreichen Kooperationsländern diesen Arbeitsschwerpunkt, in dem die von ihr entsandten Regierungsberater eine Schlüsselrolle spielen.

Es ist eine Besonderheit und ein operativer Vorteil der deutschen Entwicklungszusammenarbeit, dass sie für einen politisch sensiblen Projektbereich auch das Auslandsnetz der politischen Stiftungen nutzen kann. Sie sind zwar mit den politischen Parteien verbandelt, aber nicht an kurze diplomatische Leinen gebunden; sie können deshalb in ihren Gastländern auch mit Oppositionsparteien oder regimekritischen zivilgesellschaftlichen

Organisationen zusammenarbeiten, was ihnen gelegentlich Konflikte oder sogar Arbeitsverbote einbrachte. Ihre Versuche, den zivilgesellschaftlichen Unterbau von Demokratie zu stärken, leisten einen größeren Beitrag zur Demokratisierung als viele von staatlichen Organisationen organisierte Dialogrunden. Weil das Thema so wichtig ist und sich in der Öffentlichkeit gut verkaufen lässt, möchten die Durchführungsorganisationen politischen Stiftungen jedoch nicht das Feld überlassen.

Strategischen Vorrang hat die politische Gestaltung der Dezentralisierung, die den bürokratischen Zentralismus autokratischer Regime, der im frankophonen Afrika eine Hinterlassenschaft des französischen Etatismus und Zentralismus ist, überwinden soll. Das Plädoyer für Dezentralisierung geht davon aus, dass die Dezentralisierung von Verwaltungsstrukturen und Entscheidungsprozessen ein geeignetes Mittel zur Stärkung von politischer Legitimität und Partizipation sowie eine Voraussetzung für eine effiziente Verteilung öffentlicher Güter auf regionaler und kommunaler Ebene bildet. Der Zentralstaat bleibt jedoch verantwortlich für die Schaffung legislativer und administrativer Rahmenbedingungen, welche die Regelorientierung von Verwaltungen optimieren sollen.

Das BMZ legte großen Wert auf die Stärkung des kommunalen Haushaltsmanagements mit dem doppelten Ziel, eine funktionstüchtige soziale und materielle Infrastruktur und zugleich ein solides Haushaltsgebaren zu fördern. Die Annahme ist sicherlich zutreffend: Eine transparente Haushaltspolitik, die verhindert, dass öffentliche Haushalte zu Selbstbedienungsläden von Eliten degenerieren, schafft Vertrauen in den Staat und in die Politik. Wahlen und die Einbindung der Bevölkerung in politische Entscheidungsprozesse sollen schließlich die Verantwortlichkeit der Kommunalverwaltungen erzwingen. Die Bürgerbeteiligung an der kommunalen Haushaltsgestaltung nach dem Porto-Alegre-Modell funktioniert bisher nur in einer Reihe von lateinamerikanischen Städten – und zwar so gut, dass sie auch für deutsche Kommunen Vorbild sein könnten. Lernen von „best practices" findet nicht auf einer Nord-Süd-Einbahnstraße statt. Das BMZ erweiterte Good Governance um das Element der Partizipation, auch um der Kritik zu begegnen, dass das Konzept hinter aller normativen Rhetorik doch nur eine Rezeptur zur Durchsetzung eines neoliberalen Globalisierungsmodells sei, was Attac und andere zivilgesellschaftliche Akteure unterstellen.

Das BMZ setzte zweitens auf die Unterstützung nationaler Reformprozesse und rückte dabei die Gestaltung der öffentlichen Finanzen (*Good Financial Governance*) und die Stärkung staatlicher Schlüsselinstitutionen in den strategischen Mittelpunkt. Die SektorplanerInnen waren davon überzeugt, dass die Entwicklungszusammenarbeit beim Aufbau effizienter,

transparenter und regelorientierter Institutionen und beim Abbau von Korruption helfen kann.

Überzeugender ist drittens die Absicht der ProgrammplanerInnen des BMZ, durch die Unterstützung regionaler Organisationen, z. B. der New Partnership for Africa's Development (NEPAD), Einfluss auf nationale Reformprozesse zu gewinnen, weil deren aus dem regionalen Umfeld eingeleitete *Peer Reviews* eher Verhaltensänderungen von politischen Führungsgruppen bewirken können als die der illegitimen Einmischung verdächtige Besserwisserei von internationalen Ratgebern. Ebenso überzeugend ist die Absicht, durch die politische und materielle Unterstützung regionaler Friedensinitiativen und durch die Aufbauhilfe von regionalen Sicherheitsstrukturen dem Ausbruch von gewaltsamen Konflikten vorzubeugen, weil Bürgerkriege alle Bemühungen um Good Governance zunichtemachen.

Die unter Federführung des Auswärtigen Amtes und unter Nutzung wissenschaftlicher Expertise ausgearbeitete Konzeption zur Krisenprävention und friedlichen Konfliktbearbeitung kann deshalb Voraussetzungen schaffen, dass Good Governance überhaupt eine Realisierungschance erhält. Die Entwicklungspolitik hat durchaus Chancen, auf die Entstehung und Eskalation von gewaltträchtigen Konflikten einzuwirken. Der von Willy Brandt geprägte Aphorismus gilt noch immer: „Frieden ist nicht alles, aber ohne Frieden ist alles nichts." Mit anderen Worten: Die Chancen für Good Governance hängen von der Friedenssicherung ab.

Die deutsche Entwicklungspolitik kann nur versuchen, in Zusammenarbeit mit multilateralen Organisationen, mit dem UN-System und der EU die wirtschaftlichen und sozialen Voraussetzungen für politische Reformprozesse zu verbessern. Aber dies lehrt die Geschichte der internationalen Entwicklungspolitik: Auch viel Geld kann keine Erfolgsgarantie kaufen. Die nach der weltpolitischen Zeitenwende erhoffte „dritte Welle der Demokratisierung" wurde bald durch den Ausbruch von Bürgerkriegen zurückgeworfen, die bestehende Strukturen zerstörten und viel Kraft und Zeit zum Aufbau tragfähiger Post-Konflikt-Strukturen erforderlich machen. Die Indizes belegen sowohl Fortschritte zu Good Governance als auch Rückfälle in Bad Governance.

Es gibt im Good-Governance-Chor auch einige kritische Stimmen, die eine kritische Wissenschaft nicht überhören sollte:

Erstens: Das vielstimmige Credo zu den Glaubenssätzen von Good Governance konnte den Verdacht nicht völlig beseitigen, dass Good Governance eine „Catch-all-Phrase" bilde, unter der sich jeder etwas anderes und möglichst viel Gutes vorstellen könne. Auch die akademische Begriffsakrobatik konnte diesen Vorwurf nicht aus der Welt schaffen.

Zweitens: Die Inflationierung des Begriffs suggerierte die Annahme und Hoffnung, dass Good Governance ein Passepartout für eine bessere Welt bilden und sich dabei als eine ubiquitär passende Blaupause eignen könnte. Diese Annahme ignoriert jedoch sehr unterschiedliche sozioökonomische Problemlagen, soziokulturelle Verschiedenheiten und unterschiedliche Bedingungen des Regierens, welche die Entwicklungsforschung längst zutage gefördert hat.

Drittens: Auch die Kritik von Susan George (1994) sollte nicht einfach als notorisches Nörgeln einer Attac-Aktivistin abgetan werden. Die Kritik ist nicht unbegründet, dass die bi- und multilaterale Gebergemeinschaft mit der Zauberformel Good Governance die geringen Erfolge bei der Armutsbekämpfung ziemlich monokausal auf die „crisis of governance" zurückführte, um erstens von eigenen Defiziten in der Entwicklungszusammenarbeit und zweitens von den für die Entwicklungsländer nachteiligen weltwirtschaftlichen Rahmenbedingungen abzulenken.

Viertens: Indem die damalige Bush-Administration das absolute Folterverbot durch die Erlaubnis von „außergewöhnlichen Verhörmethoden" relativierte, lieferte sie auch notorischen Folterregimen ein Alibi. Das Verbot von Folter bildet aber eine *Conditio sine qua non* von Good Governance, weil es zum Kernbestand der *Habeas-Corpus*-Garantien zählt, der unter keinen Umständen zur Disposition stehen darf – überall auf der Welt.

Fünftens: Als durchaus zutreffend hat sich die Selbstkritik von Christian Ruck (2007) erwiesen, einem erfahrenen Entwicklungspolitiker aus den Reihen der CSU, dem zufolge „uns bisher eine schlüssige Strategie zur friedlichen Transformation von schlechter Regierungsführung zu guter Regierungsführung" fehle. Der Massenproduktion von Bekundungen, dass Good Governance zu einem neuen und universellen „Leitbild von Staatlichkeit" (so Dolzer 2007) geworden sei, stehen auch viele Rückfälle in Bad Governance gegenüber. Dies gilt nicht nur für die notorischen Exemplare von Bad Governance (wie Zimbabwe, Somalia, Kongo, Turkmenistan, Haiti), sondern droht – wie die Beispiele von Kenia oder Mali lehren – auch anscheinend stabilen Staatswesen.

Sechstens: Die *Paris-Deklaration zur Wirksamkeit der Entwicklungszusammenarbeit* förderte zutage, dass es auch in der Organisation der internationalen Entwicklungszusammenarbeit einen Mangel an Effektivität, Transparenz und klaren Verantwortlichkeiten, sprich: an Good Governance gibt. Der Diskurs über Good Governance blendet auch die Verantwortlichkeit der westlichen Gebergemeinschaft für den Klimawandel weitgehend aus, der jedoch nach allen Prognosen des IPCC (*Intergovernmental Panel on Climate Change*) und des Umweltprogramms der Vereinten Nationen (UNEP) vor allem die ökologisch verwundbaren Weltregionen in noch

größere Armut und Verteilungskonflikte zu stürzen droht. Für eine *Global Good Governance* hat also diejenige Ländergruppe, die dem Rest der Welt Good Governance beizubringen versucht, eine besondere Verantwortung, der sie sich bisher nur ungenügend stellte.

5. Zusammenfassung

Es ist zwar nicht so, wie im Rückblick auf die Entstehungsgeschichte des akademischen und politischen Governance-Diskurses häufig zu lesen ist, dass die Weltbank mit ihrer 1989 veröffentlichten Studie über die „crisis of governance" im subsaharischen Afrika oder spätestens mit ihrem Policy Paper von 1992 über *Governance and Development* die Diskussion über die Bedeutung von Governance im Entwicklungsprozess eröffnet habe. Aber sie hat als wichtigste *agenda setting agency*, die über viel Geld und Expertise verfügt, immer die Paradigmenwechsel in der internationalen Entwicklungspolitik eingeleitet und vorangetrieben und dabei mit dem Internationalen Währungsfonds (IWF) zusammengearbeitet: von der *Trickle-down*-Rechtfertigung ihrer Wachstumsstrategie über die Grundbedürfnisstrategie in der Ära ihres Präsidenten Robert McNamara bis hin zu der vom neoliberalen *Washington Consensus* geleiteten makroökonomischen Strukturanpassungspolitik in den 1980er-Jahren und zurück zu ihrer *Pro-Poor-Growth*-Politik in den späten 1990er-Jahren, mit der sie schon in taktisch geschickter Weise die Bekehrung der Gebergemeinschaft zu den Millennium-Entwicklungszielen (MDGs) einleitete. Dabei ist zu bedenken, dass die OECD-Staaten in ihrem Exekutivdirektorium über die Stimmenmehrheit verfügen.

Der aus der „crisis of governance" abgeleiteten Erkenntnis, dass politische Rahmenbedingungen für die Wirksamkeit der internationalen Entwicklungspolitik wesentlich sind, dass also „policy matters", gingen die theoretisch begründeten und empirisch abgesicherten Einsichten der Neuen Institutionenökonomik voraus, dass die „unsichtbare Hand" des Marktes nicht alles zum Besten steuert, sondern auch den Markt regulierende Institutionen braucht. Noch aber war die von ihrem Mandat zur politischen Neutralität verpflichtete Weltbank nicht bereit, den qualitativen Sprung von Governance zu Good Governance zu machen und die Korruption als Krebsübel von Bad Governance zu identifizieren sowie die berüchtigten Kleptokraten beim Namen zu nennen. Sie beschränkte deshalb ihre technokratischen Reformforderungen auf die Verbesserung des Public Management und scheute den Begriff der Demokratie wie der

Teufel das Weihwasser. Deshalb konnte sie auch ohne Vorbehalte das autokratisch gesteuerte *East Asian Miracle* rühmen.

Die weltpolitische Zeitenwende von 1989/90 befreite auch die Entwicklungspolitik von den geostrategischen Fesseln des Kalten Krieges und führte erstaunlich schnell dazu, dass die im DAC organisierte westliche Gebergemeinschaft und UN-Organisationen den in den Sozial- und Verwaltungswissenschaften florierenden Governance-Diskurs in einem qualitativen Sprung mit ordnungspolitischen Normen auffüllten: Das normative Leitbild von Good Governance konstruierte ein als universalisierbar gedachtes „neues Leitbild der Staatlichkeit", das aufbaut „auf funktionsfähigen staatlichen Institutionen, auf dem Respekt vor den Menschenrechten, auf der Betonung der Rechtsstaatlichkeit, auf wirtschaftlicher Vernunft in der Politik und auf der Notwendigkeit der Partizipation aller Schichten und des sozialen Ausgleichs und Friedens" (Dolzer 2004: 546).

6. Schlussfolgerungen ad personam

Es war die Kernthese dieses Beitrages zu Ehren von Dirk Messner, dass das von ihm mitgedachte Konzept von Global Governance ohne den institutionellen und habituellen Unterbau von Good Governance keinen nachhaltigen Erfolg haben kann. Dieser Beitrag sollte auch aufzeigen, wie umstritten das normative Konzept von Good Governance war und welche Schwierigkeiten es mit sich brachte, es in der praktischen Entwicklungszusammenarbeit umzusetzen. Dirk Messner war nicht nur ein kreativer Ideenspender, sondern auch ein einflussreicher Berater der in der Entwicklungspolitik tätigen Organisationen. Es ist der Wunsch eines langjährigen Mitstreiters, dass ihn die neue präsidiale Leitungsfunktion nicht von der doppelten Funktion des Ideenspenders und Beraters der entwicklungspolitischen Praxis abhalten möge. Wir brauchen Dich nicht nur in der nationalen und internationalen Umweltpolitik, in der Du weiterhin Global Governance hegen und pflegen kannst. Wir akademischen Trockenschwimmer denken weiterhin darüber nach, wie Global Governance auf die Füße von Good Governance gestellt werden kann.

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Tipping points and small steps

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In 2003 Dirk Messner was appointed Director of the German Development Institute (DIE). I was German Minister for Economic Cooperation and Development at that time. Now, after nearly two decades of our successful cooperation, I am still proud of this decision! Dirk and his colleagues turned the German Development Institute into the leading think tank on development policy that it is today. Thus the Institute became our relevant partner and counsellor in discussions on development, a partner we had been lacking before. It was the first time that I associated Dirk Messner with a tipping point – of course in a clearly positive connotation. He continued his dedication to providing his expertise and insight by joining the German Advisory Council on Global Change and by founding the German chapter of the Sustainable Development Solutions Network – to name just a few of the remarkable scientific bodies active at the interface with policy and society that he cooperated with. In 2018 he joined the Institute for Environment and Human Security of the United Nations University, and today he leads the German Environment Agency.

The positive tipping point that Dirk Messner brought about with the DIE had to do with the quality of political advice. That was way before we associated "tipping points" with ecological disasters, as we do today. And it reminds me of another tipping point in the quality of discussing global development: In 1977 the then president of the World Bank, Robert McNamara, proposed the establishment of the Independent Commission on International Development Issues, the so-called North-South Commission under the chairmanship of Willy Brandt. In 2022, 45 years will have passed

since this landmark decision! Of course, the world has changed so much in these 45 years: We saw the end of the Cold War with the collapse of the Iron Curtain, and the world is no longer divided between an Eastern and a Western block. However, if we look at the recommendations of the Brandt Commission, published in 1980, many of their proposals are acutely relevant and applicable to the problems we face today! Willy Brandt called for a globalisation of politics and a *Weltinnenpolitik*, maybe best translated as Global Domestic Politics. "In wide ranges there exists a defensive pragmatism and this at a time in which the interests of human beings and humanity demand new perspectives and farsighted leadership." (Independent Commission on International Development Issues 1980: 17) For the Commission, this meant a new, inclusive and comprehensive understanding of security and a strengthening of the United Nations as well as the recognition of our joint responsibility to solve global problems: "None of the important problems can be solved effectively by confrontation. Reasonable solutions can only be based on dialogue and cooperation." (Independent Commission on International Development Issues 1980: 32)

Today we have the 17 Sustainable Development Goals that encourage us to choose dialogue and cooperation over greed and confrontation. And the COVID-19 pandemic – as much as it was devastating – demonstrated that, first of all, the dangerous ideology of neoliberalism, which prevented the realisation of many of the Commission's recommendations, needs to be left behind as it is not suitable to safeguard a fair and inclusive well-being of humankind. Instead, a social welfare state and social security systems which can protect their citizens have proven to be valuable and effective. Second of all: Pandemics – by their very nature – can only be overcome through international cooperation. It is not at all clear yet that this is a tipping point for the beginning of the end of destructive nationalism. It is not yet clear that the world will learn this lesson and establish a tighter global cooperation, much less a global governance, as Willy Brandt foresaw it. But there is a significant change today since the time when his report was written: Today we have a much stronger participation of civil society which can bring global solutions forward and which can help to overcome obstructions from vested interests.

In the face of historical tipping points such as a global pandemic, however, continued national and corporate self-interest stands in the way of a global perspective: What are the tasks that Dirk Messner – not alone, of course, but together with all those national and global partners – has before him?

The Sustainable Development Goals and the Agenda 2030 are the central reference for a social-ecological transformation of politics, economics

and society in all countries and regions. In the spirit of the Brandt Report 1980 and the Brundtland Report 1987, this means that the decisions of today must be judged not only from the perspectives of the coming generations but also from the perspectives of other regions, notably the Global South.

Dirk Messner, as long as I have known him, has always championed two key positions: First, that the ecological imperatives have to be obeyed, meaning the pressing need to decarbonise all sectors: the energy system, industry, mobility, housing, in short, all areas of consumption. Secondly, from an early stage on Dirk has advocated for the necessity to "leave no one behind" – a truly human-rights-based, social and empathetic position. In this regard I remember an argument Dirk made in a speech he held in 2016 to honour Erhard Eppler's 90th anniversary: There will be no leeway to solve social divides in a spirit of justice when temperatures are rising and natural disasters become both more regular and more devastating. He also argued that the modernisation project, prescribed by the concept of climate neutrality, must be an inclusive modernisation project, because we have to prevent not only the ecological tipping point but must also prevent a tipping point in our societies. Quite right!

The challenges to achieve this together are huge, even more so after the COVID-19 pandemic. For the effects of the pandemic have hit the Global South, and specifically the poorest developing countries, a lot worse than the Global North, both in the areas of public health and economically. The pandemic has aggravated already existing inequalities, increased poverty and has thus further endangered the successful implementation of the Sustainable Development Goals.

The social security systems in the Global North have proven to be essential in coping with COVID-19. One of the prerequisites to fulfil the SDGs and a just transition is that social security systems in the Global South need massive support. This is an additional task, needed for states and initiatives that aim at social cohesion and solidarity in bringing public services forward.

Incredible tasks, and I can certainly not bring positive tipping points about – no one can, at least not alone. But what we can do is describe the "small steps" that might get us there, borrowing another political metaphor from Willy Brandt.

As a first step we need to address the issue that fundamentally threatens the survival of humanity and our planet: climate change. There should be a real Green Deal between the European Union and the African Union. The EU Commission and European leaders should take the cooperation with the African Union seriously. Africa is our closest partner continent,

and its development is essential, also for Europe's future. Such an alliance should comprise support for the adaptation to climate change. After the recent experiences of extreme weather events in Europe, there is perhaps a new understanding of African countries' urgent needs for climate change mitigation and adaptation. Such a Green Deal should also include support for climate partnerships to develop renewable energy strategies in the respective countries, in combination with efforts to reach the Sustainable Development Goals. For those countries that are still dependent on fossil fuels and their exports, this means the development of exit strategies and just-transition plans in order to prevent stranded assets. New partnerships, specifically for the production of green hydrogen, should respect the fact that African countries need to look after their own energy and electricity needs first to develop successfully instead of being looked at as mere "exporters". Climate partnerships should also consider the necessity of biodiversity protection, because the more we abuse nature, the higher the risk that new pandemics will emerge. Otherwise, the COVID-19 pandemic could only be a precursor of other devastating experiences to come.

Step two is a comprehensive international effort to finance the fight against the climate catastrophe together with the goals to fight poverty and inequality. Would we not need a new Independent Commission for International (Development) Questions to galvanise such an endeavour? For we would need a change in national taxation systems, an ending of tax evasion and tax avoidance and of money laundering, e.g. by ending profit shifting of big companies, by creating transparency of real ownerships and a global minimum corporate tax. A debt release for the poorest developing countries should be combined with support for the Nationally Determined Contributions to the implementation of the Paris Agreement of those countries. Would we not also need political initiatives to curb military expenditure worldwide in order to finance the pressing needs of the Sustainable Development Goals? Some aspects of these proposals could already be found in the Brandt Report. And at that time the East-West divide still existed! Would not now be the time to prevent a new armament race with China?

Step three is the fight against the discrimination of women – another area where I hope for new policy initiatives. But we also have to realise that, due to COVID-19 and the policy measures taken to prevent the spread of the virus, another "pandemic" has arisen, as Antonio Guterres has called the rapid increase of violence against women and girls. And in some countries, such as Afghanistan, groups have taken over that openly deny women their universal rights. During the pandemic, education for 90 percent of children in the world has been interrupted, and, as is so

often the case, girls are hit especially hard. There is also a tendency in some countries to deny women their sexual and reproductive rights. That is why sexual and reproductive rights of girls and women should be strengthened; better political representation of women should be one of the major goals of the coalition of the willing, and the fulfilment of UN Resolution 1325 on women, peace and security should be continually demanded by including women in conflict talks and crisis prevention. Moreover we have to outline clearly that women show much better abilities to cope with the challenges of the present and future: Their ability to adapt to new situations and their resilience are a much-needed asset in today's world that should not go untapped.

As a fourth step, finally, it is high time to start new initiatives to protect and secure universal rights, which are enshrined in the UN Charter, the Universal Declaration of Human Rights and the Human Rights Conventions. To do so, the Brandt Commission's recommendation to strengthen the United Nations should be remembered. One initiative should be to try to establish a UN Sustainability Council, which should comprise representatives of all regions, without any veto power of single countries. Such a UN Sustainability Council could help to implement the SDGs, monitor the ongoing process and help to develop global structures that can cope with the risks of globalisation. The High-Level Political Forum, although it is an important place of international dialogue, cannot fulfil these tasks.

Of course there are other areas which are not in the traditional development field but where we could strengthen the United Nations and support UN General Assembly initiatives. A very important one, which is backed by 130 states and became international law in January 2021, is the Treaty to ban Nuclear Weapons. I am sure that Willy Brandt would be tremendously satisfied if he could see how those initiatives to interrupt the nuclear arms race and to delegitimise nuclear weapons have gained support today. There: A small step – already taken!

There are tipping points to prevent, tipping points to bring about and many, many small steps in-between. Dirk Messner has described and explained so many of them. I very much hope he will continue to do so, so that we will keep having his guidance and his considerate advice.

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Science and policy for the sustainability transformation

Science and policy: Together for the great transformation

Svenja Schulze
Svenja Schulze has been Federal Minister for Economic Cooperation and Development from December 2021. Before, she served as Federal Minister for the Environment, Nature Conservation and Nuclear Safety, 2018 to 2021. From 2010 to 2017, she served as Minister for Innovation, Science and Research of the Federal State North Rhine-Westphalia. She joined the Social-Democratic Party of Germany (SPD) in 1988. Svenja Schulze was born in Düsseldorf in 1968. She met Professor Dirk Messner while Science Minister in North Rhine-Westphalia at the dialogue process "Fortschritt gestalten" (shaping progress), in which he played an active role as Director of the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

The way humankind deals with climate change is a reflection of our treatment of each other. The impacts of climate change are unfairly distributed, and regions that have played almost no part in global warming are especially hard hit. Our children and grandchildren are far more affected by the impacts than those who are largely responsible for causing them. Finding bold, appropriate responses to the climate crisis is therefore a question of justice, solidarity and responsibility.

If we want to secure good living conditions on Earth, if we want to curb extreme weather events and other consequences of climate change, we have to change something fundamental: the way we run our economies, how we generate energy, our forms of mobility, how we work and live. That is why the German government has adopted the goal of climate neutrality by 2045. We made this goal legally binding in the Climate Change Act that I introduced.

Achieving climate neutrality is pivotal for the future. This task is at the heart of the great transformation that will make our cities more liveable and our crops more diverse; a transformation which will modernise our infrastructure and harness digitalisation as a tool for environmental protection. The German Advisory Council on Global Change (WBGU), which was instrumental in shaping this concept with Professor Dirk Messner, states that the great transformation offers prospects for the future of sustainable economic activity.

This is clearly true, as the great transformation holds huge opportunities for more prosperity and competitiveness. This has been demonstrated by both scientific studies and a growing number of practical examples in the steel and chemicals industries, the energy sector and agriculture. The technologies of the future can ensure jobs for the future and give Germany a massive boost as an exporting country, for instance of electrolysers for green hydrogen, heat pumps and electric vehicles.

That is why, more and more often, I hear the same question from scientists: Given these outstanding opportunities and the overwhelming evidence of the impacts of climate change, why is the necessary great transformation not moving forward more rapidly? And, above all, how can we work together to accelerate it?

My answer is this: Together, policy-makers and the scientific community can significantly advance the great transformation. However, their roles in this task are different and complementary.

Science and policy as drivers of the great transformation

The role of science as I understand it is to provide the ideas and impetus that are the foundation of good policies anchored in science. Independent science is the basis for difficult political decisions and strengthens their credibility. This has been highlighted by the COVID-19 pandemic as well as the climate crisis. Science asks questions – critical, concrete and fundamental questions. It does not have to always answer these questions conclusively. Critical scrutiny is part of the very essence of science. At the same time, responses within science come from different viewpoints and draw different conclusions depending on whether the question is put to biologists, psychologists, sociologists or economists.

Science cannot and must not compromise. The task of policy-makers, on the other hand, is to win over the majority, gain acceptance for policies and, ultimately, make decisions. Decisions which are often built on compromises and which sometimes have almost no sound scientific, legal or any other basis – as we saw at the start of the coronavirus crisis – but which still have to be taken nevertheless. Such decisions go hand in hand with the risk of later turning out to be flawed or even completely wrong.

In their decisions, policy-makers have to bring together the different viewpoints and persuade the public to get on board. This is the very substance of democracy. Winning people over is sometimes hard work and not to be achieved overnight. For these reasons, scientific findings

cannot always be fully and directly implemented in policies – certainly not straightaway.

In the climate crisis, policy-makers are fortunate to have had scientists providing them with a wealth of data and scenarios over several decades. Through this work, the scientific community has created an enormous awareness of the problem of climate change. This valuable achievement has broadened the scope of action for policy-makers and advanced many important policy decisions. These include, for example,

- Germany's decision to lay down climate action in law and, more recently, to significantly raise its climate targets.
- The EU's goal of becoming the world's first climate-neutral continent with its Green Deal.
- At international level, the decisions of countries such as the United States, Costa Rica and Japan to set themselves more ambitious climate targets.

Science-based policy has created a framework for our progress to climate neutrality. Now we must flesh out that framework and implement the goals.

This hands a mandate to both policy-makers and scientists. There is already general awareness of the problem; now it is time to raise awareness of the solutions. The solutions to the climate crisis are in our hands; now we have to bring them into the mainstream.

- We must speed up the expansion of wind power, solar energy and the electricity grids.
- We must put more electric vehicles and bicycles on the roads and build an adequate charging infrastructure.
- We must expand bus and rail networks.
- We must tap the potential of digitalisation, especially artificial intelligence, for environmental protection.
- We must improve the energy efficiency of buildings, modernise heating technology and much, much more.

To advance the great transformation, science and politics need

- Vision and the ability to anticipate obstacles.
- Joined-up thinking and interdisciplinary work.
- Stronger international networks and collaboration.
- The courage to state the problems and develop practical solutions to them.

Svenja Schulze

The German Environment Agency as a driver of transformation

There is an institution at the interface of science and policy that meets all the above criteria: the German Environment Agency (UBA). The UBA is on the road to becoming the driver that the scientific community and policy-makers need to jointly advance the great transformation. This is where the different strands of science merge and where knowledge is pooled in the interests of a socially just, green restructuring. The UBA stands for independent scientific expertise and policy advice that – to the discomfort of some – does not shy away from conflict. Its practice-oriented findings help propel the transformation.

With his scientific prowess, his international contacts and his fine grasp of politics, Professor Dirk Messner embodies all these aspects in his role as UBA President. He brings his pragmatism and foresight to bear in those areas where this expertise is needed – be it the steel industry, food and agriculture policy, digitalisation, or the idea of a "Bauhaus der Erde" he developed with renowned climate scientist Professor Schellnhuber. Professor Messner's passion is infectious and sparks a sense of pleasure in the whole process of the great transformation. He has positioned the UBA as a globally networked knowledge institution for the shift to sustainability. Under his leadership the UBA has matured into a hard-hitting institution that puts science to the best possible use for the great transformation. We need the UBA today more than ever before to protect ourselves and our environment from the consequences of human activity – and to seize the opportunities that the great transformation has to offer.

Setting off for the solar, wind and hydrogen age

We have made a start: In many places the great transformation is already well underway. From being a niche product, electric mobility has moved to the mainstream, the expansion of renewable energies continues apace and the German government has adopted the phase-out of coal. Industry is developing climate-friendly technologies and production processes. This opens the door to new alliances for the great transformation. Alliances among scientists, businesses and environmental associations, policy-makers, unions and social organisations.

These advances are outcomes of the Paris Agreement, but also of the German government's climate policy during this legislative period. Increasingly, climate action is determining our course. A growing number of countries around the world are leaving the age of coal, oil and gas behind. Together we are setting off for the age of solar power, wind energy and hydrogen.

Science for the global common good

Anna-Katharina Hornidge
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Future: diverse and non-existent

Today, the future is equally diverse and non-existent. In the last two decades, in addition to the countries of the 'West', the major emerging economies, including India, China, Russia, Brazil, South Africa, and regional powers have been shaping the economic, political and cultural interdependencies of a more complex, dynamic, accelerated world. Social inequalities are further exacerbated by the socially unequal distribution of risks emanating from climate change, (wo)man-made technologies, the financial system or global terrorism, to name just a few of the unintended consequences of the first modernity. At the same time, precisely these risks caused by climate change, resource destruction and species extinction are limiting development opportunities and global scope for action much more than ever before.

It is our globally joint task, and especially the task of our political leaders, to resolve this contradiction. How can we assure that future remains open and to be shaped by those living in it? Increasingly it becomes clear that global sustainable development remains unreachable if the goals of the Paris Agreement are not met. Global warming has to be limited to 1.5, maximum 2°C. All predictions indicate that beyond that limit the to be expected disturbances in climate and weather will have immense effects on food systems, supply chains, built infrastructures and transport systems, with the respective secondary consequences of rising poverty, political and economic instabilities. The coming years thus are decisive in aligning action guided by the Agenda 2030 of the United Nations with the meeting of the Paris Agreement. The COVID-19 recovery funds should act as additional lever.

In addition to these immediate actions necessary, the structural foundations for joint, global, cross-sectoral and -scalar governance have to be

developed further and partly built from scratch. This chapter reflects on these structural foundations for global governance for sustainable futures out of the perspective of the scientific and knowledge infrastructures that enable 'good', transparent, fair governance in which decision-makers can be held accountable. 'Global governance' here refers to formal, informal and the many hybrid forms of governance inbetween and across scale-levels, sectoral boundaries and political borders.

Knowing: foundational to governance for sustainability

Cognition and the question of what is regarded in, and by, a given group of social beings as worth knowing and reflecting on, as worth protecting or sharing, meaning as 'knowledge', are constitutive to any reflection of (wo)man's origins, present forms of existence and futures. Further, they are interdependently tied to the social and physical environments we inhabit and shape. Processes of meaning-construction and sense-making determine how we see our environments, read them and, based on these readings, design norms, rules and a wide range of different types of institutions for regulating and ordering everyday lives. The processes of sense-making themselves are influenced by former intersubjectively shared interpretations of reality and by the institutional structures and materialities they have resulted in, while at the same time they guide actors in their everyday practices towards the realisation of imaginaries and visions of future.

Thus, how we know our world – as individuals and as societies –, its bio- and atmosphere, the forms of social organisation and cultural engagement, political and economic regimes, technologies and infrastructures devised, and how we attach meaning to it crucially determines our normative outlook and our human, institutional and technological capacities to govern. Both, normative orientation and human, institutional and technological capacities to govern, are the result of societal formation and socialisation processes, harnessed in the institutions of scientific and non-scientific, local and everyday knowledge systems. These capacities and normative orientations lay the foundation for transformational processes along the lines of the Agenda 2030 and as required for meeting the climate goals. Yet, substantial differences in scientific capacity and sustainability-related literacies prevail and challenge world society to know, negotiate and govern global sustainability challenges together.

Global science: a landscape of difference

Modern science, as developed since Enlightenment in 18th century Europe and diversified since then (de Solla Price 1963), has acted as engine of linear innovation and economic growth, often without taking environmental and social consequences sufficiently into account. Environmental damages were largely tackled ex post. Social change was regarded as necessarily following technological progress, with income and transfer increases being sufficiently high to compensate for the social costs of progress. It is only more recently, with a broader recognition of ecological limits to growth (Rockström et al. 2017), that sustainability-focused discourses have gained traction – in international and national science systems, in politics and societies. These 'planetary boundaries' thus challenge the former underlying logic of scientific knowledge production to act as engine of linear growth, demanding a reflection of scientific knowledge production itself as well as of science-to-policy and science-to-practice interfaces.

Up to today, public and private expenditures for scientific knowledge generation continue to vary substantially between regions and countries ranging from 0.23% of GDP in Indonesia in 2017, 0.51% in Tanzania in 2013 to 0.79% in Kenya 2010, 0.35% in Namibia 2014, 0.65% in India and 0.83% in South Africa 2017, or 3.13% in Germany in 2018 for comparison (UIS 2021). While the European Union aims for 3% of GDP spending for research and development (R&D), the African Union aims for 1% of GDP. According to data by the OECD and UNESCO, in 2013 71% of all R&D expenditure occurred in the OECD, further 21% in China and 8% in the „rest of the world" (BMBF 2016: 64). This situation of grossly underfunded science systems and respective global crevices affects all disciplinary and thematic fields. Further, the valuing of basic versus applied research varies substantially, with a strong bias towards directly applicable forms of research in lower-level-financed systems. The International Science Council (2021) further points to the system-inherent priorisation of research that contributes to the solving of national challenges. Research addressing global challenges and matters of the global common good has to compete with national interests. While the vast majority of research funding is in-country funding, some goes into bilateral funding schemes. The share of multilateral science funding with universal access is estimated to amount to 2–10% of the overall US$70 billion p.a. of current science funding globally (ISC 2021:14). This is also reflected in the degrees and forms of international, transregional cooperation practised in research projects: about 80% of research projects involve only domestic collaboration, 15% bilateral and only 5% multilateral cooperation (Digital Science 2020).

Historically grown path dependencies around material (i.e. labs, access to sampling technologies etc.) and immaterial (i.e. funding sources, language of research, networks, disciplinary vs. thematic organisation of system) science infrastructures heavily shape scientific knowledge production across borders. For the field of tropical marine sustainability research, Partelow et al. (2020) illustrate how existing power imbalances between well-funded research systems and underfunded ones are being perpetuated over time. The majority of research agendas are set by those science systems where funding comes from, and this also at global level or in transnational cooperation. This results in agenda setting processes based on priority setting out of an external and often purely scientific perspective, which lacks local fit. Concerns of local problem identification and research that produces knowledges that later fit the local context and for the diffusion of which the respective networks have been built during the research process play a minor role. In sectors of immediate interest to international efforts of poverty alleviation, for instance, such as agriculture and fisheries, the scientific knowledge production heavily depends on, and is co-opted by, international funding, e.g. donors or international research organisations and funders (Pingali et al. 2016). Donor-funded and -oriented research, including CGIAR-level research, in consequence plays an important and often politically influential role.

Science for facilitating transformational processes towards sustainability is in consequence globally challenged by (a) the non-existence of one global science system united by jointly defined standards, (b) substantial power imbalances and dependencies and (c) the lack of multilateral structures, which could facilitate the formulation of joint standards and offer multilateral science funding accessible for all national and regional science systems. Instead, the lack of a joint definition of what actually constitutes science in all its diversity and a joint understanding of the institutional structures on national, regional and multilateral levels needed for jointly addressing questions of the global common good results in a continued reification of inequalities in the capacities to know and govern global challenges.

Science for the global common good: uniting frame or accelerator of inequality?

Climate change and resource degradation, demographic change and geopolitical power shifts are first order global megatrends, which since centuries lay the structures that determine what type of dynamics unfold among themselves and between them and that entail second order mega-

trends, such as rising social inequalities, urbanisation, digitalisation, globalisation and regionalisation, and others. The above tried to sketch out some of the core challenges of world society coming together to jointly define visions of a common future and for implementing concrete actions, backed up by the required human, institutional, technological and infrastructural capacities required.

While it is clear that these cannot all be solved by science alone, I argue that a substantially more focused reflection and transformation of the global science landscape and its funding structures is required for enabling the grand transformational processes towards sustainability needed for aligning the Agenda 2030 and the Paris Agreement and indeed keeping global warming at below 2°C. Concretely, I regard the following structural changes as necessary:

- *Foster national and bilateral Science Cooperation* for fair cooperations in sustainability transformations.
- *Joint scientific Standard Development:* develop – via UNESCO – a globally joint understanding and set of standards for scientific practice, integrity and quality assurance; adopt nationally determined science contributions to the fulfilment of Agenda 2030 and the Paris Agreement in the respective Conferences of the Parties of UNFCCC as well as on the level of the UN General Assembly.
- *National and bilateral Science Funding:* raise awareness amongst national governments and regional bodies for the importance of interdisciplinary sustainability science for wealth reallocation from current to future generations and for securing the global common good.
- *Multilateral Science Funding:* substantially increase science funding allocated through multilateral organisations and platforms including the UNESCO, Future Earth, the Belmont Forum, through IPCC and IPBES. Multilateral science funding, allowing for a diversification and reallocation of scientific capacities across borders, should make up a minimum of 30% of the global science funding, with a thematic focus on the global challenges of the climate crisis, biodiversity loss, the rise of social inequalities, decarbonisation of economies and democracy protection.

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In between – from transdisciplinary, transformative science to evidence-based policy making

Uwe Schneidewind, Hans Haake

Uwe Schneidewind is the mayor of the city of Wuppertal; he was president of the Wuppertal Institute from 2010 to 2020 and member of the WBGU from 2013 to 2020. In both functions he was inspired by the close interaction with Dirk Messner.

In his studies of economics, business and sustainability at the University of Oldenburg, Hans Haake already had the chance to engage with the work of Dirk Messner, later seeing him at various conferences and using his ideas, especially while working at the Wuppertal Institute since 2015. Just before Dirk made his move out of academia, Hans Haake had a chance to work with him as a research analyst of the WBGU.

The need for new forms of knowledge

When dealing with the Great Transformation towards a sustainable world (WBGU 2011), one defining factor is the stark contradiction in the availability of knowledge: While there is almost unlimited knowledge on many technical and economic aspects of the sustainability transformation, while in some way all the tools are available and we, in theory, know exactly how to use them, there is a lack of action at all levels. If we assume that in principle a majority of decision-makers has understood the necessity to act, this ultimately points to a lack of knowledge on how major transformations can be triggered. To use a common distinction, we have solid knowledge of the systems at play, we know the targets society should be heading for, and these targets have been globally and politically agreed to, but our knowledge on transformations, while growing, is obviously lacking. While this is true for all forms of knowledge to some extent, especially transformation knowledge requires more than just disciplinary or interdisciplinary research because it depends on transdisciplinary approaches that integrate the knowledge of practitioners from politics, administration, civil society and business. The reasons why the advice of countless commissions, advisory bodies and international networks has not yet led to sufficient action on climate, biodiversity, inequality and resilience need to be explored, and they ultimately have to be overcome in new forms and constellations of

actors. Power relations are obviously at play, vested interests, inertia in various forms, but history has shown that these can be overcome. This contribution will focus on the role scientists can play at the science-policy interface (including both politics and public administration) by not only working closely with policy makers in advisory roles or initiating transdisciplinary processes of knowledge integration but also crossing the line into the policy world, taking along their expertise and networks back into science and potentially pursuing a different approach. The ever-growing complexity of the world and the pressing "great challenges" have created a necessity for science to expand its role beyond simply advising policy, now embracing transformative science (Schneidewind et al. 2016). But the lines between science and policy have always been much more blurred than is commonly admitted.

Changing faces – roles in science and beyond

Once it is accepted that the role of science is not simply to objectively, from some distance, provide knowledge to be applied (or not) by other parts of society, there are various roles for scientists to play. They have been researched and conceptualised especially within real-world laboratories and other transdisciplinary constructs (e.g. Hilger et al. 2018). Researchers may play a part in triggering some transformation processes, to then observe if they succeed. The potential blurring of the lines between activism and science has led research to intensely scrutinise the roles of researchers and their repeated shifts between the roles of impartial observers and change agents. Interestingly, some advisory bodies and public intellectuals are far less self-reflexive, insisting on a classical role as external advisers while clearly taking an active political role. The latter can be desirable in the sense of transformative science, but it is often not made explicit.

An interesting next step, leading to new forms of interaction and knowledge integration, is the actual formal move between science and policy by individuals with a background in transdisciplinary work. This is a route that has some tradition in sustainability science, including among others Ernst Ulrich von Weizsäcker and recently different members of the German Advisory Council on Global Change (WBGU), including Dirk Messner moving on to lead the German Environmental Agency, but also one of the authors becoming mayor of the city of Wuppertal. There is a possible distinction to be made between scientists who move to the

political sphere[1], taking their specific expertise with them, as was the case with Chancellor Angela Merkel's understanding of the reality of climate change, and scientists that still consider themselves to be at the science-policy nexus, just on the other side. This would require a continued interest in transformation research, continued participation in transdisciplinary work in the new role and maintaining credibility in the science community. Considering the demands, both in workload and in different norms and needs for compromise, these are difficult requirements. At the same time, intimately knowing the realities and limitations of both sides could do much to further knowledge integration.

The background in science should enable policy makers to much more clearly formulate their requirements and limitations, providing their partners in science with a clearer, more honest view of the political process. As a large proportion of policy making takes place outside the publicly visible debates, trust is an essential component for open cooperation in transdisciplinary projects of change. In applying transformation research to real-world issues, an intimate knowledge of the field should be extremely helpful, being able to put seemingly small changes on the ground into a larger context. While it is clear within transdisciplinary science that various roles for researchers are necessary, the same applies to various roles for policy makers in this context. While some might clearly focus on the (party-)political processes and stay within their established sphere, others need to be much closer to science, just as having established businesswomen and -men and civil society representatives in political roles is essential. Ideally, between politically inclined scientists and scientifically inclined politicians, a relatively seamless integration of knowledge can occur. While there have always been scientists that move to the political sphere and into the parliaments, the exchange described here can only function if they retain part of their identity in science and remain firmly connected to it. They also need to be represented at all levels of the political system, where most of the leading positions are currently filled by those clearly focusing on the political aspects. As calls for scientists to be better represented in legislatures and political parties are regularly made (Boyd 2019) and some scientists choose that path, this will provide an interesting opportunity for research into the level to which they remain scientists and are able to fulfil the requirements formulated above.

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1 We disregard here the case of politicians who spend some time at universities for research to attain a doctoral degree and then return to their political career.

Uwe Schneidewind, Hans Haake

Cities as spaces for new forms of knowledge integration

If the better integration of knowledge between science and practice is one response to incomplete transformation knowledge, it requires spaces where it can be pushed forward. These are real-world laboratories in various forms, and while they can exist at any level, cities provide an excellent boundary object where science and practice can meet, centred on concrete issues but keeping in mind the larger transformation processes behind. In 2016, the WBGU called for 50 large-scale real-world urban laboratories to be established as cities take the lead in the global transformation. The New Leipzig Charter of 2020, signed by the European ministers responsible for urban development, underlines the transformative power of cities. At the same time, many cities don't have the luxury of high-level scientific advisory bodies. Considering available funding, they need to find different ways of strengthening the cooperation with science. One possibility is that scientists take on active roles in city politics. Another is opening the city as a space for experiments, with policy makers and administrators becoming more open to processes of co-design and co-creation, giving scientists and civil society the maximum possible space to try new forms of development. Opening this space makes cooperation interesting for scientists and can lead to broader insights into transformation processes. But it requires administrators to "let go" in some ways.

Not that far between: different tools, same mission

Ultimately, policy making for sustainability and transformative sustainability science share the same mission. They are working towards the "Great Transformation", only by different paths. The closer they become, both in working together and in individuals crossing the line and acting as translators while maintaining the ability to critically reflect their roles and normative assumptions, the better.

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The welfare advantage of democracy: Evidence, theory and anomalies

Jörg Faust

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1. Evidence: Democracy's welfare advantage

If measured by per capita income or by multidimensional indices such as the Human Development Index, wealthy countries are on average more democratically governed. This is the case if we define democratic countries as countries whose political regime is characterised by the existence of inclusive political competition through free and fair elections of government and parliament, freedom of opinion and a free press as well as freedom of association (Dahl 1971). The above-mentioned finding holds even under more nuanced conditions, when the degree of democracy of a country is measured by independent democracy indices such as the Freedom House Index, the Bertelsmann Transformation Index or the Varieties-of-Democracy-Index. All depict positive correlations between the level of democracy and societal welfare.

Yet, correlation is not causation, and thus it is not of much surprise that academics have been discussing intensively the direction of causality between societal wealth and political order. In other words, is it democracy that follows socioeconomic wealth as supporters of traditional modernisation theory have proposed? Or is it democracy that outperforms autocracies in welfare terms due to advantages of the outlined democratic arrangements?

Today, the evidence has shifted strongly towards the second hypothesis. In the last two decades, a variety of studies – many of them based on more refined econometric methods for cross-country analyses that better

cope with problems of reverse causality as well as experimental case study research – leave little doubt on the direction of causality. The overarching majority of results points into the direction of a democracy dividend (e.g. Doucouliagos & Ulubaşoğlu 2008). By controlling for many context variables, research shows that increasing levels of democracy tend to produce higher levels of economic growth (Acemoglu et al 2019), economic productivity, health, nutrition and other measures of economic prosperity and social well-being. Higher levels of democracy also lead to lower levels of mortality by natural catastrophes and pandemics and come along with a lower level of famine (McMann & Tisch 2021). Even in comparatively poor countries, democracy outperforms authoritarian regimes. Thus, while there is of course evidence that autocratic regimes might also provoke periods of socioeconomic growth and well-being, the systemic comparison of political regimes shows that democracies outperform autocracies.

Moreover, the evidence assembled so far even tends to underestimate the democracy advantage. This is because authoritarian governments have more space for cheating about their socioeconomic performance. Democratically governed societies are equipped with free media and independent research. Therefore, it will be much harder for governments in democratic settings to lie systematically about their economic performance for legitimation gains. In contrast, such constraints do not exist in authoritarian regimes, where independence of media and research is not given and leaders have much more opportunities to manipulate data about socioeconomic and environmental policy performance. For instance, cross-country studies do not only find that authoritarian regimes systematically report less economic data to international organisations. The comparison between a) official statistics and b) more objective data such as geocoded, satellite-based growth data reveals that authoritarian regimes tend to report overestimated data about their economic performance (Magee & Doces 2015).

2. Theory: Explaining the democracy dividend

However, those empirical findings are in need of convincing theoretical arguments, particularly in times where many established democracies in Europe and North America face serious threats and some of the most promising emerging democracies in Eastern Europe, Latin America and Africa have had to face a backslide to authoritarianism.

Since the path breaking work of Mancur Olson (1993), theories around a democracy dividend focus on the different incentives of authoritarian

respectively democratic regimes when it comes to the provision of public goods necessary for sustained prosperity of a society. In this regard, the main argument departs from the not far-fetched idea that political leaders and their political associations or closest allies are self-interested and like to stay in power.

If settled and equipped with the necessary power, political leaders will not only be able to tax the population. They will also define informal and formal regulations according to their interests and those on whom their political survival depends. The amount of taxes and the rules and regulations in turn will define how state resources are spent and how the production of public as well as private goods is institutionally shaped. Thus, a government and its distribution coalition heavily influences public good provision in all relevant policy fields such as education, health, economic, judicial, trade or environmental protection.

The constraints faced by democratic regimes compared to autocratic ones make them use their power to provide a mix of private and public goods that tends to serve better the comprehensive interests of a society. Democratic regimes will invest more in non-excludable public goods that benefit the broader population because they rely on the support of majorities. Under the constraint of inclusive electoral competition and the incapability to suppress a free press, political associations and innovative debates around solutions for pressing policy challenges by civil society, democratic governments face strong incentives to invest more in public good provision than autocratic regimes.

In contrast, in an authoritarian setting, where government suppresses fair elections, free media and political associations, there is much less need to respond to the interests of an encompassing majority of the population. Instead, authoritarian governments have much larger degrees of freedom to distribute private goods in form of privileges to themselves and their comparatively narrow group of allies in turn for their loyalty. The formal regulation of monopolies and cartels as well as organised cronyism and corruption are well-known instruments to distribute privileges in turn for political support in narrow distribution coalitions (Faust 2007).

As neither an independent press nor independent judiciary nor an organised opposition can effectively counterbalance such self-interested rentier behaviour, authoritarian regimes in comparison to democratic regimes will not only suffer from productivity losses due to collectively inefficient economic regulation. They will also invest less money and regulatory effort for creating social and environmental public goods, which are beneficial for encompassing majorities, such as an inclusive education and health system or clean water or air.

Moreover, authoritarian regimes are threatened by an endogenous instability problem which aggravates the problem of public good provision explained above. As authoritarian regimes by the means of repression have access to a comparatively high amount of privileges, they face a more serious potential threat of being overthrown: be it by a rebellion of the masses or a clever coup d'état by a rival group. In contrast, the succession mechanism in democracies works by stabilising an incentive scheme that favours public-good oriented behaviour because even the electoral victory of an opponent again has to be based on an encompassing majority. Therefore, the endogenous instability or uncertainty of authoritarian leaders and their narrow coalition will reduce the time horizon under which they will use their discretionary powers to maximise their rent extraction. Authoritarian regimes will not only show irrational collective behaviour because of their ability to serve a narrow coalition but also due to their expectation of a comparatively short time horizon.

3. Anomalies: Attractive autocracies and the globalisation paradox

The logic of a democratic welfare dividend explains the empirical evidence that democracies on average outperform autocracies in most indicators of social, economic and environmental well-being. However, two empirical puzzles merit further attention, namely surprisingly successful autocracies and the potential decline of the democracy advantage in times of globalisation.

As numerous examples have illustrated in history, the vast majority of autocracies has been enriching small elite circles and bringing misery and violence to the majority of its population. A few other small and authoritarian regimes have been based on natural resource abundance and could afford to distribute an important legitimacy-enhancing amount of resources among the population, while at the same time installing an impressive repression apparatus. All these cases are in accordance with the outlined theoretical arguments as the overall welfare performance of such regimes has been poor or mediocre at best.

More interesting are therefore autocracies such as contemporary China and 20th century Mexico, which are large and less resource-rich but have witnessed longer periods of economic success. These autocracies were able to counter their authoritarian disadvantages by increasing their support base through authoritarian corporatism and/or by temporarily solving the succession challenge.

Perhaps the most illustrative example is Mexico. Throughout several decades of the past century, the Mexican authoritarian regime was not only based on a highly institutionalised corporatist party structure that organised political influence by many societal interest groups, thereby broadening the political distribution coalition. Moreover, it also institutionalised a succession mechanism that gave the president only one term in office while at the same time allowing him to select his successor. As long as inclusive corporatism and the particular succession mechanism remained in place, the country experienced a period of socioeconomic modernisation. Chinese authoritarianism from the 1990s until recently had similar features, causing rapid modernisation from a very low starting point. An authoritarian but corporatist party structure and some federal arrangements broadened the distribution of the regime, and the party's leadership was capable to install a stable succession mechanism. With the centralisation of power during the last years, however, those mechanisms have vanished. Thus, like in the Mexican case at the end of its economic "miracle", China is currently confronted with autocratic sclerosis that most probably will weaken its socioeconomic performance.

Both examples show that under specific circumstances authoritarian regimes may be capable of copying some of the institutional advantages of democracy to a certain extent. However, authoritarian corporatism and institutionalised succession mechanisms are often not flexible enough to respond to the consequences of societal modernisation and are vulnerable to attempts of elite groups or single leaders to narrow the broadened distribution coalition for their own interest.

The second anomaly is related to the potential threat of globalisation to the democratic dividend. For many citizens in existing democracies, both the disappointment with the functioning of democracy and the discontent with socioeconomic (and environmental) performance have increased. While public good provision is often perceived as unsatisfactory, the level of inequality of income and wealth distribution has been rising within many democracies as did the share of the population reaping high incomes from both labour and capital. Economic elites have become increasingly autonomous from the rest of society and their closeness to political elites has been increasing, thereby threatening democratic mechanisms and favouring narrow distribution coalitions.

One explanation for this phenomenon is the globalisation paradox, formulated by Dani Rodrik (2011). The paradox consists of the impossibility to achieve economic globalisation, national sovereignty and democracy at the same time. Beyond the many virtues of globalisation, global markets – just like national markets – need to be regulated to avoid uncontested

cartelisation and monopolisation or negative externalities. However, as is discussed most prominently for the financial sphere, global markets currently often lack the necessary regulatory underpinnings to avoid these market failures and are not sufficiently legitimised by democratic arrangements. One positive example is the European Union. Here, the construction of – some say: not yet complete – democratic governance mechanisms at the supranational level has accompanied the establishment of a broader European market. In many globalised markets this is not the case, and little or no democratic control mechanisms constrain the decisions of those who manage global affairs: be it in the realm of international organisations or of private business.

Consequently, the congruence between the jurisdiction of national democratic arrangements and the geographic scope of markets that are in need of public-good-oriented regulation has eroded substantially. If national citizenries or their democratically elected parliaments and governments are simply not capable to take impactful decisions over pressing policy issues because those decisions are made outside their jurisdictions, the previously explained virtues of democracy will have little effect. Instead, rather narrow policy coalitions can be built outside the democratic jurisdiction and will shape markets with the usual and negative consequences for encompassing majorities. As Rodrik (2011) argues, if we do not want to waive the virtues of democratic government for encompassing majorities, we will have to choose between less globalisation and a substantial democratisation of global governance mechanisms. In any case, we will only be able to secure prosperity for the population at large – whether at local or at global level – if we construct and preserve polities which serve the collective interest through political rights and civil liberties congruent with the basic features of democratic governance.

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Taking action with scientific scrutiny of the bigger picture and confidence

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> *"International politics is never about democracy or human rights. It is about the interests of states. Remember that, regardless of what they tell you in history class." (Egon Bahr on 4 December 2013 in the Rhein-Neckar newspaper)*

This view, formed over decades, of the architect of West Germany's policy towards the East is no less valid now, yet appears disconcertingly mundane in the face of the emotionally charged debates we see today. Nevertheless, it helps all those who want to resolve international and global issues to base their actions on realistic foundations.

The greatest challenge of our time is to halt the transgression of planetary boundaries resulting from human activities and to design economic practices, work, housing and lifestyles within these boundaries for 10 billion people. How can this be done in today's historically unique and complex world? In Bahr's view, most certainly not by focussing on morality or ideology. To start with, interests must be considered through an objective lens, both at national and international level.

The transgression of planetary boundaries by the human race is the consequence of the fossil fuel era. It was initiated by the industrialisation into an economically capitalist system — science leaves no shadow of a doubt about this. Scientific communities worldwide have underpinned this opinion with countless studies and robust peer reviews and continually analyse the accelerating ecological consequences. These consequences are so grave and global in nature that no one can escape them. They affect the survival of entire states and large coastal areas, destroy human life and material assets, threaten economic systems, trigger social unrest and jeopar-

dise political stability. At the same time, to make the assessment of the situation even more complicated, the impacts of the climate crisis vary in their intensity and the necessary phase-out of fossil fuels reveals a complex range of national and international interests. The level of concern varies significantly. To name just a few examples: today's oil-producing regions are worried about the future of their business model, the islands of Fiji fear for their very existence, developing countries and industrialised countries calculate carbon emissions differently, the younger generation feels more burdened than older generations etc. People are voicing their grievances, fighting for political influence, claiming the moral high ground, forging alliances. On top of the bedrock of scientific findings a veritable thicket of interests is emerging, which must be understood by those who want to take effective action.

Effective policy needs to understand the interests of the stakeholders it is dealing with. This is not a question of good and evil. It stands to reason that those who have built their existence on the fossil-fuel business model or workers whose very livelihoods depend on fossil fuels and who do not yet have access to alternatives will act and argue differently than someone who has long been aware of the alternatives or perhaps makes a living from them. Effective policy must seek out interfaces where balance can be established between different interests. However, this is all unfolding under unprecedented time pressure: if we want to prevent irreversible environmental repercussions, we have to fully decarbonise our lives within the coming three decades.

In addition, with the upheaval of digitalisation sweeping across the world and revolutionising lives, we have another turbulent driving force calling all we know into question, wiping out business models and their industries, creating new communication models etc. and highlighting the tectonic tensions that are influencing our actions. These two forces, digitalisation and the necessary move to make our lives carbon neutral, are interconnected: uncontrolled digitalisation, as an efficiency technology, accelerates the transgression of planetary boundaries, but if used correctly, it can help us redesign our lives in a sustainable way.

Where the focus on interests shields against moral ideologies, reframing this view to include historical awareness helps protect against unrealistic beliefs in progress. The history of humanity demonstrates that anything is possible at any time: both great leaps forward as well as great regressions. It shows that economic structures, social situations and political systems are interrelated. Today, when we talk about the digitally driven Industry 4.0, it is worth taking a look at stages 1.0 to 3.0: first, the industrial revolution consigned the feudal system to the history books; then Industry 4.0 made

its breakthrough following the catastrophic Second World War; finally, real socialism was no longer able to keep pace with Industry 3.0. To harbour the belief that nothing will change under Industry 4.0 would be highly naive. We have long been talking about the Chinese, US and European digitalisation models, and political systems have always been a part of the discussion. For a long time, too, we have witnessed how right-wing populist trends have successfully exploited marginalised groups (or groups at risk of marginalisation) whose livelihoods depend on fossil fuel business models. The return to a revitalised fossil fuel reality is being conjured up through climate change denial, accompanied by reactionary, xenophobic views of society. Despite Trump losing the 2020 US presidential election, populist regression remains a possibility if we fail to reconcile the diverging economic, social and political interests over the next three decades.

Science can help to analyse interests. To do so, however, it must see itself as an active, participating member of the community – and expand its view of the overall picture to include all disciplines. In this context, there have been some changes in the self-perception of science, and not just since the pandemic. In Germany especially, the scientific community tended to distance itself from politics and avoid any implication of being relevant for practical action. On top of this, an overly interdisciplinary approach to topics and fields of research was quickly suspected of lacking depth. Today, we know that we can only overcome the climate and biodiversity crises and the challenges of the great transformation by looking at the whole picture and ensuring access across the system. The same rule applies to policy-makers and science in equal measure: The crises threatening humankind call for analyses and action that break away from silo mentality. Every discipline must be involved, every viewpoint has to be considered – to tackle global tasks, a global approach is indispensable. In this context, science is neither above society nor removed from policy-making. Policy must be grounded in science and science has to be able to think politically. All stakeholders are needed to master the Herculean tasks of the transformation. At the same time, to be credible, science that interacts with politics and advises on policy must strive for international excellence and insist on autonomy in its methodologies and findings.

Environmental research has become more and more important at universities, non-university research bodies and departmental research institutes such as environment agencies. Now, it faces major challenges. Just as our industry, work, administration, housing, lifestyles and more must be transformed, so, too, environmental research must change. Over the next three decades, no one will be able to maintain the status quo. For en-

vironmental research, this means placing greater focus on process research. While impact assessments for soil and air quality or for chemicals protection will continue to play a role, research into environmental processes and scientific monitoring will become equally important. That is why key environment agencies and offices are remodelling themselves as drivers of transformation. To illustrate with just one example, if the executive board and works council of a steel factory decide they want to produce "green steel", policy-makers need to be aware of the economic, engineering, employment and climate-related obstacles that stand in the way of that goal. The options need to be explored and developed in a system-wide approach, sector by sector. The interdisciplinary research and consultation needed in this context range from the functioning of a climate club to scenarios for gas-based infrastructures as a transition technology until hydrogen can take over the manufacturing process. As noted above, this example relates to just one sector, but every single sector is affected and must face the challenges of the transformation. In the coming years, environmental research policy must focus on setting up globally functioning scientific ecosystems which, aided by artificial intelligence, lend scientific support to the transformation process.

There is no masterplan for these tasks. It will be a global, flexible process of the kind we have seen during the pandemic. It will be a dynamic process of calibration and readjustment, of reviewing assumptions and gauging reaction in societies. It will be about bringing interests out into the open and creatively seeking interfaces that can help achieve a balance between conflicting goals. The reinvention of the post-fossil world is propelled by the climate crisis and accompanied by the digital revolution of our time. At present, we only have a rough outline of the targets for the next two to three decades. They are predicated on the right of all people to determine their own future. Each individual society must define for itself exactly what its city of the future, agriculture of the future, travel of the future will be like. To avoid an ecological dystopia we need social, economic and political ideals that societies want to work towards and which the majority can support. Alongside an objective analysis of interests, as Egon Bahr recommended, and alongside a solid canon of core values as consistently promoted by the United Nations, we need to trust that a collective will for transformation can be cultivated, that common ground can be found, that history can be shaped and missteps recovered. We need to be confident that progress is possible and can avert dystopian alternatives, that history is a blank page, not a pre-determined outcome. Dirk Messner is one of the few people who radiate this confidence and inspire others to act in the same spirit of conviction.

Fit for transformation?! – How to break out of the environmental niche and contribute to sustainability transformation: the example of the German Environment Agency (UBA)

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1) Introduction

2021 was a groundbreaking year in Germany's institutional setting for environmental protection. It was in April 2021 when the German constitutional court ruled that the climate protection law of the Federal Government does not achieve protection for future generations and hence asked for a review of the climate protection law. This judgement is a milestone and reflects what Dirk Messner, the president of UBA, has been advocating for a very long time: the need for a sustainability transformation which implies a structural and fundamental transformation towards a sustainable society that respects the planetary guard rails of sustainability (WBGU 2011). Although the need for rapid action for climate and environmental protection is known in most western economies, the gap in order to stay

within the planetary boundaries is huge. Change will not come from environmental movements, civil society and NGOs alone. Therefore, Messner works with passion towards transformation in governmental institutions. After entering the Anthropocene, the sustainability transformation (hereafter referred to as: transformation) alongside the digital transformation is the greatest task and challenge of mankind.

This article reflects on the role of governmental research institutions and environment agencies in the context of these transformations and the transformative changes initiated by Messner in UBA in particular. These changes will be discussed in the following chapters:

- A transformative approach to research and policy advising
- A systemic approach to environmental protection and sustainability
- Working in networks nationally and internationally
- Digitalisation and sustainability

2) *A transformative approach to research and policy advising*

Governmental institutions are perceived as structurally conservative; they don't have a claim for change. Shaped by the concept of an ideal bureaucracy developed by the German sociologist Max Weber in the early part of the 20th century, administration regularly does not stimulate innovation. The question how to make a governmental research institution a change agent of the necessary sustainability transformation is therefore a very relevant one. Transformative research claims high ambitions: namely to contribute actively to societal change towards sustainability. The characteristics of transformative research are that it challenges conventional wisdom (1), leads to unexpected insights that enable new techniques (2) or redefines the boundaries of science, engineering or education (3) (NSF 2009). Initially, transformative research was done by non-governmental frontrunners, which developed innovations in niches (WBGU 2011). Messner however introduced transformative research in UBA. He is one of the pioneers connecting state actors with emerging initiatives, civil society, industry and academia on a joint journey for change. Environmental research often is still very much based on descriptive-analytical research (Wittmayer et al. 2018). In order to achieve sustainability transformation, research has to go beyond that and introduce inter alia quantitative reduction targets in soil, water and air pollution, greenhouse gas emissions (GHG), use of chemicals, plastic, industrial waste, combustion engine cars, gasoline, meat consumption and environmental harming subsidies. In areas such as circu-

lar economy, electric cars, hydrogen production or sustainable building, strict target systems are necessary. These targets have to be accompanied by effective instruments and transformative governance.

3) A systemic approach to environmental protection and sustainability

In order to mainstream sustainability, a systemic perspective is needed in environmental research and policy advising. The concept of the Anthropocene challenges the singular look at the environment, where humans have taken control of the planet. The planetary boundaries are at risk: the term "environmental problems" doesn't do justice to the urgent crisis (Bonneuil & Freesoz 2013: 20). We need to overcome the separation between natural sciences and social sciences in sustainability research. The Anthropocene leads to the reunion of human (historical) time and earth (geological) time. "Social" relations are full of biophysical processes and impact the "natural" system all the time (Bonneuil & Freesoz 2013: 32–33).

For governmental institutions that are divided through the rigid distribution of "Ressorts" (federal ministries) this is a lot to ask for.[1] The deep divisions became problematic in the 19th legislative period (2017–2021) when the environmental ministry came up with a binding climate protection law covering among others also the energy, agricultural and transport sector. The other ministries successfully blocked a more ambitious climate protection law (reducing 65% of greenhouse gas emissions from 1990 to 2030 instead of 55%) that eventually was overthrown by the constitutional court (noted above).

> Example 1: The systemic perspective on climate protection
> The one environmental field that has managed to erupt in an ambitious, transformative way during the last 25 years is climate protection. Thousands of think tanks are dealing with the climate crisis. The energy transition discussion continues to centre around the shift to renewable electricity (RE). But the rising resource use for RE technology, mainly steel, concrete and petrochemical resources has been overlooked and neglected. UBA understood the critical junction and

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[1] In the Federal Republic of Germany, ministries that carry environmental tasks are the ministry of economic affairs, the agricultural ministry, the transport ministry, the health ministry, the research ministry and the ministry for development cooperation.

introduced an integrated systemic perspective on climate protection and circular economy, meaning inter alia the genuine contradiction between RE increase and resource reduction. Little progress has been achieved in this area, windmills have gained a longer life cycle and material use became more efficient. We are far away from a circle in which RE material can be recycled by maintaining its primary value.

4) *Working in networks nationally and internationally*

Creating knowledge together, working in networks with other research institutes is the third element for Messner's leadership style. UBA in the future shall be led by principles such as co-creation and flexibility. These principles are rather new to big parts of the descriptive-analytical research areas in UBA. Moving from a more authoritative approach to co-creation on equal footing, e.g. with industry, and learning together in scientific networks is a huge step. A different skill set of researchers is needed: networking, foreign language and cooperation skills etc. A key target for UBA is to further develop strong institutional ties with other outstanding research institutions in Germany, Europe and the rest of the world and work towards an agile administration. Agility means, among other things, thinking along connections and interactions, setting fast and realistic goals and reacting quickly to changes. Such administrations avoid silo thinking, network across organisational boundaries and integrate relevant external actors at an early stage. To this end, they create suitable working structures and spaces for cooperation (Wirth 2020: 161). Messner has introduced several initiatives for international cooperation in UBA. Two examples should be highlighted here:

> Example 2: TES Academy
> In 2021, UBA set up the "International Academy for Environment and Sustainability Transformation (TES Academy)". This Academy will provide a curriculum for different sustainability stakeholders, ranging from business, society and academia – especially in the G20 countries. It establishes a network of leaders, experts and decision-makers that closely interact. The programme is aligned with key topics of sustainability transformation. Formats are a 2- to 3-day programme for executives from business and public institutions for the practical implementation of transformation processes or summer schools for junior executives. A concept for knowledge cooperation will be developed and UBA's network will be strengthened.

Example 3: New European Bauhaus – UBA as partner
Another project in which Dirk Messner has created a co-learning network with UBA as one partner is the "New European Bauhaus". Alongside with climate researcher John Schellnhuber, Messner took the EU initiative as a chance to bring together different actors from the building, architecture, arts and design, and transport sectors to think about the future of climate-neutral, healthy, social neighbourhoods with high life quality. The Bauhaus initiative also serves as a prime example where the systemic perspective should allow to develop radically new ideas and innovation. That means, e.g., not to turn a blind eye on embodied carbon emissions. One quarter of the emissions in the existing building and construction sector comes from embodied carbon emissions associated with materials and construction processes (WorldGBC 2019). UBA's new Bauhaus project is offering completely new approaches towards developing and constructing buildings.

5) *Digitalisation and sustainability*

The second dynamic of the Anthropocene next to the sustainability transformation is the significant technological progress in the field of digitalisation towards artificial intelligence. Messner was one of the first environmentalist researchers who emphasised the benefits of digitalisation for humanity and its planet: this goes beyond discussing some practical potential for sustainability solutions such as smart electricity grids. Instead he is asking the big questions: How do the two dynamics interact? What does sustainability of human societies mean in the digital age? If humans have become the central force of change in the earth system in the 20th century, how will learning machines influence the earth system? Against many critics who have little hope that digitalisation and artificial intelligence (AI) can support the sustainability transformation, Messner trusts that human capabilities will help doing so (Messner 1997): Learning, justice, social intelligence and cooperation support digitalisation to contribute to a healthy planet (Messner & Wehinger 2021).

Example 4: Coalition for Digital Environmental Sustainability (CODES)
Worried that the sustainability community underestimates the disruption and deep transformation of society through digitalisation, Messner and his allies at United Nations Environment Programme (UN-

EP), The World Resources Institute, Future Earth etc. have launched the new Coalition for Digital Environmental Sustainability (CODES). The Coalition has four core objectives: 1) to offer a vision of the environmental sustainability and digitalisation nexus; 2) to establish an acceleration plan for digitalising environmental sustainability; 3) to help unite various environmental sustainability and digitalisation initiatives and 4) to mobilise the scientific community and set a research agenda (CODES 2021).

6) *Food for thought*

What else can help governmental research institutes like UBA to become a transformation agent? To become "fit for transformation", governmental research institutes need a strong focus on "learning". According to Senge, prerequisites for a learning organisation are learning practices, processes and infrastructures, but also leadership behaviour that reinforces learning (Senge 2008). There is a need for the development of an "evolutionary organisation", in which transformation develops through emergence, in distinction to the "legacy organisation", which strives mainly for goal achievement through compliance (Dignan 2019; Herrmann 2021). Messner personally exemplifies the desire to learn and the passion for research. A learning organisation needs a strong focus on staff. Recruitment, promotion, training and motivation of employees are key factors. In terms of staff motivation, UBA could learn from the concept of Public Service Motivation (PSM) that is used to measure motivation in the public service (Jopp & Rölle 2021: 107). Of the four dimensions (political motivation, desire to serve the common good, social compassion and altruism) covered in the concept, the first two seem to be particularly applicable to UBA: political motivation and the desire to serve the common good and to assume social responsibility. Additionally, UBA with its strong focus on research should have a spirit of curiosity. We sometimes notice that highly motivated PhD graduates lose this spirit of research ambition once they work for UBA. This is something the authors suggest investigating further. A more inquisitive culture, better infrastructure for excellent and transformative research, and competitiveness could inter alia change this.

Furthermore, an institution that promotes transformation and claims to contribute to the greatest transformation since industrialisation needs to "practice what it preaches". UBA employees desire a top environmental-friendly employer, suggesting, e.g., bike purchase subsidies and vegetarian canteens. UBA also needs an urgent modernisation of its IT infrastructure,

better digital capabilities of staff and high-tech learning, and working modules.

The article intends to show how governmental agencies can undertake a profound transformation themselves, in order to contribute to the transformation towards a sustainable society. Messner is a strong and tireless advocate for this transformation.

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The grassroots Development development Revolution revolution is Herehere

Achim Steiner

Achim Steiner became the Administrator of the United Nations Development Programme (UNDP) in June 2017, following the confirmation of his nomination by the United Nations General Assembly. He began his second four-year term of office in June 2021.

Over nearly three decades, Achim Steiner has been a global leader on sustainable development, climate resilience and international cooperation. Prior to joining UNDP, he was Director of the Oxford Martin School, University of Oxford. Mr Steiner has served across various international organisations, looking at global challenges from both a humanitarian and a development perspective. He led the United Nations Environment Programme (2006–2016) where he first met Dirk Messner. Mr Steiner also headed the International Union for the Conservation of Nature (2001–2006) and the World Commission on Dams (1998–2001).

Humanity is now pushing past the limits that can sustain life on this planet. One million plant and animal species are near extinction (IPBES 2019). We are not watching climate change draw near. We are living through it. The IPCC reports that, since 1970, global surface temperatures have risen faster than in any other 50-year period over the past 2,000 years (IPCC 2021). From heatwaves and wildfires like the ones experienced in Greece and Turkey to floods like those in Germany and China, "their attribution to human influence has strengthened" over the past decade. Environmental destruction and global warming have the greatest impact on the world's poorest people and groups whose livelihoods are most dependent on natural resources. We are the wealthiest, most informed generation in human history, yet in many ways we are sitting on a branch and we are cutting, and cutting, and cutting, because we think the next branch of timber is going to make us richer. Simply put, we cannot go on like this. The 2020 Human Development Report by the United Nations Development Programme (UNDP) argues that nothing short of a great transformation in how we work, live and cooperate is needed to bring about the action we need if we are to live in balance with the planet in a fairer world (UNDP 2020).

This transformation must be founded upon a clear vision of the future. In the aftermath of the Second World War, the United Nations (UN) was tasked with imagining and delivering a new global era. The UN has helped to halt conflict, prevent war and extend a literal lifeline to people across the world through its development work. To define the next era, we must first listen. Since 2020, over 1 million people have engaged in the UN's The Future We Want conversation. Improved access to basic services like healthcare, safe water and sanitation, and education stand out as priorities. And the Peoples' Climate Vote – the world's largest-ever survey on climate change – found that just 10% of people believe that world leaders are doing enough to confront the issue (University of Oxford & UNDP 2021).

To put this vision into practice, the international community has agreed to a plan to tackle global challenges like poverty, inequality, climate change, environmental degradation, and peace and justice, with defined targets through the Sustainable Development Goals (SDGs). At this seminal moment, the UN and its partners are helping countries to make smart choices in these vital areas. UNDP's Climate Promise is the world's largest offer of support for the enhancement of countries' Nationally Determined Contributions. It is also helping to insert the 'DNA' of a green economy into COVID-19 recovery and stimulus measures. And the UN is supporting over 70 countries to align COVID-19 recovery financing with the SDGs and the Paris Agreement through Integrated National Financing Frameworks. Thanks to such support – from Serbia to Tunisia to Indonesia – countries are starting to steer away from fossil fuels and embracing clean, renewable technologies that will help to create up to 30 million new green jobs by 2050 (IEA 2021). Meanwhile, the cost of renewables continues to plunge and public opinion backing decarbonisation is soaring (University of Oxford & UNDP 2021). Yet advanced economies outspent developing countries by a factor of 17 to 1 on green COVID-19 recovery measures (Stone 2021). Developing countries need more support to implement a just transition from fossil fuels to clean, renewable energy that will bring electricity to the 759 million people worldwide without access today. We have the solutions: from clean cooking innovations and solar-powered water pumps to clean energy mini-grids. The task now is to roll them out at scale and support innovations to power homes, hospitals and schools while driving down greenhouse gas emissions.

As the COVID-19 pandemic sets back progress on the SDGs, we must re-imagine historic top-down development structures. This is daunting given that these systems are the product of deeply ingrained mindsets. Yet the pandemic has demonstrated that rigid systems and structures that have contributed to our climate and nature crisis can indeed be upended and

re-thought. Consider the unprecedented wave of home-grown innovation powered by technology in the wake of the pandemic. With one in three children missing out on remote learning globally when COVID-19 shuttered schools, countries such as Moldova rapidly deployed a new online platform to offer virtual classes. In Uganda, the UN teamed up with an e-commerce platform to allow informal market vendors to trade online for the first time as the country went into lockdown. Other green shoots are sprouting up – from the world's first-ever blockchain-powered chocolate bar that is supporting cocoa farmers to earn a fair wage and plant more trees to a solar-powered off-grid box that produces clean water and WiFi for marginalised communities.

The challenge now is to sustain this innovation surge by setting the conditions to allow the innovators and the entrepreneurs of the world to drive forward grassroots solutions in key areas like climate change and the protection and restoration of our natural world. The UN is putting increased emphasis on this bottom-up development approach. Consider the UNDP Accelerator Labs network supported by its founding investors Germany and Qatar. It is now the world's largest learning network on sustainable development challenges. Serving 115 countries, the labs supported over 1,700 grassroots solutions in 2020 alone. That support included everything from leveraging the potential of 3D-printing to rapidly produce vital personal protective equipment for healthcare workers to deploying robots in COVID-19 treatment centres in Rwanda and Kenya. Indeed, developing countries themselves are increasingly sharing their expertise through South-South and triangular cooperation. Yet many countries will need to transform their outdated systems – including updating laws and regulations and making it easier to start a business – to give grassroots innovators and entrepreneurs the space to experiment, to fail and to try again.

Hulking financial systems also need to modernise, using digital finance to boost inclusion. Overnight, thousands of small and medium-sized enterprises were forced to shut, while millions of people were confined to their homes as lockdowns took effect, unable to travel to receive social protection payments traditionally paid in cash. From Honduras to Nigeria, the UN helped countries to leverage the power of digital finance to support electronic cash transfer programmes, benefitting millions of people. We must build on this momentum and ensure that digital finance is used to bolster vital social protection programmes at a time when over half the global population lacks healthcare and social security (ILO 2019). This will help to mitigate poverty and ensure that countries are better prepared for the next crisis. Financial institutions also need to offer new

products that are desired by customers including mechanisms to channel their finances more easily towards the green economy. And digital finance will open up remarkable opportunities for local solutions including in the crowdfunding sphere. Look to new digital finance platforms like one in Bangladesh that will leverage citizens' micro-savings to help finance new green infrastructure projects – from much-needed sanitation schemes to modern healthcare facilities.

Digital technology will also be crucial to help the private sector to operate more sustainably and make a positive contribution to the SDGs. Indeed, enterprises and investors increasingly recognise that sustainable development is at the very heart of long-term value creation. However, there has been a longstanding lack of clear guidance on how private enterprises can translate intent to action. UNDP is addressing this area by developing a series of standards that apply to the different facets of SDG finance through its flagship initiative, "SDG Impact". That includes the development of standards for SDG Bonds, for instance. This assistance is already paying dividends. With UNDP's support, Indonesia issued the very first sovereign green sukuk (bond) in 2018 and Mexico became the first country in the world to issue an SDGs bond in 2020. Other innovative finance mechanisms such as debt-for-nature and debt-for-climate swaps hold enormous potential to extend debt relief and mobilise finance that can then be channelled towards decarbonisation projects as well as the restoration and protection of the environment, for instance. A promising example is the Nature Performance Bond, which rewards certified performance on agreed nature-related actions with debt relief for the target country. We need to deepen partnerships of public sector, private sector and civil society that catalyse such green financing.

There is also profound change afoot in the development finance landscape. The outdated model and mentality of 'aid' travelling as 'charity' from North to South is no longer fit for purpose. Today, development finance flows are diversifying – three-quarters of all developing countries now provide development cooperation.[1] Yet, the pandemic has triggered an exceptionally challenging environment for development finance while crushing debt is undermining the ability of many developing countries to build forward better from COVID-19. We are starting to witness the emergence of collective will to address vaccines, debt relief and climate finance, but more must be done. Rich countries need to extend debt relief

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1 The proportion of developing countries providing development cooperation increased from 63% to 74% in the period 2015 to 2017 (UN ECOSOC 2018: 15).

and finance to developing countries to ensure global vaccine equity – the basis to power a worldwide green recovery that will cut carbon emissions and limit global warming to 1.5°C. Remarkably, less than 1 per cent of debt service in 2021 would cover the cost of 1 billion vaccine doses under the COVAX initiative.

Economic growth, Gross Domestic Product (GDP) and per capita income have been the major variables with which we have tried to measure development, progress and success in our societies. However, they have also blocked out some very irrational elements of this measurement for too long. For instance, a large oil spill is perversely very good for economic growth, because the clean-up costs a large amount of money that adds to GDP; yet the destruction that it unleashes on communities or on ecosystems that do not recover is never captured. This irrationality is prompting the disciplines of economics and sustainable development to find better ways to measure human progress. For instance, UNDP's Human Development Index (or HDI), which measures a nation's health, education and standards of living, has been adjusted in 2020 to include two more elements: a country's per capita carbon dioxide emissions and its material footprint. With the resulting Planetary-Pressures Adjusted HDI, a new global picture emerges, painting a less rosy but clearer assessment of human progress. More than 50 countries drop out of the very high human development group, reflecting their dependence on fossil fuels and material footprint.

The digital transformation is also unlocking new and more detailed data that can better inform development decisions. As Dirk Messner points out, "For the first time, digital technologies can comprehensively trace, document, and analyse each resource and product as it flows across global supply chains. This could create circular economies, in which resources such as water or rare Earth metals arrive where they are needed, and waste does not escape to pollute the environment" (Messner 2019). He adds that "digital monitoring can also help scientists and policymakers to better understand how ecosystems around the world – such as forests, reefs or glaciers – are changing in real-time. This can help conservationists to better understand how to protect and restore the environment" (Messner 2019). Such new data will feed into efforts like #GenerationRestoration which is rallying millions of people to engage in local efforts that will stop and reverse the destruction and degradation of billions of hectares of ecosystems.

The UN is also helping to expand access to crucial data and analytics. The open-access COVID-19 Data Futures platform aggregates multiple sources of information across UN agencies, academia and the private sec-

tor. By integrating data, analysis, visualisations, expert insights and interactive tools, it can help policymakers to examine vaccine equity at a glance; explore how much a Temporary Basic Income would potentially cost; and analyse responses taken by Governments worldwide to tackle the pandemic including those that have integrated a gender lens, for instance. In addition, UN development agencies like UNDP are themselves undergoing a digital transformation effort aimed at future-proofing the organisation for the technological changes now and those yet to come. And building this knowledge is crucial for the UN to be able to share this expertise with its partners.

The COVID-19 pandemic has acutely highlighted how digital connectivity is fast becoming the global metric of inclusion and exclusion with 3.7 billion people still offline. Renewed efforts are needed to extend access to affordable broadband, the nervous system of today's new digital economy. According to the ITU, a worthwhile investment of $428 billion could achieve universal broadband connectivity by 2030. It would allow thousands of small and medium-sized enterprises to do business online for the first time, generating new, sustainable jobs and livelihoods.

COVID-19 is starting to set off a chain reaction for the systemic change that we now need. And this change must be led by local communities in developing countries who are identified by the 2030 Agenda as co-implementers, not just beneficiaries. Indeed, those communities are the very reason why the SDGs exist. The challenge now is to ensure that all communities can benefit from the advantages of the digital transformation to help surface new, often frugal development solutions that will drive a global green economy. In this new epoch, we should not be spurred into action as a result of a crisis like COVID-19, nor should we be blindly optimistic for the future. Rather, led by the unifying strength of the UN, we now have well-founded optimism for our ability to change the future. It is based upon the fact that we now have historic levels of stimulus; access to new financial mechanisms and innovative tools; and extraordinary technology. At the same time, as Dirk Messner has demonstrated throughout his life's journey, we must harness the immense power of science, rigorous analysis and thinking to drive the change we need. Deploying all these assets will block the path of COVID-19, slash carbon emissions, and protect and restore our natural world. Though we are different, we must work together to shape a greener, more sustainable future for all.

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Tackling the climate emergency

Simon Maxwell
Simon Maxwell is a development economist, who has worked internationally since 1970. He worked for ten years overseas, in Kenya, India and Bolivia, then for fifteen years at the Institute of Development Studies, University of Sussex, latterly as Programme Manager for Poverty, Food Security and the Environment. In 1997, Simon became Director of the Overseas Development Institute, the UK's leading independent think-tank on international development and humanitarian issues. In 2009, he became a Senior Research Associate of the ODI. Since leaving ODI, he has been, inter alia, Executive Chair of the Climate and Development Knowledge Network, Chair of the European Think Tanks Group and a Specialist Adviser to the Select Committee on International Development of the UK Parliament. From 2001 to 2005, Simon was President of the Development Studies Association of the UK and Ireland. In 2007, he was made a CBE, for services to international development.

'Für Mensch und Umwelt'

It is easy to be pessimistic about the slow pace of action to tackle climate change: had emission reductions begun in 2010, a reduction of 2% a year would have been enough to limit warming to 2 degrees; because they did not, reductions of 3% p.a. are now required, or an unprecedented 7% p.a. if the 1.5 degree warming target is to be reached. Meanwhile, the World Meteorological Organisation documents rising concentrations of greenhouse gases, temperatures and sea levels, and a proliferation of extreme weather events, including floods, drought, heatwaves, wild fires and cyclones.[1]

On the other hand, the public mood has shifted. A Eurobarometer survey in the 27 Member States of the EU shows that climate change was ranked top in a list of the biggest problems facing the world, with three quarters of respondents saying that climate change is a 'very serious problem'. In the UK, similarly, eight in ten people (80%) in March 2021 were either very concerned (33%) or fairly concerned (47%) about climate

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[1] For an overview of climate issues, see the annual UN Environment Emissions Gap Report.

change. In the US, two thirds believe that climate change is an urgent problem.

Climate pledges and plans are also multiplying. Over 130 countries have committed to reaching net zero by mid-century, or are considering doing so, alongside non-state actors like cities and private sector actors making similar commitments. Most countries issued new pledges for 2030 in the run-up to the Glasgow Conference of the Parties to the UN Framework Convention on Climate Change in November 2021, including the EU (a 55% cut compared to 1990) and the UK (a 78% cut compared to 1990, to be achieved by 2035). Action lags behind pledges in many cases (e.g. in the UK), but it is being ramped up, for example in the EU by the 'fit-for-55' package.

Decarbonisation is evident in some advanced economies. Careful analysis of UK data shows, for example, that both territorial and consumption emissions are now falling (Figure 1).

Figure 1: UK territorial and consumption emissions
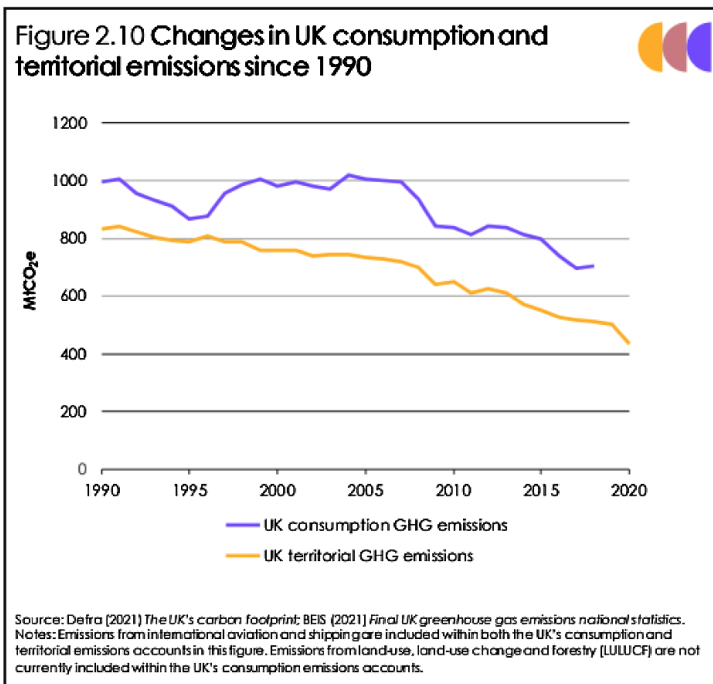
Source: Climate Change Committee, 2021: 85.

It is best not to become over-excited. But what is it that drives system change? That question was explored by the German Advisory Council on Global Change, in a report entitled 'World in Transition: A Social Contract for Sustainability' (WBGU 2011). The report was published in 2011, at which time Dirk Messner was Vice-Chair. It ranged widely in history and theory, far beyond the confines of climate policy, drawing lessons from the Neolithic and the Industrial Revolution, from thinkers like Kant and Polanyi and from all regions of the world. A key conclusion:

> "Historical analyses show that a 'concurrence of multiple change' … can trigger historic waves and comprehensive transformations. The social dynamics for a change in the direction of climate protection must therefore be created through a combination of measures at different levels:
>
> • It is knowledge-based, based on a joint vision and guided by the precautionary principle.
> • It relies heavily on the change agents, who can test and advance the options for leaving behind an economy reliant on the use of fossil resources …
> • It needs a proactive state to allow the transformation process to develop into a certain direction by providing the relevant framework, by setting the course for structural change and by guaranteeing the implementation of climate-friendly innovations …
> • It also counts on the cooperation of the international community and the establishment of global governance structures as the indispensable driving force …" (WBGU 2011: 5–6).

The last chapter of the report deals specifically with the role of the knowledge society in transformation. It describes a research and education agenda in great detail and concludes with this call to arms:

> "'A comprehensive transformation towards a low-carbon, sustainable society places great demands on the development, diffusion, legitimation and application of knowledge …" (WBGU 2011: 357).

Put these elements together, and a light is thrown on Dirk Messner's exceptional career: as a researcher, communicator, educator, policy adviser and network-builder of global renown, a change-maker outside the state apparatus, but also as Director of the German Environment Agency, an agent of the participatory, proactive state. A decade on from the WBGU report, he can be seen as an embodiment of its practical philosophy –

and of the mission of the German Environment Agency, 'Für Mensch und Umwelt', for people and the environment.

What's next: A (global) green new deal

The WBGU report was written before the signature of the Paris Agreement and the adoption of the Sustainable Development Goals, both in 2015. Its later reports have made those connections. Dirk Messner was a member until the end of 2019. He also contributed to practical work on the climate agenda, at the German Development Institute, at the United Nations University and through his involvement with the UN's Sustainable Development Solutions Network.

A frequent framing of an inclusive, people-focused approach to tackling climate change has been a Green New Deal; and when developing countries are included, a Global Green New Deal. The term 'Green New Deal' goes back to the publication of a report by the New Economics Foundation in 2008. The term 'Global Green New Deal' has been in use since early 2009, when UNEP published a report by Edward Barbier entitled 'Re-thinking the Economic Recovery: a Global Green New Deal'.

Recent books on a Green New Deal include those by Ann Pettifor (2019) and Naomi Klein (2019). The EU has adopted the idea of a 'Green Deal', with three overarching objectives: no net emissions of greenhouse gases by 2050; economic growth decoupled from resource use; and no person and no place left behind.

The idea of a Global Green New Deal has been promoted recently, for example by Joseph Stiglitz in an article in 2019 and as the main theme of UNCTAD's Trade and Development Report for 2019. The Global Green New Deal is also a chapter heading in Gordon Brown's new book (Brown 2021). The core ideas are common currency among a group of activist think tanks committed to research about and advocacy for a 'new economy'.

This sounds promising, but there are three issues, with Global Green New Deal and wider new deal proposals.

First, the term 'New Deal' is used advisedly by the authors cited, laying claim to the stardust associated with President Roosevelt's wide-ranging New Deal in the 1930s – but sometimes failing to acknowledge the difficulties involved in delivering that package. There is an element of virtue signalling involved.

Second, closer examination reveals that 'Green New Deal' proposals are far from consistent in their content. Sometimes, this reflects circumstances

of time or place, but there are also ideological differences. For example, a comparison of the proposals submitted to Congress by Alexandria Ocasio-Cortez with those adopted by the UK Labour Party showed quite big differences on issues like nationalisation of public utilities, guaranteed minimum income and trade policy.

The third issue is the treatment of the 'global'. The emphasis is often on transfer of technology to developing countries, along with the resources to spread access to renewable energy, among other things. Funding for adaptation is also seen as critical.

In our work with the Climate and Development Knowledge Network (CDKN), we tried to expand the optic, to focus not just on mitigation and adaptation but more widely on 'climate compatible development'. We defined this as development that "minimises the harm caused by climate impacts, while maximising the many human development opportunities presented by a low emissions, more resilient, future" (Mitchell & Maxwell 2010: 1). This meant countries having a single, climate-compatible and (we would now say) SDG-compliant development plan, linking economic, social and environmental issues.

A genuine 'global' green new deal would embed support for climate compatible development plans using all the instruments available: aid and private sector finance, research and technology partnerships, favourable trade rules, migration and security support, and so on. The best way to think this through would be if developing countries were to produce ambitious conditional and unconditional pledges or Nationally Determined Contributions to the UNFCCC.

Lessons

It is commonly said that change happens when three things come together: first, leadership; second, civil society action; and third, the power of a good idea. Take those in reverse order.

A first lesson is that knowledge workers need to roll their sleeves up. There are very active debates on all the topics listed above, and also others: a universal basic income; a shorter working week; wealth taxes; border carbon adjustments, reform of monetary policy; degrowth …

Sometimes debates are designed to shift the 'Overton Window', creating a conversation and political possibilities, which gives politicians permission to pursue new agendas. However, these are serious topics which require serious analysis, including experimentation with and evaluation of ideas

like a basic minimum income and a shorter working week. A key task for researchers is to examine the sequencing and financing of proposals.

A second lesson is the importance of engaging with, and perhaps hoping to influence, the increasingly active and professional civil society movement. This is about talking to movements like the Fridays for Future and the School Strike Movement or Extinction Rebellion, especially about the work they do to shift the Overton Window, but also their allies in new civil society alliances, covering multiple issues. An example of the latter is Crack the Crises, an alliance supported by over 70 organisations in the UK and focused on the COVID injustice, climate and nature crises as inextricably linked.

It is also necessary to understand the methods and approaches of campaigners. Duncan Green has written a playbook for social activists, exploring the interaction between systems and power. Ben Jackson and Harriet Lamb have drawn lessons from the experience of social activists around the world. Ed Miliband has explored the role of community organising as a way to bring about change, the role of trade unions in mobilising change across a sector, the importance of localism and the power of divestment. "You only", he says, "get the justice you have the power to compel" (Miliband 2021: chapter 16).

All these draw directly or indirectly on the Alinsky rules for radicals, originally published in 1971. Probably think tanks interested in policy development should also understand these.

Finally, the third lesson is about leadership in a time of a climate emergency. From contributions by a number of climate leaders, I have proposed a model of "Motivate. Mobilise. Manage. Repeat" (Maxwell 2020). Consistent with a large literature on leadership, leaders must do four things. 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.

There is plenty to say on all of these, but the main message now is twofold: climate leaders need to build wide coalitions, not sectarian tabernacles; and they need to plan for a marathon change process, not a sprint.

Conclusion

This short paper began with the climate crisis and the drivers of transformation. It examined the current agenda, especially as it is linked to the idea of a 'new economy' and a Global Green New Deal. And it explored the lessons for knowledge workers, social activists and leaders. Dirk Mess-

ner, unusually, belongs in all those categories. We are lucky to be able to work with him.

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Tackling climate and environmental change

The broken alarm clock and the problem of urgency

Andrew Norton
Andrew Norton is an applied anthropologist who has worked on a range of sustainable development issues and challenges including the social dimensions of climate change, automation and inequality, social protection and ecosystem stewardship. He has worked in both research institutions and development agencies including the World Bank and the UK's Department for International Development. He is currently Director of the International Institute for Environment and Development. He first met Dirk Messner through the European Think Tanks Group around ten years ago while he was Research Director for the Overseas Development Institute and has enjoyed seeing Dirk shape the sustainable development agenda continually and ever-more strongly in the years following.

> "History, Stephen said, is a nightmare from which I am trying to awake".
> *James Joyce, Ulysses*

1. The broken alarm clock

Joyce's *Ulysses* was published a hundred years ago. The quote above resonates now because the climate and ecological crisis increasingly *is* our history – and the nightmare from which we are all trying to awake. Every time a major new IPCC report is issued – be it the remarkably effective Special Report on 1.5 degrees or the recently published output of Working Group 1 of the Sixth Assessment Report – the cry goes out for it to be the 'wake-up call' needed to drive transformational change. But will the grim prognosis in these reports be sufficient to shake us into taking the action needed to avoid the nightmare scenarios?

The Special Report (IPCC 2018) calibrated how very much the difference might be in terms of human wellbeing between 1.5 and 2 degrees and outlined all the many ways in which humanity and the natural world would be better off at 1.5 degrees above pre-industrial temperatures. The clear way in which extreme weather is impacting people and nature already now at just over one degree of warming is a constant reminder of the perils of going anywhere much beyond where we are now. The

more recent report (IPCC 2021) outlines five future scenarios under which humanity does more or less well at curbing global heating. It also predicts that the 1.5 degree mark is likely to be breached under *even the best of the five scenarios* before 2040 – albeit holding out the hope that humanity can develop and operationalise sufficient means to suck enough greenhouse gas emissions out of the atmosphere to bring us back under the 1.5 mark late in the century.

Taking in aggregate all the various efforts to quantify what temperature the world is headed for by 2100, we know that the current trajectory does not get us close to 2 degrees, let alone 1.5. The consequences of, for example, 3 degrees of warming over pre-industrial levels would be clearly disastrous. Avoiding that can only be achieved by a transformational shift in norms and values driving widespread systemic change on a global scale. And we know that the change has to happen very quickly. Even the most conservative estimates indicate that if emissions continue at their present rate there will be enough greenhouse gases in the atmosphere by the early 2030s to breach the 1.5 degree mark.

2. And there is more …

The climate crisis is only one of three axes on which human society is turning at a fast and accelerating pace. Biodiversity loss and increasing inequality are compounding the global emergency. These three crisis axes on which our world is turning have multiple inter-connections which, at the moment, are negatively reinforcing. But, perhaps the key to waking us from this nightmare lies here, because these inter-connections also create opportunities for positive change. Strategies that address all three of these axes – the climate crisis, biodiversity loss and global inequality – may provide the leverage needed to stop the extraordinary damage that we continue to inflict on the planet's biosphere and human society.

The crisis of global biodiversity loss poses severe risks and has its own compelling metrics. Research persistently suggests that the world is losing thousands of species per year and is seeing a rate of loss 100–1,000 times greater than the background rate (i.e. what we would expect to see without human influence). The crisis of biodiversity loss has been highlighted by the COVID-19 pandemic. While the precise origins of the pandemic may never be known, there is no doubt that loss of biodiversity – and particularly loss and degradation of tropical forests – played a significant role in creating the context. Future pandemic risk is unquestionably heightened by biodiversity loss because it increases the potential channels for human

contact with many pathogens capable of causing severe damage to human society. Furthermore, species loss at the current precipitate rate can be compared to destroying the biosphere's 'hard drive' – you can't get it back. At a local level the degradation of ecosystems undermines the resilience of human and natural systems.

The pandemic has also shifted the dynamics of global inequality. At the local and national levels, a series of processes are clearly hurting the poor more than the rich, women and girls more than men and boys – including the greater vulnerability of informal sector workers, less access to health services, the inability of workers on the edge of survival to protect themselves from exposure to the virus, the greater burden of care of the sick falling on women and girls. And so on. Some of the impacts will be durable. The pandemic will give a boost to digitalisation of communication and to automation (production and marketing systems which are less dependent on human labour). These processes will – if unchallenged by radical policy responses – drive increasing inequality at multiple scales (Norton 2017).

At the global aggregate level changes in inequality data are likely to be stark, as and when they become available. The best efforts to quantify what has happened to global inequality of income and consumption over the period since the end of the Cold War show two counter-balancing trends more or less cancelling each other out: the spiralling growth of individual wealth and income at the top end of the global distribution, pushing global inequality up, and the steady convergence of a large group of poorer countries with the OECD industrialised nations, pushing the global inequality figures down (Lakner & Milanovic 2016). All evidence suggests that the pandemic has put the former process on steroids (Forbes data indicates the world's 2,690 billionaires saw their combined wealth rise from $8 trillion on March 20, 2020 to $13.5 trillion as of July 31, 2021), while shoving the latter process (inter-country convergence) into reverse.

Early in the pandemic the big hits to economic growth were being taken in rich countries, where the pandemic was hitting hardest. But the egregious levels of inequality in access to coronavirus vaccines and stimulus finance have turned that on its head, and richer countries are now entering the recovery phase while poorer countries cannot.

It will be a long time before the data to test the impacts of the pandemic on global income inequality are available. Countries with large levels of informality depend on household surveys to assess trends in income and consumption, and there have been very few conducted during the pandemic. The end of the decades-long process of inter-country wealth and income convergence could be a hugely significant global moment. And the combination of the two pandemic trends outlined above (the rich

getting richer faster and poor countries no longer 'catching up') is likely to result in a significant aggregate boost to global inequality of income and wealth.

The disturbing changes to the distribution of global wealth and income serve to underline the fact that the same global economic system that is rapidly eroding the planet's biosphere and the conditions for broad based human wellbeing is simultaneously creating massive, almost incomprehensible, levels of material wealth for a tiny number of people.

The graphic below outlines, in a highly stylised way, the negative, crisis-reinforcing dimensions of these three axes of climate change, biodiversity loss and inequality.

Figure: Inter-connections of crisis
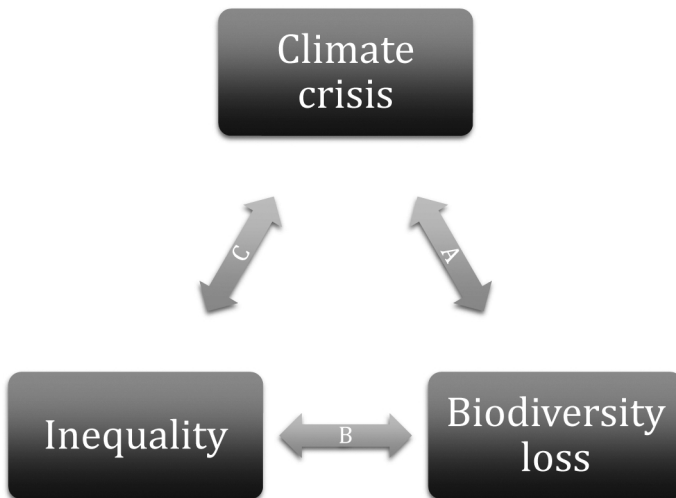
The connections (indicative examples)

Arrow A

- *Global heating drives biodiversity loss. The most authoritative overview places climate change as the third most important driver of biodiversity loss* (IPBES 2019) – *but as heating rises, it will become more significant .*
- *Biodiversity/nature loss damages carbon sinks, accelerating global heating.*

Arrow B

- *Biodiversity loss heightens pandemic risk driving higher inequality (illustrated by the Covid-19 pandemic).*
- *Disempowerment of Indigenous Peoples drives faster biodiversity loss, as biodiversity does better in areas under management by Indigenous Peoples than elsewhere* (IPBES 2019).

Arrow C

- *Inequality undermines solidarity and capability for global response to the climate crisis.*
- *Climate crisis (fuelled by a global economy increasingly producing massive wealth for a tiny number of people) hits poorest people, communities, countries harder.*

3. Pointers for action

Effective action will need to address the three crisis axes simultaneously. The values of social justice and love of the natural world are essential to imagining and creating the momentum for transformative change to address climate change.

In relation to the climate crisis, pace of action is crucial. Vested interests from the fossil fuel industries are moving from tactics of denial to tactics of delay. But our models for political action and transformation assume long historical periods for struggle. Urgency – in the face of powerful vested interests – is a huge challenge.

The formal model for global collective action on the climate crisis is the Paris Agreement. This is founded on sovereign states taking action as they see fit – and the seriousness of purpose they display then giving signals to 'the market' (corporates and investors) of the necessity and urgency of change. The text of the Paris Agreement contains significant shifts towards a climate justice framing, through recognising differential impacts, disparities in vulnerability, human rights dimensions and gender inequalities. Frequent references to the particular challenges for the Least Developed Countries and small island states reinforce the climate justice framing as does the emphasis on transfers from richer to poorer countries (climate finance) and the path-breaking recognition of the issue of Loss and Damage. However, implementation and follow-up in these areas has been strikingly weak, with little forward movement towards practical operational approaches on Loss and Damage and with the stark failure of OECD countries

to come up with the promised level of finance at the 2020 point of $100 billion per year.

The element of the Paris Agreement that provides the potential for raising ambition and urgency in action on all dimensions is the provision for countries to submit stronger climate action plans (termed Nationally Determined Contributions) every five years. The bet was that a combination of raised awareness, improved measurement and transparency in relation to government actions would provide sufficient bottom-up pressure to drive up ambition.

But country-by-country action in the form of policy-driven pledges will not be enough on its own. Social movements will need to drive change at multiple levels and to co-ordinate with global purpose. In order to achieve coherence there is a need for both a vision of positive change and umbrella strategies which can provide a framework for globally effective action.

The vision for positive change must encompass a new emphasis on values of global solidarity and mutual aid, respect for the natural world, and the promise of delivering healthy and equitable societies and communities at the local level. The umbrella strategies should be sufficient to make progress across the three dimensions of the global crisis moment – climate, biodiversity loss and growing inequality. They should provide clarity of action and direction and could look like this:

- A rapid pathway to the complete abolition of fossil fuels – rich countries first. We know what this looks like – decarbonising electricity, transportation and buildings. Technologies and policies exist to do this (though they can still improve). Other actions will be needed (e.g. ending deforestation), but retiring fossil fuels needs to be the cutting edge of change.
- A global social safety net to ensure that those suffering egregious impacts are protected before, during and after damaging events from the climate crisis and biodiversity loss.
- A global framework for the provision of public climate finance to support action at appropriate levels (community, local government, national government) to enable actors to build resilience and decarbonise production and consumption.
- A global framework for the protection of indigenous peoples' and local communities' natural resource rights – as this clearly emerges as both an action to protect the livelihoods of people suffering multiple layers of disadvantage, and also the most effective single action to prevent biodiversity loss (IPBES 2019).

Clearly these changes will take significant investment capital, and it will be necessary for the basic driving force to be public investment, as the purpose is essentially public and market motivations cannot be assumed to be workable for these purposes at this scale.

This will require those countries that have the monetary and fiscal clout to borrow at the necessary scale to do so. The pandemic has clearly demonstrated that northern states with hard currencies can mobilise vast resources when they need to. The scale of investment in military action has been estimated at five trillion dollars for the US 'war on terror' between 2001 and 2020. Rich countries can mobilise investment if they want to at a scale that would be sufficient to drive transformational and rapid change. In the end it amounts to a political choice – the means exist to finance a recovery from the pandemic at a scale that would match the challenge of the climate crisis. A global framework enabling countries to tax extreme personal wealth (as suggested by Thomas Piketty) would underpin this shift and would have the added benefit of acting to curb growth in global wealth inequality. Public finance is critical and possible at the scale necessary for catalysing innovation, for driving rapid domestic decarbonisation and for international solidarity.

Investment at this scale would radically restructure the social contract for the era of climate action, provoking citizens and businesses to align their own actions with the requirements of addressing the climate crisis in ways that harness creative action at multiple levels, and providing support to communities and individuals needing to exit from high carbon industries and activities. The means exist to accelerate transformative change; now the next steps are to develop the public demand and the political imagination to act at the scale and speed that the crisis moment demands. And there are some encouraging signs. The way that a strategy for climate action built on a foundation of advocacy for social justice – the Green New Deal proposal to the US Congress of 2019 – informed a mainstream political platform for the Biden administration indicates the political potential. As of now the momentum is not where it needs to be – but we may be closer to the awakening we need than we think.

Andrew Norton

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Climate justice and responsibility
– rethinking climate protection and constitutional requirements

Sabine Schlacke

Prof. Dr. Sabine Schlacke had the great honour and pleasure to work with Dirk Messner for the Advisory Council on Global Change of the German Government (WBGU) from 2008 to 2020. The first product of their collaboration in the WBGU was the report on "Solving the climate dilemma: The budget approach". Together, they launched the idea of distributing the remaining global amount of CO_2 emissions to stay below the 2°C guard rail as a budget among the states using a per capita approach. The Federal Constitutional Court used this budget approach, as further developed by the German Advisory Council on the Environment (Sachverständigenrat für Umweltfragen), as a decisive argumentation support for its decision. This contribution now examines this WBGU impact and, above all, the consequences of the decision of the Federal Constitutional Court. Sabine Schlacke stated: "Dirk has always impressed me with his vision for global governance in the sustainability area, his wise geopolitical view of the North-South and East-West conflicts, his enthusiasm and his commitment."

In its – to put it cautiously – startling decision on the constitutionality of the emission reduction targets of the Federal Climate Protection Act, the German Federal Constitutional Court added a constitutional layer to political decision-making for coping with climate change. This gives reason to consider what German constitutional law (Article 20a of the Basic Law) refers to as "responsibility for future generations" in the light of the main content and course set by the decision: Who will bear the legal responsibility for achieving effective climate protection in the future? The answer to this question cannot be found only at the national level. It must include the European level and the international involvement of the legislature.

Sabine Schlacke

Mobilising the German constitution for climate protection: The Federal Constitutional Court's climate decision

On the 24th of March 2021, the German Federal Constitutional Court has taken a historic decision: It significantly upgrades the value and the impact of the state objective of environmental protection from Article 20a of the Basic Law, which has so far remained pale (Bundesverfassungsgericht 2021). It takes from it the duty of the legislature to distribute the reductions in CO_2 emissions necessary for effective climate protection, up to and including climate neutrality, in a forward-looking manner that protects fundamental rights. This creates nothing less than an individual fundamental right to intertemporal freedom protection. Incorporated into the fundamental right of general freedom of action of future generations that is to be derived from Article 2 (1) of the Basic Law, Article 20a of the Basic Law gives rise to a legislative mandate to cushion the risk of serious future environmental burdens in such a way that their encroachment-like advance effects are mitigated. In other words: Current and future generations must not be saddled with the risk of significant, climate change-related loss of freedom due to a legislative failure in the here and now. Therefore, the German Climate Protection Act enacted in 2019, which at the time of the Constitutional Court's decision provided for reduction targets only until 2030, must be amended insofar as a concrete emissions reduction path until climate neutrality in 2050 was missing, i.e., the fundamental-rights-protecting design of climate-protection measures was omitted from that point onwards (for a more in-depth analysis of the Constitutional Court's decision, see Schlacke 2021).

What is remarkable about the decision is that it explicitly relies on an approach developed in the scientific community for determining the amount of anthropogenic greenhouse gas emissions still available, which is the so-called budget approach. It was introduced in 2009 by the German Advisory Council on Global Change (WBGU 2009) and – with differences in the criteria of the distribution key – further developed by the German Advisory Council on the Environment. The budget approach aims to measure the required ambition level of national greenhouse gas emission contributions on the basis of a global CO_2 budget, which is broken down to emitting countries in the form of individual contributions. It allows to translate the scientifically determined planetary temperature limits into concrete mitigation efforts. On this basis, it is possible to calculate by what date which reduction efforts are required, so that the budget approach simultaneously makes the responsibility derived from Article 20a of the Basic Law measurable for the future. The Federal Constitutional Court

120

recognises both these advantages and the uncertainties inherent in the budget approach. It adopts the approach in a scientifically informed and constitutionally reflective manner, lending persuasive force to the findings resulting from the application of the budget approach, which concern in particular the need for reduction after the budget has been used up.

From the point of view of constitutional dogma, the Federal Constitutional Court's decision may be criticised for not clearly separating the defensive and protective dimensions of fundamental rights. It has created a new obligation to coordinate both dimensions (see Schlacke 2021) and did not take the opportunity to give contours to the still underdeveloped dogma of the duty to protect (see Calliess 2021). The decision is characterised by a will to judicial activism and by the methodological departure from traditional argumentation patterns in the sense of a progressive-effective activation of constitutional law in the name of developing climate protection law standards. Self-authorisations of this kind are in latent tension with those tasks that are assigned to the parliamentary legislature according to the functional order of the Basic Law, even though applying a provision of the kind of Article 20a of the Basic Law necessarily implies a certain margin of appreciation. However, these aspects might as well be the strengths of the decision. First, it does not seek false compromises but is open to debate. The jurisprudential debate has picked up a record speed just a few weeks after the publication of the decision in April 2021, and in practice, too, a possible influence on the interpretation of current environmental and climate protection law is being intensively discussed. It stands to reason that legal doctrinal and argumentative potential will be uncovered in this way, which could be of value for future legal debate on the requirements of a constitutionally compliant climate-protecting provision for freedom. This also applies to the question of the transferability of the new constitutional standards to other areas, such as the protection of biodiversity. Second, the decision is unambiguous. It formulates a clear and explicit mandate to the legislature and clearly expresses its responsibility. Testimony to this clarity is the fact that the German Climate Protection Act was amended on 18th of August 2021 in a very short time, with its scope being extended to the period after the year 2030 (BGBl. I, 2021, p. 3905). In this way, the constitutional upgrading of climate protection has already developed practical significance. However, the legislator limits itself to setting targets – such as increasing the reduction target from 55% to 65% by 2030 and achieving climate neutrality by 2045 – and annual emission budgets for different sectors until 2040. The actual operationalisation of these targets and budgets is still missing.

Sabine Schlacke

The European level: The European Climate Law and the 'fit-for-55' package of the European Commission

However, the now verified German constitutional dimension of climate protection law must not be viewed in isolation. The legal efforts to reduce greenhouse gas emissions are based to a considerable extent on the activity of the European legislator. At the centre of these efforts is the European Climate Law, which was recently signed by the European Parliament and the European Council on June 30, 2021 (COM/2020/80 final). At its heart and, at the same time, marking the benchmark for the future design of climate protection law is the increase in the EU's greenhouse gas emissions reduction target from 40% to 55% by 2030; climate neutrality is then to be achieved by 2050. In order to operationalise the ambitious targets of the European Climate Change Act, the Commission has issued on the 14th of July 2021 a series of proposals for new and to be amended legal acts with the so-called 'fit-for-55' package. The package includes, for example, the extension of emissions allowance trading to maritime transport, the first-time introduction of emissions allowance trading in the buildings and transport sectors, or modifications to energy tax law and in the area of land use, land use change and forestry (LULUCF), revising the entire climate protection target architecture of the European Union. This is not the place to go into detail on the individual topics (for a more in-depth analysis of the European Climate Law, see Schlacke et al. 2021). The decisive point is that the ambitious target architecture that the EU sets and that it seeks to achieve through a mix of different instruments, including not least the Governance Regulation, which acts as an overarching framework, also places responsibility on the member states' legislators. The German legislator does not only have to revise the national emission reduction targets upward – this was already appreciated by the last amendment of the German Climate Protection Act. It is also crucial that instruments and strategies are installed in order to translate the EU-wide reduction targets into concrete member states' plans, measures and projects and, thus, make them operable.

It should be mentioned that Europeanised responsibility can take on yet another form in a mediated manner: Through the European Council, the German government has the opportunity to influence international trade agreements between the European Union and third countries. In this context, the confidence of other countries in the realisation of climate protection can be strengthened by responsible conduct and action in the spirit of sustainability and intergenerational justice. In concrete terms, this can mean actively working towards sustainability obligations in new agree-

ments and consistently enforcing such obligations in existing agreements of the European Union.

The responsibility: What are the German legislator's obligations?

The responsibility assigned to the German legislator by the various levels of climate protection law is (at least) twofold: it takes place both at the constitutional level and at the European and international level.

In the constitutional context, responsibility can be anchored in the constitutional text better than ever in the light of the Federal Constitutional Court's decision. Article 20a of the Basic Law speaks – and has spoken before – of the protection of the natural foundations of life and of animals "in responsibility for future generations". This has always been read as a substantive responsibility of the state for the future, as a duty to take effective measures, which the legislator may not evade (see Schulze-Fielitz 2015). With the constitutional court's decision, however, responsibility understood in this way becomes justiciable. In the future, its content will no longer be reduced to that of a political programmatic guideline with little binding legal effect. Rather, Article 2 (1) in conjunction with Article 20a of the Basic Law now gives rise to a constitutionally binding and, above all, judicially reviewable mandate to protect the climate (Aust 2021), noticeably limiting the legislator's prerogative. Responsibility for future generations is now part of the constitutional and dogmatic toolkit that will significantly shape the legal dressing of climate protection in the future.

However, even in the European and international context the responsibility of the German legislator is not limited to the mere technical implementation of the requirements of higher-ranking law. The Federal Constitutional Court elaborates that the climate protection requirement of Article 20a of the Basic Law contains an international obligation that requires the state to act internationally to protect the climate globally. It is therefore a matter of responsible behaviour also in the context of the international involvement of the state, which is currently determined to a large extent by the Paris Agreement. At the same time, this prohibits the argumentative retreat to the reference to a possible inactivity of other states (Aust 2021), not least because this would halt the Paris Agreement's spiral of ambition, which is based on a responsive, reciprocal increase in Nationally Determined Contributions (von Landenberg-Roberg 2021). Climate protection responsibility requires nothing less than the effective implementation of existing commitments, the search for new solutions,

which are then given legal form by means of international law, and – even below the threshold of legal formality – an overall committed effort to achieve international climate protection efforts. The international dimension of climate protection responsibility thus has a legal side, but there is more to it than that. Responsibility for climate protection means taking an active, exemplary role within the internationally understood framework of Article 20a of the Basic Law. It can and must be expressed in the enactment of climate-protecting legislation; it must also demonstrate the state's awareness of and efforts to reach out to and implement its responsibility for climate protection. It is to the great credit of the Federal Constitutional Court that it has clearly elaborated this mandate. Its implementation in the light of European and international obligations will be the central task across legislative periods in the coming years and decades.

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From climate economics to planetary boundaries and global commons – the next paradigm shift

Ottmar Edenhofer
Ottmar Edenhofer is Director of the Potsdam Institute for Climate Impact Research and Director of the Mercator Research Institute on Global Commons and Climate Change. He is also Professor of the Economics of Climate Change at the Technical University Berlin. Mr Edenhofer and Dirk Messner met when Mr Messner was chair of PIK's Scientific Advisory Board.

A very basic word cloud based on Dirk Messner's publication record (from 1999 to 2017) reveals that the words occurring most often, even before his own name, are: 'global', 'development', 'governance', followed (after his name) by 'development policy', 'cooperation', 'international', 'transformation', 'peace' and 'climate change'. This seems to paint a very accurate picture of Dirk Messner, the relentless advocate in pursuit of an equitable global transformation towards a sustainable future.

After having met on several occasions briefly, I got to know Dirk Messner better when he became a member, and eventually chair, of the Scientific Advisory Board of the Potsdam Institute for Climate Impact Research (PIK). Dirk turned this advisory board into one that assumed an active role in PIK's development. He played a decisive part for PIK not only by setting high standards for its scientific excellence but also by encouraging an interdisciplinary research agenda and making this knowledge available to policy makers. Dirk has always followed a clear principle: Policy advice must be grounded in excellent interdisciplinary research. This, of course, is a conviction he was committed to throughout his long term as a member of the WBGU (German Advisory Council on Global Change).

His time as a member of the WBGU coincided with my co-chairmanship at the IPCC. In our discussions it became increasingly clear that sustainable development is only possible within planetary boundaries. Planetary boundaries can only be implemented as global guard rails when user rights for common-pool resources (e.g. the atmosphere or the oceans) are formally or informally implemented. We define common-pool resources as material or immaterial goods for which it is costly (but not impossible) to exclude users. As common-pool resources can be overused, the use by one party rivals the use by another (e.g. emitting greenhouse gases into the

atmosphere). The explicit assignment of user rights transforms a common-pool resource into a commons. This transformation requires a global und local governance structure. Dirk was always willing to discuss these issues on airplanes, on the phone, in awful hotel lobbies – unfortunately very rarely over a decent meal and a reasonable bottle of wine. Nevertheless, these discussions have shaped my personal research agenda at PIK substantially.

Dirk was also instrumental in the development of the Mercator Research Institute on Global Commons and Climate Change (MCC) when he led the first review panel in 2016. In the shadow of a disappointing UNFCCC COP 2009 in Copenhagen, the MCC was established to shift political and social discourse from incremental (if at all) advances to holistic pathways and a spectrum of viable solutions. Decision makers need science-based solution-oriented options – a map that can describe but not prescribe a pathway. The MCC's goal was to lay out appropriate governance regimes for the common-pool resources and elicit political economy aspects of governing the global commons. Dirk supported and guided the interdisciplinary and complementary set-up of PIK and MCC. Almost a decade later, we have reached a new junction: I am confident that planetary boundaries and the subsequent governance of commons at different scales are ushering in the next paradigm shift in global sustainability research.

The impact of climate change on planetary boundaries can be global or local. Transgressing some planetary boundaries, such as the atmosphere, creates damages on a global scale; thus, the spatial distribution of the polluting activity does not matter. Crossing other planetary boundaries, such as nitrogen and biosphere integrity, manifests at a regional or even sub-regional scale. Still, these planetary boundaries have regional-global interlinkages (Kalkuhl et al. n.d.). Neither economics nor political science is currently prepared to provide an integrative framework, which would allow to study these problems from a decision theoretic angle. Such an approach would enable policymakers to include natural capital, the precautionary principle, and global and regional linkages in a comprehensive approach to overcome counterproductive dichotomies like economic development versus environmental integrity, efficiency versus fairness, global cooperation versus local action.

Dirk Messner's engagement for an interdisciplinary research agenda pointed to a crucial quality that I came to highly appreciate: He addresses 'the environmental issue' explicitly not in a unilateral way but with the profound understanding that climate protection is much more than a question of environmental politics and thus has to be embedded in a

broader policy context. His work shows his capability to bridge the two disciplines: His doctoral thesis, an early example, addressed the concept of systemic competitiveness and the role governance design and capacity play in how so-called developing countries fare in a global market economy. Significantly, the dimension of inequality has always been a key component in his publication record. In his roles as director of the German Development Institute and as co-chair of the German Sustainable Development Solutions Network, he has no less than expected his own scientific inquiry and institutional leadership to incorporate in all endeavours the ultimate goal to increase human welfare and to decrease inequality. All these interests and competencies are now called upon.

Despite its dependency on nature, humankind is exploiting the biosphere's finite capacity at unsustainable rates, amplified by growing global inequality. Finding effective governance mechanisms for a transformation towards a resilient Earth system and human well-being is of crucial importance. With the amendment of its Climate Protection Law, the German government introduced a credible binding commitment to ambitious climate targets in early 2021. Shortly after, the European Commission published its proposal 'Fit for 55' aimed at implementing its Green Deal. This historic policy plan introduces measures for safeguarding social cohesion, the Social Climate Fund. In this pivotal decade it takes a person like Dirk Messner as the President of Europe's largest environmental agency, the German Environmental Agency (UBA), to facilitate such paradigm shifts at the national, the European and, in the end, the global level. We will need a profound transformation that is politically legitimised by social compensation mechanisms. An important step will be the establishment of a second emissions trading market for the sectors building and mobility – first in Germany, but now also envisaged for Europe. The EU has a chance to implement a comprehensive emissions trading scheme including all relevant sectors. The national and European debate will benefit greatly from Dirks' intellectual leadership.

In his recent comprehensive review, the economist Sir Partha Dasgupta (2021) proposes an inclusive wealth paradigm that puts natural capital, notably biodiversity, at the very centre of economics. From an economic point of view, assigning a value to the withdrawal from natural common good resources, such as the atmosphere or biodiversity, is inevitable if we want to protect the global commons. If the wealth of nations is to be maintained, or even increased, all relevant social costs must find their way into accounting. For example, the price for meat should account for the effects that the use of antibiotics in livestock farming has on the environment and human health. Applying the same principle, water eutrophication caused

by industrial fertilisation and waste water needs to be reflected in pricing. Currently, these costs are passed on to society in general. However, market economies only lead to increasing prosperity if those who cause these costs also pay for them. Thus, if production generates so-called externalities, i.e. costs that are passed on to the general public, they must be reallocated to the polluters. This internalisation, the inclusion of all costs in the economic calculations of companies, can be achieved via pricing of externalities. However, without a comprehensive analytical framework, and its translation into institutions, humankind will not be able to manage the twin crises of climate and biosphere integrity. For this purpose, multilateral institutions are needed that introduce prices for emissions, subsidise countries for providing eco-system services, manage land-use change or manage cap-and-trade systems.

In Germany, we estimate that externalities amount to at least 455 billion euro, and it could be as high as 671 billion euro, as data for some damages is incomplete (Kalkuhl et al., 2021). These costs are currently borne by society at large. Imposing taxes to cover externalities in critical sectors can shift consumer and producer behaviour to more sustainable products. However, for many of these externalities the costs are borne by the entire society, because data is lacking. A systematic measurement of external costs of (economic) activities is necessary to implement targeted measures to protect nature, to be able to tax the polluter and to gain public support for climate change policies. The UBA has taken first important steps for a systematic data collection, but efforts must be increased to enable targeted and transparent environmental policies based on scientific evidence and to monitor its implementation.

Neither rising costs (for example, of energy consumption via the second ETS) nor taxing externalities (for example, of meat production) should be implemented without concurrently establishing transparent ways of easing the transformation for socio-economically weaker households. I am in full agreement with Dirk when he emphasises the importance of justice and just transition, which requires the right mix of instruments. After all, the CO_2-consumption of high-income households is higher than that of low-income households, because, for example, they live in larger homes and drive heavier cars. So if emissions are given a price, they consequently pay more. The revenues have to be returned to citizens. The reduction of the electricity tax in the short term, covering the cost reallocation of financing the renewable energy law ('EEG-Umlage') via CO_2-pricing, and a direct climate dividend in the long term are possible options. The message is very clear: Climate protection and social compensation go hand in hand. We have the knowledge and the tools to address social inequality and

climate change at the same time. The UBA, and especially its Director, will likely assume leadership roles in communicating this clearly, to decision makers and to society.

The discussion about the Carbon Border Adjustment Measure (CBAM) included in the EU's 'Fit for 55' proposal highlights another challenge: Climate politics is a multi-level game. The CBAM is meant to safeguard European industries from the pressure of international competition and to encourage other countries to introduce CO_2-prices. However, the European transformation alone will not suffice in stabilising the Earth system. It can only be successful if it is embedded in global coordination and if other large emitters follow suit. Before unilateral decisions are implemented, the EU should invest political capital in global cooperation. Bringing on board and agreeing on a joint carbon price with the US and China alone would already cover about half of the global emissions. Dirk Messner, a skilled communicator and expert of multi-level governance, is perfectly placed to guide such political considerations.

Nothing of the above said needs to be explained to Dirk Messner. He understands the cooperation problems related to global commons from both a political and an economic view perfectly well. In fact, it was him who put me in touch with the late Elinor Ostrom, who was awarded the Nobel Prize in Economics for her work on the governance of the commons. It was Ostrom who demonstrated that the tragedy of the commons is not inevitable. With polycentric institutions we might be able to turn the climate tragedy of the commons into a drama. In this drama, the UBA under the leadership of Dirk will be needed to shape and monitor science-based policies and to transparently communicate them in order to create public trust.

It seems fitting, then, that I close with a quote from Professor Ostrom: "If we just wait – that would be stupid." Dear Dirk, you are an inspiration and a trusted friend with exemplary integrity. You have always had a visionary and holistic view ahead of your time, and you now have the position to advance an integrative framework and the corresponding institutional agenda. We have our work cut out for the coming years, and I am looking forward to tackling this governance complexity of climate change, biodiversity and socio-economic equity at multiple scales with you as President of the UBA. Happy birthday – welcome to the club!

Ottmar Edenhofer

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Reimagining cities after COVID-19 for a sustainable future

Ani Dasgupta, Manish Bapna
Ani Dasgupta is President & CEO of World Resources Institute, where he works to advance the institute's global vision to improve the lives of all people and ensure that nature can thrive. More than a dozen years ago, Ani set up a global advisory body to support the World Bank's knowledge strategy, and Dirk was a valued member of the group. This sparked a long friendship.
Manish Bapna is President & CEO of NRDC, where he leads a team of lawyers, policy experts, advocates and scientists working to limit the rapid warming of the planet in order to curb the most extreme impacts of the climate crisis.

Since the spring of 2020, we have witnessed a public health and economic crisis that has claimed millions of lives around the world and pushed an additional 120 million people into extreme poverty. In the wake of the COVID-19 pandemic, governments are grappling with simultaneous challenges: the need to respond to a global cataclysm; address deeply rooted economic, social and racial inequity; and fulfil their commitments to a low-carbon future as climate change causes increasing devastation.

This is a historic moment full of peril and promise. As recently as 2015, the approval of the Sustainable Development Goals and the Paris Agreement on Climate Change reflected the hope of multilateralism and the sense that, with collective action, a common quest to eliminate extreme poverty, tackle the climate crisis and drive sustainable development was attainable. Now, the disruption caused by the pandemic makes these goals far more difficult.

Yet there is reason for hope. The nations of the world have unprecedented opportunities to respond to the COVID-19 crisis while accelerating a transition to a greener, more equitable future. A massive infusion of funds for rescue and stimulus — now at US$17.2 trillion globally (Vivid Economics, 2021) — offers extraordinary possibilities to plan and implement measures for recovery through fair and sustainable growth. Done right, this funding offers the means to build back better, with an emphasis on resilience, inclusion, efficiency and sustainability. Coupled with public demand and political support for bold interventions, these new resources can lead to systemic changes in energy, land use and infrastructure to achieve climate justice and equity for all.

The task before us is to prioritise actions that respond to the challenges of COVID-19, climate and development at the same time. And it is essential that short-term plans do not exacerbate long-term problems. Many governments are responding to the crises by doubling down on unsustainable, high-carbon sectors. According to Vivid Economics, only 10% ($1.8 trillion) of recovery spending has gone to green stimulus, and this has been highly concentrated in OECD countries. For example, although China has earmarked $205 billion for rail and metro systems, grid upgrades and 5G networks, it also permitted more coal-fired capacity for construction in the first half of 2020 than in all of 2018 and 2019 combined. A majority of countries have stimulus packages that are expected to do more environmental harm than good.

Other governments, however, are moving in the right direction. Thirty percent of the European Union's €750 billion ($858 billion) recovery package supports climate-friendly measures, including €17.5 billion ($20.6 billion) for a Just Transition Fund. Indonesia's Low Carbon Development Initiative offers the country a pathway to a strong and job-rich recovery from COVID-19 in the short-term and better growth (compared to business-as-usual) in the long-term.

Research by the New Climate Economy underscores the long-term benefits of these approaches. It finds that low-carbon, climate-resilient development is not only compatible with but essential to strong economic and job growth, human health and social equity. Jobs created by investments in green options can substantially exceed the number of jobs created by business-as-usual approaches. Investments in clean renewable energy, for example, would create three times as many jobs as investments in fossil fuels and offer high carbon reduction potential. Investments in active transport infrastructure (bike lanes, ride sharing and more) would more than double the jobs created by comparable investments in road construction and have the added benefit of curbing the private vehicle usage that surged under COVID.

These kinds of choices can help governments achieve economic security today while enabling the kind of low-carbon, resilient, inclusive future we need tomorrow.

Cities as engines of green growth

Where can we make immediate progress on both development and climate? The answer: cities. With their vast concentrations of people and economic activity, cities will be the proving grounds for whether a new

132

path to a sustainable future is possible. They must embody a smart, green and inclusive COVID-19 recovery to succeed.

The pandemic quickly exposed the systemic vulnerability of cities. It put unprecedented pressure on municipal budgets and public services, exacerbating inequality and revealing an extreme fragility to shocks. But smart recovery strategies can allow our urban communities to build back better with speed and impact, affecting how cities are built, managed and experienced for decades to come. As the world emerges from the pandemic, cities are proving their resilience and ingenuity and are positioning themselves to realise the possibilities ahead.

National and municipal governments can drive positive change in cities through their investments, creating the low-carbon future we wish to achieve. By utilising timely data, new analyses and tailored recommendations, urban decision makers can seize the opportunity to shift their cities to a greener, more inclusive trajectory of growth.

WRI has contributed decades of research, analysis and real-world experience to learn what it takes to change cities from the inside out. We have shared these findings across more than 75 countries, helping cities create a vision for a sustainable future and leverage their resources to achieve that vision.

The starting point for our efforts on inclusive, sustainable development and just climate action is equity. We know that a disproportionate share of the burden of COVID-19 has been borne by low-income and vulnerable communities. And without better access to core services for all residents – including the more than 1.2 billion urban dwellers living in informal settlements – cities cannot achieve the resilience, higher quality of life, economic productivity and environmental sustainability that we all desire.

With equity as a core tenet, WRI analysed what needs to be done – and where it has to be done – to achieve sustainability goals in the post-COVID era. The synthesis report of the World Resources Report series, "Towards a More Equal City", highlights seven transformations that national governments can begin immediately to alter current trajectories and galvanise action for just, thriving and sustainable cities. Our recommended areas for urban investment by national governments include:

- Green construction and retrofits
- Clean mobility
- Renewable energy
- Active transport
- Nature-based solutions

133

- Waste and resource management
- R&D for clean technologies

Parallel reforms in fiscal policy (such as phasing out fossil fuel subsidies), financial policy (to ensure sufficient municipal resources for sustainable infrastructure) and governance (placing cities at the heart of national development strategies) can further amplify the impact of these investments.

How Policy Alignment Drives Collaboration

When actors are not aligned, the city suffers from the costs of conflicting agendas, uncoordinated investments, inefficiencies, and short-lived change.
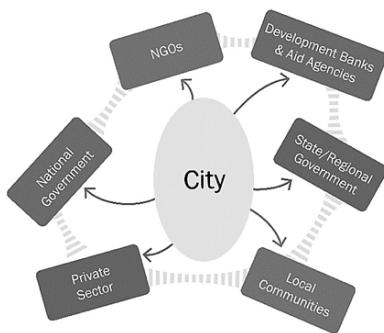
When actors are aligned towards a shared vision, the city benefits from harnessing synergies, minimizing trade-offs, and increased collaboration between actors on implementation.
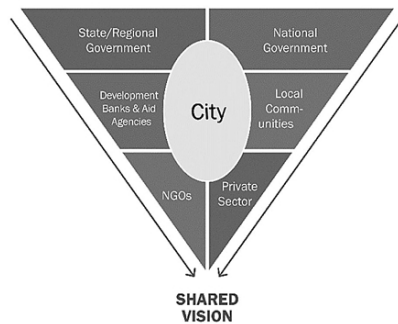
Investments in these seven sectors can yield enormous benefits if city and national leaders harness the potential of cities to drive a green, inclusive and resilient recovery. But success is dependent on a thoughtful, targeted distribution of funding.

One area that has been heavily impacted by the COVID-19 crisis and has seen a significant amount of stimulus spending already is transportation. Within this sector, urban public transport is experiencing major financial challenges, and applying stimulus funds to support these networks can be a critical component in improving sustainability in cities. Solid investments in integrated bus, rail and bike systems, for example, have an outsized effect; in addition to lowering vehicle emissions, they can create and maintain jobs more quickly than other transportation investments. They also offer broad benefits to city residents, especially by providing more equitable access to jobs, education and services.

While some of these approaches have been pioneered in the field with promising results, they have not yet been scaled up to become viable alternatives to the status quo. COVID-19 may change that. Many munici-

palities have converted car lanes to walking and biking infrastructure to accommodate a pandemic-driven surge in active mobility. Public space and green space are being re-prioritised. Ongoing programs in cities like Rio de Janeiro and Bengaluru are laying the groundwork for a low-carbon future by investing in transit-oriented development and land value capture to deliver better services to all. In China, the national government is prioritising grid upgrades to accommodate more electric vehicles and promote renewable energy. We find it encouraging that, despite the pandemic, 823 more cities embraced net-zero emissions commitments in 2020 than the year before.

Another important avenue for recovery is investing in water provision to support sustainable solutions that are long overdue. African cities, to cite one example, face escalating water-related challenges compounded by worsening climate change and rising urbanisation(World Resources Institute, 2021). Smart, systematic investments in urban water resilience could ensure that communities have safe, reliable, affordable water and that water supplies are protected through disaster preparedness and effective management.

The Role of Business

Businesses are essential partners in helping countries to reach their climate goals, and the momentum to reduce emissions and develop low-carbon strategies among businesses continues to grow. In fact, many of them are moving faster and further than their respective national governments. According to the Science Based Targets initiative, nearly 2,000 large companies are already taking action to reduce greenhouse gas emissions in line with science(Science Based Targets, 2021), and more than 280 of them have committed to the SBTi's Business Ambition for 1.5°C campaign to achieve a net-zero world no later than 2050. In Europe, Apple, IKEA and Deutsche Bank were among more than 150 businesses, and investors urging the European Union to raise its GHG emission reduction target for 2030 to 55% compared to 1990 levels.

Working together, governments, businesses and citizens can help city and national leaders turn crisis into opportunity by harnessing the potential of cities to drive a green, inclusive and resilient recovery. As the COVID-19 pandemic exposes deep inequalities in core services, infrastructure and opportunities, we can build back better to create a low-carbon future for all. Growing global awareness of the key role that healthy,

sustainable cities will play in the coming decades can be the impetus for investments that can take us there.

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Let's make climate protection the business model of the century

Sabine Nallinger
Since September 2014 Sabine Nallinger has been the chairwoman of 'Founda-
tion 2° – German Businesses for Climate Protection' in Berlin, an initiative
of CEOs, managing directors and family entrepreneurs. The aim is to call on
policymakers to establish effective market-based framework conditions for climate
protection and to support the problem-solving expertise of German companies.
Sabine Nallinger met Dirk Messner for the first time aboard the 2015 'Train to
Paris', a special train organised by Foundation 2° to take CEOs and politicians
from Berlin to Paris for 'The Paris Climate Conference (COP21)'.

We face enormous challenges – but every crisis also brings new opportunities. In the case of climate protection, this means that companies have many opportunities to conquer new markets as drivers of the ecological transformation. The race to zero has long begun.

Welcome to an abundance of opportunities!

Large sections of the business community have recognised that climate protection offers them great opportunities. And they do so in very different dimensions:

Product development: Continuous adaptation to changing conditions is what makes marketable products possible in the first place. This creates the necessary dynamism and speed needed to keep up in the global market. What's more, many companies use instruments such as internal CO_2 shadow prices to adapt to foreseeable political conditions and prepare for new regulations.

Recruiting: Against the backdrop of demographic developments, a fierce battle for young talent is raging in corporate groups. It's a competition that could threaten the very existence of some companies. There is a reason for this: for the younger generations, material advantages are no longer as crucial as the meaningfulness of their actions. The best minds of the younger generation are thinking outside the box and looking for

an employer who can do the same. So those who are both innovative and responsible will win the race for the best and most innovative minds.

Unique selling proposition: Those who consistently transform their company, products and processes ecologically will quickly experience the sales-promoting effect. Companies that embrace social responsibility can set themselves apart from the competition through their ethical value system.

So there are various reasons why companies are ready to leap into the post-fossil age to make their contribution to achieving the Paris climate targets.

The greenest solutions will be the most successful

Fortunately, these companies are increasingly becoming drivers of policy. That's because more and more companies are recognising the enormous opportunities, especially for cutting-edge domestic technologies: The world's marketplaces are looking for smart products that improve comfort and quality of life without harming the environment. Well-done climate protection is a massive opportunity for Germany as a centre of knowledge and business. Climate protection is a huge driver of innovation worldwide. To develop the urgently needed solutions, heavy investment in new technologies is unavoidable. In countries that are just building up their industries, budgets have long been geared accordingly. After all, the greenest products will be the most successful in the future.

Those who do not want to see this consequence out of convenience – or who misunderstood location promotion – risk both the ecological balance of our planet and the collapse of critical industries in our country, because climate change is not 'just' about the survival of faraway island states in the Pacific. For many industries in this country, climate protection is about their very existence: those who do not adapt their business model to make it compatible with the Paris climate targets will soon see others doing the business.

The economy can change – can politics follow?

So many companies are standing by – be it out of responsibility, be it because of a clue that a transformation will come with or without them or be it, increasingly, out of the realisation that climate protection opens

up new business opportunities. Ultimately, the energy transition, transport transition and heat transition mean full order books for many companies. The climate protection transformation of the economy can thus become a profitable modernisation project for Germany.

One thing is certain: without the inventiveness of industry, we will fail in climate protection. But another thing is also certain: with excellent universities, financially strong investors, traditional small and medium-sized enterprises and innovative corporations, Germany is in a great position to develop the right ideas and put them on the road.

We need not be afraid of the upcoming changes. Transformation processes are nothing new for companies. Business thrives on constant change, exploring new opportunities, investing in innovative business areas and turning pilot projects into sustainable business success. In this way, companies have always played a key role in triggering social transformation processes.

But what is happening on the other side? In large parts of politics, there is almost stagnation. Important decisions are repeatedly postponed. It used to be the other way around. With politicians hesitating, companies naturally find it much harder to sell the investments needed for transformation to profit-oriented committees. This is one of the reasons why many are holding on to existing business models for longer than necessary.

Climate protection must become the core of industrial policy

Making climate protection the basis for the economic success of companies is not a foregone conclusion. Business alone will not achieve the change. Profit-oriented corporations are dependent on balance sheets and forecasts. The laws of business are not yet sufficiently appreciated by politicians and civil society. A stock corporation is subject to market constraints that depend on systems such as tax law, legislation and subsidies. Thus, a renewed ecological regulatory policy is necessary to bring the new thinking in the boardrooms into implementation. Climate protection must become the core of industrial policy so that climate protection can become the business model of the 21st century.

Many companies have already developed concepts for new, climate-friendly business models and technologies that are ready for implementation or are in the process of doing so. Initiatives by the German steel industry for CO_2-free steel production or the aluminium industry to use aluminium electrolysis as a virtual battery to balance electricity supply and demand fluctuations are just two pioneering examples here. For such

long-term investments in new technologies and business models, however, companies urgently need a climate policy 'compass' – in other words, stable and reliable framework conditions.

Money will follow policy

No change without money: The strategic role of the financial sector in the transformation of the economy can hardly be overestimated. When the legislature lays down requirements for climate protection, banks impose corresponding requirements for the approval of investments. The same applies to the hedging of risks. Insurance companies are also becoming essential regulators in climate protection through their premium models. The question of whether a business model is 'Paris-compatible' is therefore increasingly determining whether and how favourably entrepreneurs can obtain capital for investments.

Climate protection has become a topic in companies that is talked about by the sustainability department and increasingly by the controllers and the strategic divisions. At more and more companies, climate protection is now a top issue at board level – particularly in sectors such as the automotive industry and insurance companies, but also in the steel industry, because vast sums of money are at stake here in the restructuring of corporations.

Climate protection needs encouragers

For a successful transition, we need entrepreneurs with vision and, above all, courage; in addition to day-to-day business, they must also keep an eye on possible business areas of the future and demonstrate a willingness to make decisions years in advance. Many executives are still too hesitant in this regard. What is needed here is the courage and decision-making power to take paths – without completely blocking other pathways.

Of course, it is easier to bring companies along on this development if you have reliable guidelines and the public sector sets a good example. However, what is needed above all is an optimistic mood, a social atmosphere that inspires courage. All too often, in the tradition of 'German Angst', paralysing worriers and hastily unpacked spectres of fear inhibit us from confidently tackling our innovations and bringing them to the markets – or literally to the streets.

Particularly in the disruptive environment of digitisation we must learn to rethink business. This includes a new culture of error in companies with a willingness to experiment with open-ended results. And Germany's economy needs more networks: cross-industry and cross-hierarchical collaborations are indispensable for finding solutions that achieve the hoped-for level of innovation. In the fight against climate change, we need new partnerships with science, start-ups and civil society along the entire value chain.

What we really need: Honesty in climate targets and measures

Honesty about the climate protection targets is needed to comply with the Paris Agreement. And honesty about the measures and instruments is required to achieve these targets. Climate protection targets should not only be made binding but must also be backed up by intermediate steps and controlling mechanisms that enable regular progress monitoring and the most efficient possible achievement of targets.

In addition, however, measures are needed to support companies in making investments in innovative technologies and business models. These include, for example, technology-neutral start-up financing for research and development projects as well as instruments for minimising risk in the event of long pay-back periods when scaling new technologies or business models. The development, evaluation and implementation of related programmes of measures should be carried out with the intensive involvement of entrepreneurial and practical know-how.

Policymakers' central task is to create an ambitious and reliable framework for achieving climate protection targets and to back it up with appropriate measures. Even if the associated transformation of entire economic sectors requires enormous efforts, the overall targets should be oriented toward the upper end of the target corridor of up to 95% emissions reduction. As a CEO initiative, we at Foundation 2° are convinced that an intelligent climate policy can drive forward the modernisation of Germany as an industrial location and help ensure that Germany plays a leading role worldwide in the innovative markets of the future. In the end, the 'Made in Germany' brand should stand for efficiently combining industrial production with climate protection. We can thus make climate protection the business model of the future.

Humanity at crossroads of dignity and decent life for all on a stable planet

Nebojsa Nakicenovic
Professor Dr. Dr. h.c. Nebojsa Nakicenovic is the Deputy Chair of the seven Chief Scientific Advisors to the European Commission and the Executive Director of 'The World in 2050'. He was the Deputy Director General and later Acting Director General of the International Institute for Applied Systems Analyses where he is now Emeritus Scholar and was a tenured Professor of Energy Economics at Vienna Technology University.
He met Dirk Messner for the first time when both of them joined the German Government's Council on Global Change (WBGU) back in 2008 and have worked very closely together on a number of projects including 'The World in 2050'.

It is now two centuries since Jean-Baptiste Joseph Fourier recognised that the radiative forcing of the atmospheric gases keeps the Earth warm and thus habitable. It was three decades later that John Tyndall discovered that water vapour and carbon dioxide are the major greenhouse gases that trap heat (Fleming 1998). Curiously, just a few years later concerns about 'running out of coal' took hold, and fears intensified following the publication of Stanley Jevons's book "The Coal Question" in 1865 with a scenario of long-lasting coal scarcity (Jevons 2017). This made it more complicated to put aside the fears of shortage while in reality coal is an abundant resource worldwide.

About the same time, in 1859 crude oil was discovered by (Colonel) Edwin Drake on behalf of the Seneca Oil Company, at first mostly as a replacement of whale oil in lamps (Sherman 2002). The real disruptive change of motor vehicles replacing horses and carriages was initiated three decades later partially also because of the negative environmental externality of the horse economy that filled streets with manure. Just about the same time, before the turn of the century 1896, later Nobel Laureate Svante Arrhenius published the famous paper indicating that emissions of carbon dioxide from coal combustion may eventually result in enhanced global warming (Arrhenius 1896). He anticipated a 5 to 6°C global mean temperature increase from a possible doubling of atmospheric carbon dioxide due to human activities. At that time, it was inconceivable that

crude oil would replace coal as the dominant energy source half a century later.

Figure 1. *Easter parade in New York City on 5th Avenue in 1900 and 1915. Source: Adapted from Campanale, Carbontracker. 1900: National Archives and Records Administration, Records of the Bureau of Public Roads. Image 30-N-18827, from https://www.archives.gov/exhibits/picturing_the_century/newcent/newcent_img1.html. Photographer unknown. 1915: Library of Congress, LC-B2- 2529-9, Washington, D.C. 20540 USA, hdl.loc.gov/loc.pnp/pp.print.*

This all illustrates the nature of disruptive change through innovation diffusion and the replacement of dominant systems because of perceived limits including their ever larger environmental and other negative externalities. The confluence of multiple crises and saturation of the old, dominant systems leads to a dynamic process of evolutionary changes and a growing perception that a better and more prosperous future is possible.

The great coal-or-manure-in-the-streets questions were there for decades before that disruptive and transformational change occurred. These are some of the key crossroads in human development expressed through new technologies and changing economics, behaviours and regulatory systems.

Arguably, the world has been at crossroads during the last decades. In the aftermath of the oil crisis of the 1970s, the disadvantages of the oil economy became obvious, including multiple environmental concerns of the fossil-intensive development path. The great climate question was

144

on the agenda with more importance than ever because of the much better scientific understanding of the radiative forcing resulting from the accumulation of the anthropogenic greenhouse gases in the atmosphere. Several publications indicated that, if unabated, anthropogenic climate change is likely to lead the world to some 5°C warming or so and that 1°C would be reached by now (see Broecker 1975; Häfele et al. 1981), which is what happened because of a lack of determined measures and policies to reduce the greenhouse gas (GHG) emissions. The latest IPCC WG1 report (IPCC 2021) indicates that the actual global mean-temperature increase is now 1.1°C.

Figure 2. An article from over a century ago pointing to the global warming as the result of coal combustion, indicating that the effects may be considerable in the future. Source: Waitemata and Kaipara Gazette, August 14, 1912.
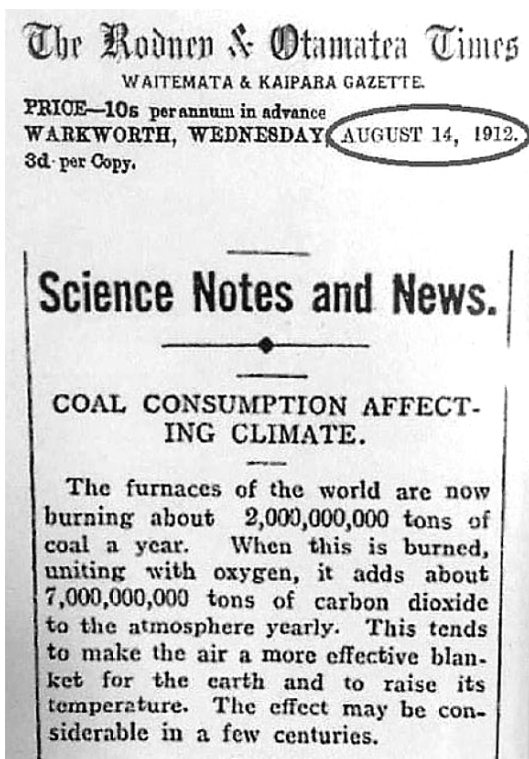
This global temperature increase is not too far from the Paris Climate Change Agreement that calls for reduction below 2°C and, if possible, down to 1.5°C (UNFCCC 2015). At the Conference of the Parties in 2021, the 1.5°C target has been approved, thus requiring vigorous emissions mitigation (UNFCCC 2021). It is, however, almost certain that 1.5°C warming will be achieved by 2040 even if vigorous mitigation measures are initiated. In other words, global mean temperature would go beyond the Paris target before it comes down again toward the end of the century through so-called net-negative emissions. These include nature-based solutions such as afforestation and sustainable land use. Other measures would include combustion of sustainably grown biomass in conjunction with carbon capture and storage. In principle, this is possible but would still require scale-up and measures to make sure that this does not endanger other Earth-systems such as biodiversity and nutrient cycles.

This overshoot of global temperature will be exceedingly difficult to avoid. However, there are a few pathways in the literature that show that in principle this could be achieved if immediate and determined action will be assumed by all toward radical decarbonisation worldwide (Grubler et al. 2018). This transformative pathway foresees huge changes throughout the whole energy system over the next three decades, including radical change of behaviours.

The climate science is clear: stabilising climate at any given level requires global GHG emissions to be zero at some point. The longer this takes, the higher would be the ultimate global mean temperature increase. The reason is that the temperature change is in the zero-approximation a linear function of cumulative emissions. This is the 'carbon law' (Rockström et al. 2017). For the target of 1.5°C, this needs to occur by mid-century. This means that the emissions need to be halved every decade starting immediately from some 40GtC per year to about 20 GtC per year by 2030, followed by 10 GtC per year by 2040 and then zero by mid-century. The good news is that these kinds of disruptive transformational changes did occur before, as mentioned above, these three decades have passed.

Figure 3. Illustration of the 'carbon law' indicating that emissions need to be halved every decade toward zero by mid-century, accompanied by the carbon removal from the atmosphere and preservations of the land and ocean carbon sinks. Source: Rockström et al., 2017.
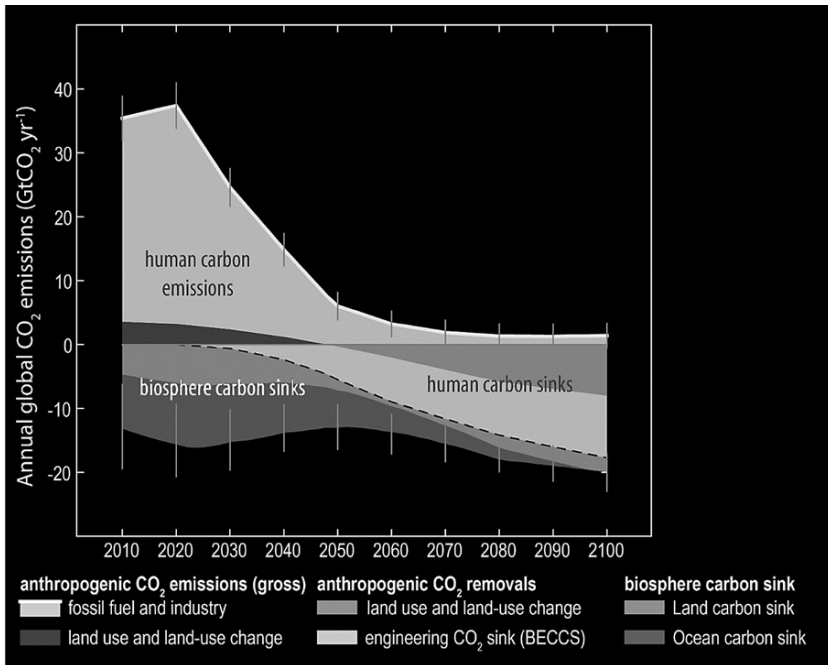
Climate is not the only planetary challenge. Humanity is putting ever greater pressure on Earth systems that support life as we know it. This includes thawing of the permafrost and glaciers around the world as well as ice sheets, loss of biodiversity and destruction of whole ecosystems, pollution of oceans and so on. The greatest danger might be around the corner with the possibility of tipping elements in many of these systems that may be triggered by the current pressures such as the massive dying of coral reefs. Tipping refers to a change in the functioning of systems due to external forcing. An example would be desertification of previously fertile lands or nutrients that cause overgrowth of algae and plants in the water bodies, a process defined as eutrophication. An even more extreme example is the destruction of the rain forest and its entire ecosystems in the Amazon, which would have global implications.

Figure 4. *Tipping elements in relation to the global mean temperature since the last glacial maximum and through the Holocene. Also shown are future pathways (RCPs) indicating that Paris range can be achieved assuming immediate and rapid reduction of emissions. Source: Schellnhuber et al., 2016.*
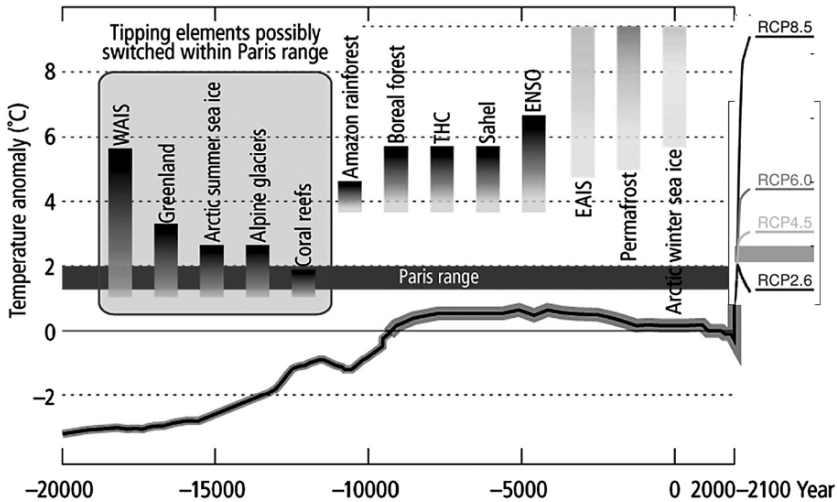
It is evident that such changes would have catastrophic impacts also on human systems. The 'great acceleration' of the last three to five decades has brought benefits to many in the world but has also left many behind who are facing the greatest brunt from the erosion of the Earth-system's support and provisioning. In other words, Earth system and human systems are inseparable, which is clearly illustrated in the looming climate crisis. Explosive increase of GHG emissions is affecting tipping of the climate and other Earth systems, and this has consequences for possible tipping of human systems. When agriculture fails, social unrest and hunger are the consequences.

The coupling of Earth and human systems dynamics are not always negative. There are also important improvements. One of them is the rapid diffusion of mobile phones as an example of a resources-saving technological innovation that benefited the whole world. The first GSM phone was introduced exactly three decades ago, and today essentially everyone in the world has a mobile phone, ironically also close a billion people who do not have access to electricity! There are close to 10 billion phones for almost 8 billion people in the world. Significantly, the diffusion occurred

essentially synchronously throughout the world, among the rich and the poor. In many important ways it is a leap-frogging technology as it provides new essential services. This is especially the case with smartphones that provide internet access, banking, billing and many other important services. At the same time smartphones need hundred times less energy compared to the devices they replace and about 25 times less materials. This is a very positive example of the great acceleration, especially as the diffusion occurred with minimal lag in the global North and South. All told, this results in a hundredfold decrease of greenhouse gases without even changing energy supply and can be seen as a 'positive tipping element'.

Figure 5. *The rapid progress of information and telecommunication technologies could be an indication of the path-breaking potential of next-generation digital technologies and their clustering in new activities and associated behaviours. Devices that a smartphone replaces require hundred times more power and about 25 times more materials and embedded energy. Source: based on data in Grubler et al. (2018) and visualization of Tupy (2012), Graphic courtesy of Nuno Bento, cf. TWI2050 (2019, 2020).*
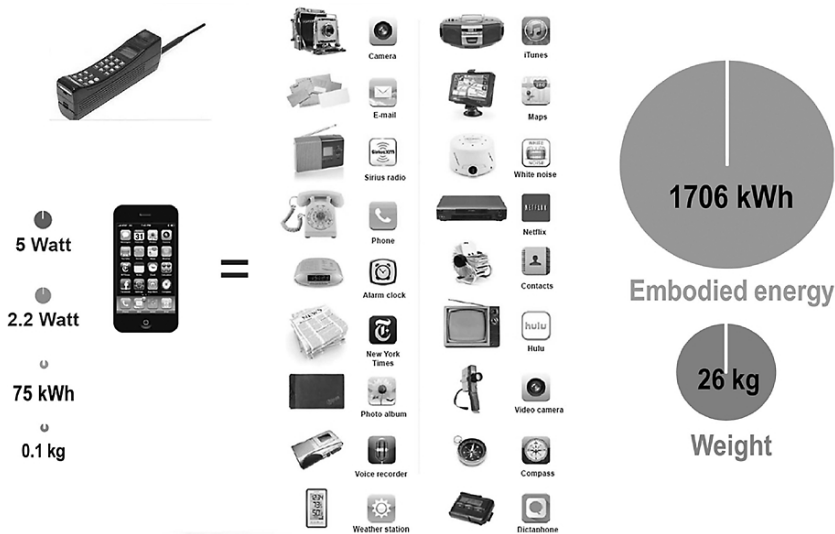
Smartphones are a great example of the power of digital technologies and pervasive electrification. Coupled with zero-emission sources of elec-

tricity they could bring the needed transformative change. The disruptive nature of the digital revolution initiated by smartphones and the internet provides entirely new and enhanced capacities and thus serves as a major force in shaping both the systemic context of transformative change and of future solutions; at the same time, it potentially carries strong societal disruptive power, i.e. potential tipping elements, if not handled with caution, care and innovativeness. Thus, the direction of change is essential, as it is captured by the metaphor of the crossroads.

There are other examples of such breath-taking innovation diffusions, ranging from photovoltaics and windmills to laptops, tablets and, importantly, the Internet. What they have in common is 'granularity' rather than large 'unit size'. More granular innovations can be expected to have faster diffusion, lower investment risk, faster learning, more opportunities to escape lock-in, more equitable access, high job creation and larger social returns on innovation investment. In combination, these advantages enable rapid change (Grubler 1998; TWI2050 2020). This is highly relevant for the role of innovations in the context of transformative change. It indicates that for rapid transformation to occur investments should be directed toward innovations with high learning and diffusion potentials. So, while innovation processes are characterised by deep uncertainties, the strategy of supporting innovations that are inherently granular increases the likelihood of rapid diffusion and benefits for people and nature. To harness innovation for sustainability, the focus should be on efficiency and sufficiency in providing services to people, with a particular focus on consumption and production (TWI2050 2020). Smartphones are an example of these possibilities.

Despite the magnitude of the challenge and the unsustainable nature of the current trajectory, humanity has the knowledge, means and capacity at the crossroad ahead to move into a sustainable and resilient pathway. This challenge was the focus of the Crossroads Meeting held in Bonn on the occasion of the UNFCCC Conference of the Parties in 2017. There was ample evidence that transformations are beginning in some sectors and regions, but that much more is needed. Investing in high-quality education, well-functioning health systems, efficient and zero-carbon energy systems, environmental conservation and restoration, healthier and adequate food systems, more sustainable lifestyles, good governance and global cooperation initiatives would leverage implementation of the SDGs and support climate action (TWI2050 2020).

A new wave of nationalism, populism, ethnic awareness and loss of ethical values is emerging in many countries. Wide segments of the global population feel threatened by accelerating change, often driven by glob-

alisation processes, digitalisation, robotics and other social and cultural phenomena (TWI2050 2020). Even the suggested solutions connected to the sustainable development transformation itself (and its broad agenda) might be seen as threatening in many quarters, not dissimilar in style to the human reactions in earlier historical phases characterised by rapid change (e.g., the emergence of railways and the coal age or later the replacement of horses by cars).

Most recently, in 2020 these tendencies have been exacerbated by the COVID-19 pandemic, one of the greatest immediate threats to humanity. Despite the enormous success of science in developing many vaccines in an absolute record time, the failure to provide universal access and increasing reluctance to accept vaccination are huge barriers toward eradicating the pandemic. The closing of borders and increasing 'my country first' attitudes have further amplified the perceived threats, failures and lack of resilience in global economic, social and natural systems.

The challenge is to reduce the extent to which systemic risks like COVID-19 set back progress. Yet at the same time, the COVID-19 pandemic has brought out some of the best human characteristics: self-sacrifice in helping others; empathy and solidarity despite the need for social distancing. This has also provided an opportunity to build positive narratives oriented toward future, human-centred visions of society and economy on local, national and global levels. We need significant investments in social cohesion and robust transformative alliances to enable resilient sustainable development and to avoid societal backlashes driven by insecurity, injustice and disenfranchisement. It is even more important now to integrate social and economic goals with climate, water, oceans, biodiversity and other Earth systems so that sustainable development is not threatened in the long term (TWI2050 2020). This all illustrates that the world is at crossroads.

Digital technologies are examples of innovations with exceedingly rapid diffusion because they are granular, even though they are embedded in large and complex infrastructures and systems. They may catalyse the disruptive and transformational changes that need to be achieved within three decades. Artificial intelligence, connectivity (the Internet of Things), digitalisation of information, additive manufacturing (such as 3D printing), virtual or augmented reality, machine learning, blockchain, robotics, quantum computing and synthetic biology are all examples of granular innovations. Digital technologies have spread rapidly in much of the world. They can be a powerful influence in helping overcome social inequalities, but they are also characterised by inequalities themselves. Large disparities in access to, usage of and skills relevant for digital innovations exist, which

are summarised as the 'digital divide'. Even more importantly, gaps also exist in the broader development benefits from using digital innovations. Digitalisation has often boosted growth, expanded opportunities and improved service delivery, yet the aggregate impact has fallen short of being inclusive and is thus unevenly distributed. Because of its generally granular nature and fast diffusion and learning rates, digitalisation is reshaping work, leisure, behaviour, education, health and governance, and it can facilitate the achievement of the SDGs.

However, initiating transformation is difficult due to institutional inertia by incumbent actors with vested interests and consumers/users with habits of following routines. In addition, the globalisation of economic and social activities that has occurred over past decades has created intricate webs of activities, making transformation a complex process. Furthermore, existing studies indicate that current policy instruments are either absent or ineffective for achieving the magnitude of transformation needed in the expected timeframe. This means that, unless there are substantially advantageous alternatives (simple, low cost, superior and universal) offered to individuals, achieving change will continue to be difficult.

The full unfolding of the 'Digital Revolution' will have even deeper impacts on our societies, creating a next generation of sustainability challenges. Moreover, the digital transformation may redefine our concept of us as humans. In the Anthropocene humans became the main drivers of Earth-systems changes. In the digital Anthropocene humans will also start to transform themselves, enhancing cognitive capacities into what can be called 'Homo digitalis'. This could be the next disruptive innovation to transform humanity by 2050 and beyond for the benefit of all and the nature.

The key question is whether humanity will have the political will to collectively achieve the essential transformation and avoid pitfalls of my-country-first or my-region-first logic that is spreading throughout the world. It is for us all to choose which direction to go, because a sustainable future for all is within reach if we act decisively and in unison. Time is a precious resource for achieving this disruptive and transformational change in just three decades by 2050.

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Participatory approach toward an inclusive green economy: Bridging the gap between elite policy and local practices

Medelina K. Hendytio
Medelina K. Hendytio is currently Deputy Executive Director of the Centre for Strategic and International Studies (CSIS). She is also a researcher at the Department of Politics and International Relations, CSIS, Jakarta since 1985. She had been involved in various research fields including participatory governance, bureaucratic reform and gender issues. Medelina K. Hendytio met Dirk only twice. The first one was in 2016 when she was invited to attend t the T20 conference in Berlin; then she met him again during the ten years celebration of the Managing Global Governance (MGG) programme at the German Development Institute in Bonn. Their interaction was indeed concise. Medelina K. Hendytio can already discern that Dirk has been one of the driving forces behind the idea of transnational cooperation to build better global governance with an excellent contribution to advocating global sustainable development.

With the rising global trends of employing the green economics approach, developing countries began to implement it. Particularly the conventional development model, which depends heavily on exploiting natural resources, is failing to achieve its goals sustainably. The conventional development model, which side-lined the environmental concerns, has resulted in several problems: resource scarcity, climate anomaly, decreased forest coverage and the high social cost due to pollution and waste. As a result, poverty, unemployment and other social problems thicken. In such a case, the concept of an inclusive green economy through integrating environmental, economic and social factors is expected to accelerate economic growth and provide prosperity while preserving the environment by reducing pollution and utilising renewable energy, among others (Kasztelan 2017: 491; European Commission 2018: 4).

The green economy has become an increasingly relevant approach for developing countries like Indonesia to replace the conventional economy gradually. Indonesia's current dominant economic model relies heavily on the exports of primary products, which results in the exploitation and commercialisation of natural resources. The follow-up question would be: how can the green economy concept bring improvement in people's lives? Currently, Indonesia already has several enabling factors that may support its

implementation. A large number of people living in rural areas tradition-ally work on unproductive land and remote areas. Therefore, specifically designed policies are needed to convert these issues into opportunities. In addition, Indonesia's geographical position on the equator – along with the biodiversity, tropical forests and abundant sunshine that it entails – can be a significant capital for the green economy.

Developing countries might not straightforwardly carry over the best practices of developed countries in implementing the green economy; among others are human resources problems, limited access to capital and access to technology. These problems are worsened by the misman-aged governance (such as the absence of a blueprint on directions and targets), weak planning and poor coordination among government insti-tutions/agencies. Indonesia has a longstanding silo problem, where each agency has its programme without meaningful synergy. The so-called 'sec-toral ego' remains strong, which becomes one of the primary reasons why several green economy-related regulations failed to gain traction.

The failure of environmental policy to achieve its objectives was due to political and communication factors. Political factors include the conflict between environmental policy objectives and economic policy objectives. The lack of incentives to implement environmental policies and a failure to communicate objectives to key stakeholders are all key factors contribut-ing to the inability to attain environmental sustainability.

Another critical issue is the failure to encourage participation and en-gagement of the population, especially the most disadvantaged groups and the most affected by environmental damage. This factor is critical because only with community participation and involvement responsiveness and the 'sense of ownership' can grow, which are essential for the sustainability and success of green economy programmes.

This paper will highlight the importance of community participation in implementing an inclusive green economy by identifying barriers and their implications and offering possible future steps for problem-solving.

Engaging people

Programmes designed with a participatory approach can utilise people with much local physical knowledge both at the time of planning and implementation to agree on the goals, roles of each actor, clarity about the overall process and the results to be obtained. In this scheme, the community is given the space to control, provide input and oversee so that the implemented projects are directly beneficial. This arrangement is

fundamental because if the green economy programmes do not address their specific issues, it may produce an unintended, detrimental impact on their lives.

Getting a green economy buy-in from communities might require changes in their current practices. Across multiple communities, people's daily lives and the environment in which they live are intertwined. For example, in rural communities, daily life is highly dependent on the surrounding ecosystems such as forests, wetlands and beaches to meet their needs for fuel, shelter, food and medicinal plants. Subsequently, the most immediate need for people is to fulfil daily needs instead of engaging in sustainable environmental preservation. Therefore, practices of logging, illegal mining or exploitative fishing need to be stopped throughout the country. A sustainable economy can only be thoroughly achieved through behavioural change. People need to understand and fully comprehend the concept, accept the concept, institutionalise it, make the necessary adjustments and practice the concept in everyday life.

Elite policy and its elitist tendency

The lingering pathology of green economy policies in many developing countries is that they tend to be top-down, heavily controlled by the central government and with minute involvement of local communities in design and implementation. The government plays a significant role in designing and formulating the regulations and developing the appointed institutions for implementation. The government also has the responsibility to build a conducive environment for companies to run their businesses by implementing green economy principles by providing necessary infrastructure and incentives. Implementing a green economy also requires technology, expertise and finance, which necessitates a prominent role for the government.

The side-lining of community involvement in the design and implementation of the green economy is often influenced by the extension of the state's authority to manage natural resources. For example, the 1945 Indonesian Constitution states that the earth and water and the natural resources contained therein are controlled by the state and used to enhance the prosperity of the people. This article in the Constitution is often interpreted by the sitting government to fully control the natural resources with the 'national interest and the people' as its pretext. In the policy design, people are often designated as an 'object' or 'passive recipient'

as the policies often fail to address people's rights to be protected and respected.

The top-down and elitist policy is taken because the government is usually impatient to carry out a participatory process that takes a long time to be implemented and is time-consuming per se. A participatory policy process requires a strong involvement of various community groups who sometimes have different interests. Here, the government's efforts and strategies are needed to bridge and accommodate these various interests. This lengthy process is often considered a waste of time and inefficient, and its implementation is therefore neglected.

An elitist policy related to the green economy is also exacerbated by the difficulty in introducing its concept to the public. So far, many development concepts and theories have been introduced at the global level, accepted and adopted by many developing country governments as a way to improve the welfare of their people, such as the concept of Women in Development (WID), which was then changed to Women and Development (WAD) and later into GAD (Gender and Development). Alternatively, the Millennium Development Goals (MDGs) were replaced by the concept of Sustainable Development Goals (SDGs) that put the Green Economy in the centrepiece. These various concepts and approaches are challenging to understand and even more challenging to implement on the micro-scale. Each community has different contexts, challenges, political systems and development priorities; therefore, the implementation of a green economy needs to be adjusted according to their contexts.

Generally, the problem faced by the central and local governments is the transmission of the green economy concept into concrete programmes that have a direct impact on the people's welfare. The government must be able to create coherent and consistent policies even though they cover different sectors. The green economy is a highly complex concept. It is unlikely that there can be a consensus on its meaning, use and usefulness, and policy implications in the short term. This means that this concept is neither easily explained nor understood by the people and could be taken out of the context (Khor 2011: 6). In particular, the explanations and information on the concept must be consistent, not reduced, when it has to be conveyed to various layers of society in an extensive geographical range with limited information and communication technology. Without clear information about the concept, plans and benefits that the community can gain will be challenging to obtain.

158

Policy challenges

Due to the gap between elite-focused policy and local needs, the community's low participation and involvement are inevitable as the policy fails to deliver direct benefits to the people. The green economy policies in developing countries are oriented more towards economic interests than, ironically, environmental sustainability. Economic and political decisions often lean on the cheap, stable and most available resources. At the national and international level, financial and economic policies are usually more potent than environmental policies, too.

As a case in point, efforts to provide low carbon energy sources in Brazil, India and Indonesia have caused people to lose their land because it is taken for food crop production projects to generate biofuels (UNRISD 2012). In Indonesia, civil society organisations have criticised the government's environmental policies for violating community rights, especially when granting forest management concessions to companies. The community's rights were violated since the government neither consulted those living around the concession area nor included them in a dialogue before the project was implemented. Even worse, those communities hardly received fair compensation for losing access to land and forests controlled by the company.

Incongruously, under international law indigenous people have the right to control communal land and natural resources. The neglect of community rights, including indigenous people, to land and natural resources often results in conflict and violence between community and private company, involving the security forces to suppress community resistance, and consequentially elevates the scale of conflict and instability that are triggered by natural resources (mis)management.

Government policies that are harmful to society occur not only in developing countries but also in developed countries. For example, in the UK, energy policy increases tariffs for domestic users and has ultimately resulted in energy-related spending that comprises a far higher share of spending in low-income households (UNRISD 2012). Martin Khor has also expressed a similar concern that the implementation of the green economy needs to be tailor-made and fit the specific context; thus it must be adapted to conditions, priorities, development stages and targets (Khor 2011: 6). The greatest challenge lies in maintaining a balance between the pillars of environment, economy and people's welfare, all of which characterise an inclusive green economy.

On the one hand, environmental policies also often ignore the different behaviours, needs and interests between groups in society. For example,

between low-income and high-income people. People with low incomes usually do not care whether a product is environmentally friendly or not, as what matters the most are price and function. As environmentally friendly products are usually more expensive, low-income groups tend to use goods that are not environmentally friendly, such as plastic or plants that use pesticides. Companies, therefore, respond to the need for cheap goods through inexpensive products at the expense of the environment.

On the other hand, the community has many local values and habits rooted in customs and culture to preserve the environment. Such local wisdom includes recommendations for limited use of natural resources, processing of natural resources in unique ways and prohibitions on exploiting specific natural resources. For instance, the community of Undau Mau, West Borneo, develops environmental wisdom for their settlement arrangement pattern by classifying and using the forest. They run shifting cultivation with the fallow period, refuse modern technology and only employ environment-friendly and straightforward technology. One community in West Java, for example, acknowledges traditional ceremonies, myth and taboo and carefully utilises the forest. They are allowed to exploit it to the extent of permission from the elders (Jundiani 2018: 5). However, many of these local values have been eroded by economic needs, and, over time, they have even been abandoned by the community.

The step forward

Inevitably, the involvement and support from every layer of government and society are the keys to a thorough and sustainable implementation of the green economy. Several cases that have exhibited the unintended detrimental impact of the green economy or environment-related policies, especially on the underprivileged, must be corrected immediately. The corrective measures include:

(1) Consistently communicate to the community about the concept, benefits and implementation of the green economy in an understandable, down-to-earth way. This includes the redefinition of their rights and obligations in the overall economic process, for example by assuring that their long-standing traditional rights and duties are respected and are properly translated in modern legal systems. Those customs need to be properly documented and integrated in the overall economic process.

(2) Improve the government's ability to include critical environmental, economic and social factors in all sectoral policies at all levels of government in the design and implementation stages. Policy improvement covers improving human resources and increasing the effectiveness and efficiency of regulations.

(3) Strengthen the monitoring and evaluation system to see the impact of the policies that have been issued. Suggestions from experts, community inputs and policy criticisms, especially those related to sustainability issues, need to be responded to appropriately by policymakers. It must be understood that these policies have different impacts on different groups of people.

(4) Identify the areas of development directly correlated with improving people's welfare through community involvement. Creating and incubating programmes that improve the functionality of empty land and soil can be a good first step. For example, turning unused land to plastic and household waste processing centres can elevate the utility of critical or abandoned land. Moreover, better land management can be the source of food diversity to support Indonesian food security.

(5) Utilise and revive local wisdom that already exists in the community. Local wisdom related to environmental preservation needs to be continuously encouraged and strengthened, especially by local governments and relevant actors and through children's education in schools.

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Culture, environment and climate change

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Culture and environment are two topics that have received the attention of scientists, journalists and activists of all political colours. Both issues were discussed in several international forums. But a joint approach of both is needed, showing their interactions and, eventually, treating them together.

I have been trying for a long time to analyse the connections and, above all, to verify joint actions that can be beneficial or harmful for both subjects. During these reflections, I received an invitation to participate in this book that would deal with issues that are dear to my friend Dirk Messner. Fantastic proposal that would allow me to treat the subject in connection with the personality and work of Dirk. I have known him for a long time and I became linked to him through the activity of two of the centres that carry his influence: the German Development Institute (DIE) in Bonn and the Käte Hamburger Kolleg / Centre for Global Cooperation Research, in Duisburg. I think it was at dinner, in the Bonn restaurant where Beethoven was said to be a customer, when I met Dirk that spoke to me about the still unspecified subject of the Centre in Duisburg. Since then, I was illuminated by his intense work, his vocation for science and its application to practice, his ability to institutionalise concerns that deserve deep research but that require practical action – all this in a climate of sympathy, simplicity and deep dedication.

In the book he published with Silke Weinlich, the authors tell us that

> "Changed perspectives and a reinterpretation and remapping of the world are required to overcome the centuries-old models of power games, from hegemony and dominance, even war, as normal states of intergovernmental behaviour […]. Such changes in perspective could represent starting points for a global culture of cooperation to address competition and conflicts, to possibly overcome wars, and to create

> cognitive, emotional and normative foundations to stabilize the global commons" (Messner & Weinlich 2016: 34).

Environment and climate change is one of the issues I want to speak about. Several meetings and documents were signed since the *United Nations Conference on Environment and Development*, known as the *Earth Summit*, held in Rio de Janeiro, Brazil, in June 1992. 117 heads of state and government decided to set forth global measures to protect the planet's environment while guaranteeing sustainable economic growth. The conference created the Commission on Sustainable Development, which had a mandate to monitor international treaties on the environment, provide policy direction and coordinate action within the United Nations system.

In addition, the 'Framework Convention on Climate Change', which set guidelines for regulating emissions of atmospheric gases that cause global warming, was signed by 153 nations; and the 'Biodiversity Convention', which committed signatory nations to the protection of endangered species and cooperation on genetic and biological technology, was signed by representatives of 150 countries. Two other documents were adopted at the Earth Summit: the 'Statement on Forest Principles', recommending the preservation of world forests and the monitoring of development measures' impact on timberlands; and the 'Declaration on Environment and Development', a statement of principles that emphasised the coordination of economic and environmental concerns.

The optimistic view of all that activity was summed up by UNCED secretary-general, Canadian Maurice Strong: "The Earth Summit must establish a whole new basis for relations between rich and poor, North and South, including a concerted attack on poverty as a central priority for the 21st Century. We owe at least this much to future generations, from whom we have borrowed a fragile planet called Earth."

At the 'Earth Summit+5' meeting held in June 1997 in New York City, the objectives were to revitalise and energise commitments to sustainable development, to recognise failures and identify their causes, to recognise achievements, to define priorities for the post-1997 period and to raise the profile of issues addressed insufficiently by the Rio Summit. In addition, attendees called for greater cooperation and adherence among intergovernmental organisations and developed a programme of work for the Commission on Sustainable Development for the years 1998–2002.

Twenty years after the 1992 Earth Summit in Rio de Janeiro, the 2012 United Nations Conference on Sustainable Development (Rio+20) produced a document containing steps for the implementation of sustainable development. At the Conference, Member States decided to launch a pro-

cess to develop a set of Sustainable Development Goals (SDGs), building on the Millennium Development Goals (MDGs). The Conference also established guidelines on green economy policies and put in place a strategy for financing sustainable development. Governments adopted a 10-year framework of programmes on sustainable consumption and production patterns.

In April 2016, the Climate Change Summit COP 21 adopted the 'Paris Agreement', an international treaty on climate change signed by 175 countries in Paris, on 12 December 2015. Its goal is to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. Afterwards, 20 other countries signed the agreement.

The Intergovernmental Panel on Climate Change (IPCC) concluded in 2017 that it is "unequivocal that global warming is occurring; the probability that this is caused by natural climatic processes is less than 5%; and the probability that this is caused by human emissions of greenhouse gases is over 90%". But in August 2021, the IPCC delivered a new report warning that countries have delayed reducing their fossil fuel emissions so much that it is no longer possible to prevent global warming from further intensifying for the next 30 years. The report urges a coordinated effort among countries to stop emitting carbon dioxide into the atmosphere by 2050. To achieve this, a rapid abandonment of fossil fuels is needed, as well as a radical decision on the part of different industries to remove greenhouse gases from the air. If this were achieved, the increase in global warming would stop and remain stable around 1.5°C, says the report.

If this effort is not made, however, the IPCC states that the global temperature could rise from 2 to 3°C or even reach 4°C. The report is clear in describing how each additional degree implies more intense catastrophic consequences: heat waves, worse droughts, floods, rising seas and acidification of the oceans. In conclusion, we can affirm that 30 years of declarations and efforts aimed at preventing a global catastrophe have been useless. Little has been achieved.

Let us, then, analyse these failures and losses in the light of the idea of culture. We speak here of culture in its anthropological sense, that is, of the systematic set of values, beliefs, traditions, behaviours and norms that give identity to a specific society (Saravia 2016: 296). Or, as defined by the Ministry of Culture of Colombia, through the General Law of Culture, "the set of distinctive, spiritual, material, intellectual and emotional traits that characterise human groups and that includes, in addition to the arts and letters, ways of life, human rights, value systems, traditions and

beliefs" (Ministerio de Cultura de Colombia 1997). In German, 'Kultur' and not 'Bildung'.

When confronting this concept with the practice of the provisions on environmental protection and global warming, we perceive that this idea is one of the greatest obstacles to observing them in practice. To explain this perception, I will mention several cases that I experienced, as a consultant, in my work in Brazil.

- In 1999 I participated in a project of the United Nations and the Brazilian government, destined to establish the bases of the environmental policies of the states of the Central West region of Brazil (Mato Grosso, Mato Grosso do Sul, Rondônia, Federal District and Goiás). The activity was carried out with the participation of the pertinent secretaries of State: Agriculture, Industry, Environment, among others, and the police of each one of these federative units. From this dialogue it emerged that the affected populations maintained customs and habits, or generated other behaviours, contrary or unrelated to environmental protection. The police, especially, reported the difficulties in enforcing the law when they contradicted traditional habits or faced phenomena such as drug trafficking, killing and smuggling of protected animals etc., in addition to the difficulties of patrolling such large and difficult areas.
- For many decades, clearing and deforesting was seen as a beneficial activity. Some states gave an award, the 'medal to the pioneer', which rewarded the destruction of native forest areas to plant coffee or other crops destined for agribusiness. In the decades before 1980, devastation was considered a symbol of progress. Those who tried to defend trees or animals were seen as romantic or naïve.
- As some technicians of EMBRAPA (Brazilian Agricultural Research Company), a public institution of extreme importance to deal with agriculture in tropical areas, have reported, their indications and advice given to farmers were listened to but never applied to their crops. As the farmers stated, "we have always done it that way, and those urban technicians do not know what is best for these lands."
- On the northern border of the State of Mato Grosso, I verified that the small farmers who received parcels of land in compliance with the directives of the Agrarian Reform used archaic and unsuited methods for their activity. In addition, they did not receive aid or subsidies for the purchase of seeds or fertilisers, so the lands were eroded in periods of around five years. Consequently, they abandoned the acquired lands and migrated north, contributing to deforestation in the Amazon. The

operation was repeated years later. This activity carried out by hundreds of farmers was advancing on protected areas. On the other hand, forest clearing aggravated the pests of insects carrying diseases such as Chagas disease, schistosomiasis, elephantiasis etc., which affected farmers and their families.

- In the north of the State of Paraná, indigenous lands were demarcated. As the indigenous peoples neither received agricultural extension services nor other support, they resorted to cutting down araucaria forests (a typical forest species of that region) and selling the wood as a source of income. In addition, they installed a toll system for the roads that cross the demarcated area.

- The burning of fields is an ancestral practice, destined to burn the remains of crops and prepare the ground for new crops. This is done in times of drought. The air in cities and airports of the region is, during that time, polluted by smoke from these activities.

- The existence of deposits of gold and precious stones led to the arrival to the Brazilian North region of thousands of 'gold seekers' (called *garimpeiros* in Portuguese). The search for, and extraction of, minerals was carried out in a savage and irrational way: use of mercury that contaminated the waters, fish and *garimpeiros*, destruction of the ciliary forests of the rivers, contamination of the waters and destruction of the navigable routes, violence against Amazonian peoples etc. It was advised to use the possibilities of credit and bank deposits to instil appropriate techniques and technologies. It was, in general, an attempt to modify practices to reduce or eliminate pollution or destruction of the environment. Overall, the idea was successful. In a few years, the damages diminished and the exploitation became more rational.

In conclusion, all these resistances and practices show the clash between traditional habits and the needs of environmental protection. As Messner and Weinlich point out, "Humans are creatures of habit who are reluctant, not least in real time to part from their internalized routines" (Messner & Weinlich 2016: 34).

These cases, and many more could be cited, show how traditional culture and habits could be an obstacle to preventing the destruction of the environment and finding ways to reduce global warming. The prescriptions contained in the treaties and documents above mentioned are very theoretical in front of a very alive and active reality. It is possible to affirm that the language and the formal treatment of the agreements are not understood and are very distant from a very rich, very dynamic and very destructive reality. Thus, the challenge is to find ways to modify or take

advantage of culture with intelligence, knowledge of reality and effective formulae that facilitate the application of environmental protection regulations.

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Budgeting nature for sustainability

Pan Jiahua

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Our planet Earth is with limited physical boundaries. The carrying capacity of nature can be relaxed to a certain and, in many cases, illusionary extent, but there exists a budget line from nature to support sustainable human development. Respect for nature indicates that human beings must abide by living within the boundaries of nature and make a clear and observable budget for exploitation and utilisation of nature in the process of pursuing a sustainable future of our mankind.

1 A life community sharing nature

There are variations in nature, but overall our nature is in balance and has its own rules. Such balances and rules are the fundamentals of nature budgets. If some elements of nature go too far beyond the other elements' capacity, the system of nature will be in turbulence. The budget line might have an immediate impact on one element of the living system, but this impact will be transmitted to others, and finally the system of nature will be changed accordingly.

Physical nature constitutes the basis for living organisms. Key indicators include, among many others, temperature, water, oxygen, nitrogen, minerals and many different gases. Living organisms share the physical environment and provide the conditions for other members of the life community. When some elements of nature go extreme, the survival of some members of the life community will be in immediate danger, and

such impacts will be passed on to the others through the food chain or the change of the ecological environment.

One example is the change in atmospheric temperature. Some members of the life community are more sensitive than the others. Human beings with modern technology and equipment can survive in an environment higher than 40°C and lower than −30°C. Nevertheless, many other members cannot stand such extremes. As a result, some species may disappear, and biodiversity losses would occur. Such loss of biodiversity will finally impact the human species as human beings survive from food supply from the living environment.

As a result, scientific observation and research establish a cause-and-effect relationship with earth surface temperature increase, further with the rise in CO_2 concentrations in the atmosphere and, finally, the continued increase in emissions of other greenhouse gases. For the protection of biodiversity, earth surface temperature increase was proposed to be kept at 2°C as compared to pre-industrial levels in the United Nations climate change negotiations in 2007 in Bali, Indonesia. This was further elaborated and agreed upon as documented in the Copenhagen Accord in 2009, and enhanced efforts are indicated in the Paris Climate Agreement in 2015 to restrict global warming to 1.5°C. Such temperature target is translated into the amount of carbon dioxide emissions that the atmosphere can still absorb, and this amount is understood as the budgetary constraint for climate security.

Understandably, the human race can stand and survive a temperature rise higher than 2°C, but many other species cannot. The balance of the ecosystem is thus broken, and human survival will be negatively affected and the sustainability of human society will be in danger. When we talk about human development, no one is left behind. In a living community, all the members share the physical environment and resources, constitute the conditions for the living of the other members and thus must obey the same budget line of nature.

2. Indicators and measurements of nature budgets

The budget approach was originated from, and applied to, the protection of the climate. When the 2°C target was addressed at the Bali climate conference in 2007, climate policy researchers rushed to calculate the amount of emissions consistent with the target and its equity implications. With its entry to the World Trade Organisation in 2001, China's process of industrialisation and urbanisation had been accelerating, and in 2006

170

China's total emissions from fossil fuel combustion surpassed the United States, becoming the largest emitter in the world. In *per capita* terms, Chinese emissions were higher than the world average as well. However, China's level of development was still insufficient as compared to developed economies. As the U.S. and a few other Umbrella Group countries[1] rejected or withdrew from the Kyoto Protocol, many people believed that a cap on emissions would limit the rate of economic growth in developing countries.

As carbon stock accumulated in physical infrastructure through historical emissions in the industrialised countries, emissions in the past are considered a necessary part of the total emissions contributing to global warming. Therefore, the total amount of budget available for keeping temperature below 2 or 1.5°C should be calculated from the start of the industrial revolution up to 2100 at the endpoint of the 2°C target. This accumulative amount of carbon emissions contributing to a 2 or 1.5°C temperature increase was then considered the budget constraint (Pan 2008). However, the budget numbers calculated from different sources vary substantially. An earlier calculation from the research group at the Chinese Academy of Social Sciences gives an estimate of 1.2 trillion tons of emissions from 2005 onwards (Pan & Chen 2009), and the other from the German Advisory Council on Global Change gives a figure of 0.75 trillion between 2010 and 2050, with a 67% probability meeting the 2°C target (WBGU 2013: 75). Such a budgetary approach is further institutionalised in the Paris Climate Agreement as adopted in 2015, indicating a goal of carbon neutrality in the second half of this century, or by the middle of this century if 1.5°C target is pursued, and detailed in Nationally Determined Contributions by the developed and many developing country parties, including the U.S., E.U., Japan and China.

Carbon has been more and more strictly budgeted at the global, national and sub-national levels for climate security as a leading element of sustainability. For biodiversity protection, we need a budget approach, too. However, the budget arrangements for biodiversity may not be as easy and straightforward as the climate target. The reason is that our knowledge about biodiversity is limited. We know that some species have been distinguished while many more are endangered. But there are numerous species that we have no records of or only limited studies. The other difficulty

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1 The U.S. did not ratify the Protocol. Other Umbrella Group countries, including Australia, Canada, and Japan, withdrew from the Kyoto Protocol during the negotiation of the post-2012 commitment.

is that the species in danger cannot be protected on their own. Should we protect the endangered species, the entire ecosystem would have to be put under strict protection. Therefore, the budgetary indicator is not the number of species or the size of population. Instead, it should be a spatial area where the protected species live together with others in the complete ecosystem. In this regard, it is the spatial area that should be budgeted and allocated for protection.

Then how can a budgetary framework for biodiversity protection be established? When we say a system in which man and nature are in harmony, what does this mean exactly? Harmony does not mean domination or monopoly by one; instead, it means sharing resources in a proportional manner. A combination of three basic interpretations can be obtained with budgetary implications. One refers to an exclusive domination of wilderness. That is, strictly protected areas for endangered species or specific ecological systems not allowing any human activities, and all wild species should be exempted from human interventions. Around 1119 A.C. in Song Dynasty, wild tigers roamed around in Shandong, now a densely populated coastal province of China. Population expansion has been encroaching the area where wild animals and primary ecosystems prevailed 900 years ago. Now we have set apart a proportion of protected land to maintain exclusively for wilderness. The second should be an area that allows co-existence. Arable land, plantations and planted forest areas are mainly for agricultural production, but the space is also open to species compatible with human activities. The third refers to urban, industrial and other human settlements in which human activities dominate.

To protect biodiversity and unique ecosystems, we need to have a budget for land for different purposes. Land for exclusive wilderness, agriculture and forest production, and urban and industrial use should be properly budgeted and enforced to ensure sustainability. The land budget for exclusive wildness should be systematic, covering all the important ecosystems where the well-known endangered and unknown living organisms interact within the life community and the physical environment. Currently, some 15% of land is under protection for nature. Evidently, this is not enough. Each year we have large areas of land flooded, and a large proportion of arable land is marginal. If flood retention areas and marginal land are exempted from human intervention, nature would be more resilient and friendly to our social and economic system. This accounts for some 10% to 15% of our land space. Urban and industrial land is highly concentrated, and the ratio is around 5% of the total land area. So roughly the budget for land uses can be estimated: exclusively for

nature at some 25% to 30%, agriculture and forest production at 65% to 70%, and urban and industrial at 5%.

Owing to the existence of a food-water-energy nexus, the water budget is as important as land budgetary constraints. If all the water resources are extracted for human activities, wild members of the life community would not have a chance to survive. This is particularly the case in arid and semi-arid regions where water is in shortage for human demand. For example, in northern China, underground water has been over-extracted for intensive farming, industrial usage, and urban expansion. Beijing's underground water table is some 20 m lower in 2019 as compared to the 1960 level. Among 2.86 billion m^3 of freshwater extracted in 2020, some 60% goes to domestic consumption, 10% to industrial, 11% to agricultural and 19% to environmental/ecological uses (BWB 2021). As almost 60% of freshwater supply in Beijing is budgeted to secure domestic consumption, only around 20% of extracted freshwater goes to agricultural and industrial production. This means that food supply must be highly reliant on other regions, and employment in the industrial sector must be limited as well. Therefore, such a budgetary arrangement requires substantial water and energy for food production and supply in Beijing where water deficit constitutes a challenge for ecosystem security and sustainability.

3. The rigidity of budget constraints

Can the budget of nature be relaxed? Technologies, market forces and investment can help in the short run, but in the longer run we have to face an increasing physical rigidity of the budget constraints.

Technological innovation has an impact on both resource-saving and acceleration of resource depletion. Take water shortage as an example. We have the technologies to dig deeper and deeper in order to extract underground water. Immediately water supply is increased. If water extraction is larger than natural replenishment, underground water reserves would be exhausted in the end. Extensive investment in long-distance water transfer helps relocate water resources spatially. If the distance is too far away, risk and uncertainty may result in unbearable costs in the long run. For mitigating water shortage in Northern China, a 1,432 km long water transfer canal was constructed, diverting water from Hanshui in the South all the way up to Beijing and Tianjin, with capacity totalling around 12 billion m^3 annually, with about 1.2 billion to Beijing and Tianjin respectively. In addition to risks associated with such a long canal, climate change is likely to change the weather pattern, and water availability for transfer

might be in question. Another example is the enlargement of urban space. Buildings can be constructed high into the sky, and underground space can be explored to provide more space for demand. Such technologies can relax the budgetary constraint of land surface to a certain extent, but, in addition to the limits for the application of such technologies, financial, social and environmental risks go up exponentially.

With efficiency-improving technologies, the budget of nature can be relaxed progressively, but the physical rigidity cannot be removed. For instance, regarding coal-fired power generation, super-super-critical technologies require only 270 grams of coal for 1 kWh electricity, which makes them some 30% more efficient than sub-critical technologies. But such improvement is unable to reduce coal consumption to zero. However, revolutionary technologies prove a zero fossil fuel consumption for energy supply. Renewable energy technologies, such as solar, wind, water and carbon-neutral biomass, produce energy but with no connection to fossil fuels and with zero-emission of carbon. Even so, there is also a budget line from nature: competition for solar radiation with regard to land surface use for agriculture, forest or photovoltaics.

4. A simple conclusion

Planetary boundaries are the ultimate budget line for resource use and consumption. Respect for nature requires human beings to understand, make and abide by a budget of nature for sustainability. The budgetary constraints from nature are highly rigid, and inappropriate or excessive budgeting for human demand will risk system failure and put our future in danger. Technological innovation and investments can help relax the budgetary constraints only to a limited extent and in the short run, but we have to be aware that some technologies can speed up the process of resource depletion and damage to nature. Even for the use of renewable resources, they are not exhaustible, but their supply is also subject to a budget of nature constraints. For sustainability, we do not only need a carbon budget for climate security but also a land budget for biodiversity and ecosystem safety and a water budget for water-food-energy nexus security.

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175

Implementing nature-based solutions at scale
– prioritising decisions for maximising public gain

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Nature-based solutions (NbS) have gained recognition and popularity over the past decade as cost-effective, low-regret solutions to address a range of societal challenges. NbS is an umbrella term for a variety of measures that aim to "protect, sustainably manage and restore natural or modified ecosystems" (Cohen-Shacham et al. 2016: 5) to address societal challenges. NbS may address adaptation to the negative impacts of climate change (ecosystem-based adaptation, EbA), climate change mitigation through carbon sequestration and conservation of carbon sinks, and the reduction of disaster risk (ecosystem-based disaster risk reduction), while also contributing to biodiversity protection, reducing the risk of zoonotic disease occurrence and promoting physical and mental health and overall human wellbeing.

Given the various societal targets which can be addressed by NbS as well as the wide variety of co-benefits, NbS is recognised as a synergistic tool that contributes to making progress on several Sustainable Development Goals (SDGs) simultaneously, in particular climate change mitigation and adaptation (SDG 13), disaster risk reduction (targets under SDG 9 and 11), poverty eradication (SDG 1), food security (SDG 2), sustainable cities and communities (SDG 11), water and sanitation (SDG 6), biodiversity conservation (targets under SDG 14 and 15) and health (SDG 3). Development efforts guided by planetary guard rails are therefore well advised to build upon the key contribution of NbS actions such as (i) preservation of ecosystems in a good ecological status, (ii) improvement of ecosystems' sustainable management and (iii) ecosystem restoration. Strategies and

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policies need to be adjusted to unlock and enhance nature's potential to provide essential services for achieving the SDGs at scale and add value to society.

Status quo

Recognition and uptake of NbS is increasing globally but has not yet reached scale. At present, implementation comes nowhere near the scale, speed or scope required in rolling out NbS to harness potential multiple benefits for climate, biodiversity, disaster risk reduction and health. Adoption is hampered among others by (i) insufficient evidence on the cost-effectiveness or cost-benefit of individual measures, (ii) challenges to monitoring and evaluation of effectiveness, (iii) insufficient mainstreaming in long-term planning processes and (iv) lack of funding. Much time and effort has been spent over the past decade gathering evidence on the *effectiveness* (for non-financial benefits) of nature-based solutions, such as assessing the ability of mangroves to prevent coastal erosion and reduce coastal flooding compared to engineered coastal protection measures, so that decision-makers can compare these measures with conventional solutions. There are also strong calls to provide information on the *cost-effectiveness* or *cost-benefit* ratio of NbS. However, determining the *cost-effectiveness* and *cost-benefit* of nature-based solutions comes with a number of challenges.

Why is it challenging to determine the cost-effectiveness?

Ecosystems provide a variety of benefits to society. For example, when implementing a nature-based solution like removing a dyke and restoring a natural floodplain to reduce flood risk, a planner or decision-maker might compare the cost-effectiveness ('cost per non-monetary consequence') of the floodplain to that of the dyke based on their building, operating and maintenance costs versus their benefit, e.g. avoided damage to infrastructure or houses. This comparison will typically not be able to capture the overall societal benefits of NbS as they result from the multiple co-benefits generated by the re-connection of the river with its floodplain. Co-benefits may include an increase in the abundance and diversity of aquatic plant populations, which is a key for sustaining aquatic food webs. Most rivers are reliant upon their floodplains to maintain fish productivity.

Floodplains are productive and diverse ecosystems are sustained by the periodical deposition of nutrient-rich sediments. Floodplain restoration may also increase the recreational value of the area such as for fishing or bird watching.

To overcome this gap, *cost-benefit analysis* can be employed where all costs and benefits of a measure are captured by monetary terms. For this purpose, monetarised ecosystem service assessments are used. However, once the valuation process aims to include different types of use values and non-use values and aims to capture a wide range of co-benefits and spillover effects to other areas such as health, biodiversity and recreation, the valuation becomes very time- and labour-intensive and will be of limited applicability to standard decision-making processes and sectoral budgets. While monetary valuation is important and needs to be further developed to better capture the value of ecosystem services, the overall difficulty of capturing all benefits to demonstrate the true cost-benefits of nature-based solutions will continue to hinder their widespread adoption. However, a *cost-effectiveness approach* will continue to miss the co-benefits of NbS and will fall short to support multi-purpose decision-making.

Additionally, in valuation studies the *discount rate* applied has a major impact on how NbS solutions compare with conventional measures. Future benefits and costs are often discounted to the present value which is questionable in case of nature-based solutions since the benefits of nature protection or restoration will be seen mostly in the future and are therefore discounted, whereas the costs of intervention occur in present and are taken into consideration at their full extent. In other words, the extent to which the costs and benefits of future generations are included has a major impact on the outcome of the valuation. Aspirations to establish cost-effectiveness information for NbS likely also slow down their uptake as in many cases the respective studies and methodologies are still lacking precision or require a major time investment and interdisciplinary cooperation. The IPCC SROCC report, for example, concludes that there is still limited evidence on benefit-cost ratios for ecosystem-based adaptation (IPCC 2019: 33).

Do we need to increase focus on cost-effectiveness?

One possible way forward is to increase time and effort invested in studies proving the cost-effectiveness of NbS measures. The recently published IUCN Global Standard for Nature-based Solutions identifies cost-effectiveness as one of the criteria for successful NbS implementation (IUCN 2020:

12). In many areas of human development, however, cost-effectiveness as a tool did not prove to deliver the best outcome in times of crisis. It was "the focus on cost-effectiveness, which removed stores of medical equipment before the outbreak of COVID-19, and replaced ecosystems with mono-cultures" (TWI2050 2020: 75). Indeed, there is often a conflict between resilience building and cost-effective solutions. The primacy of cost-effectiveness considerations also favours interventions where cost-effectiveness is easier to establish, such as in hard infrastructure projects, or projects involving unidimensional interventions, such as reforestation with one or few tree species. Today there is a growing concern that the large number of NbS projects involving tree planting for carbon sequestration is driving the attention away from the protection of existing biodiverse ecosystems (Seddon et al. 2021: 1530).

What should we focus on?

Rolling out nature-based solutions at scale is ultimately a collective action problem. Instead of increasing time and financial investments into single-measure cost-effectiveness studies, we need visions on different scales for transforming our governance models and decision pathways for a large-scale roll-out of nature-based solutions. Governments should recognise their role in steering the development in a direction that is beneficial for society as a whole and addresses the grand challenges of society. This needs to involve science-based goals and target setting for nature and biodiversity which would have to be observed in public and private decision-making. By focusing on the overall goals and targets rather than on the cost-effectiveness of single measures, we could create inspiration and space for creativity and encourage collaboration across sectors, thereby thinking out of the box and linking multiple measures. It requires a mission or in other words a 'whatever-it-takes approach' to financing and planning, as we have seen, for example, during the pandemic, to solve common challenges and to address social inequalities. As Mazzucato (2019) shows in her discussion of the success of the Apollo mission to land a man on the Moon, by concentrating on a challenging, joint goal, not on short-term gains, the goals can be better achieved than with a strict focus on the economic costs and benefits. While the Apollo programme is well known, there are many other examples where ambitious visioning was instrumental to reach larger goals. For example, the 'Salmon 2000' and the subsequent 'Salmon 2020' programme, which is a part of the "Rhine 2020 programme for the sustainable development of the Rhine" (Froehlich-Schmitt 2004: 4),

formulated the visions to re-establish a self-sustained salmon population in the Rhine. Another example is Sweden's Vision Zero policy (1997). The vision was that no one should be killed or seriously injured in course of traffic accidents by 2020 (Mazzucato 2019: 15). Reaching the goal required a re-design of the road transport system. A multitude of single measures were necessary to reach these goals – many of them would not have passed a cost-effectiveness or cost-benefit evaluation seen as a single step and without keeping in mind the larger picture and overall societal vision and gain.

A large scale implementation of nature-based solutions could be enabled by a mission-oriented approach which would define clear implementation targets. Instead of insisting on cost-effectiveness of single steps to be implemented it would focus on the big picture. For example, the Global Deal for Nature (GDN) provides scientific evidence for a large scale plan to protect ecosystems and biodiversity to address climate change and biodiversity loss and to secure essential ecosystem services (Dinerstein 2019). The GDN targets 30% of Earth to be formally protected and an additional 20% designated as climate stabilisation areas, by 2030, to stay below 1.5°C global warming.

Since the protection or restoration of ecosystems needs to be addressed at sub-national, national or regional level, different 'missions' would be needed for the appropriate scale. They could be formulated when there is a window of opportunity to change the course of decision-making. In Germany, for instance, the resilience and health of forests is at serious threat. The 2018 drought and heat caused unprecedented tree mortality in Germany and lead to high vulnerability of the trees to insects and fungal pathogens with even more tree mortality in the consecutive years. As a large share of the forests is severely damaged and droughts and heat events are likely to occur more frequently with climate change, German forests and forest management need a substantial transformation. A mission-based forest strategy could aim for prioritising a healthy, biodiverse, climate-resilient forest, which is managed in a way that it provides a variety of essential services for society such as those for recreation, mental and physical health and risk reduction. Natural forests buffer against the adverse impacts of climate change by not only providing cooling in summer but also retaining excess rainwater and moderating extreme run-offs (European Environment Agency 2015: 5). These services are currently not considered in decision-making and planning, e.g. in the German Forest Strategy 2020. Many of the measures which would enhance societal benefits provided by the forest are not cost-effective for the forest owner. There

needs to be leadership at national level to change the course and set a mission for a biodiverse and climate-resilient future of forests in Germany.

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Cooperation for the global common good

Universal ethics in the 21st century: Which sensibilities matter?

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Why is our quest for universal ethics still elusive in 2021? Do discussions surrounding universal ethics have to be inevitably freighted with considerations of power? Akin to the compelling sway of gravity, does power make everything less fluid, stodgier and stickier than we are often willing to concede? Even fleetingly, is there a powerless or gravity-free world conceivable? Is it at all possible to envisage for a moment, like Ursula K. Le Guin imaginatively does in "The Left Hand of Darkness", a world without gender prejudice? Or is this a luxury only science fiction writers can envision? Can we extend this metaphorically to imagine a world without class, race and caste prejudice in the twenty-first century? Or is that entirely inconceivable? Can we extend this further to question the hard and unrelenting barriers we have come to erect between nation-states? Do they not appear absurd in the light of existential planetary threats staring us collectively in the face?

The intent of this brief intervention is to invite each of us to mull over these questions afresh. It is to ask uninhibitedly what sensibilities might best service our normative aspirations. It would not be out of place to ask if there is in the first place at least a broad consensus around some minimal normative endeavours. The seemingly obvious can no longer be taken for granted. From a normative perspective, two contenders, which are of particular urgency and yet scarce as internalised political values in this context, are sustainability and international cooperation. In this connection, as a thought experiment, I hazard a guess as to which sensibilities

are likely to matter the most when it comes to safeguarding these values. How may we marshal more widespread agreement in their support? Without erecting too long a laundry list, what I wish to do is to capture some essential sensibilities (five in all) that are worth closely examining if we are to prioritise for meaningful political, social and ecological realisation. These include permeability, empathy, equity, anger and malleability.

An initial sensibility drawing on the work of Rebecca Solnit could be referred to as *permeability*. Solnit, a feminist essayist, in her fascinating book "A Field Guide to Getting Lost" speaks about the many virtues of 'getting lost'. Alluding to a Hebrew tradition of 'Passover' which entails keeping the door ajar for Elijah the prophet, Solnit reads it as a plea to "[l]eave the door open for the unknown, the door into the dark" (Solnit 2005: 4). Drawing on a pre-Socratic philosopher, Meno, Solnit recounts how one of her students reminded her of a basic paradox, namely "How will you go about finding that thing the nature of which is totally unknown to you?" (Solnit 2005: 4). As a sensibility, what Solnit is batting for is an openness to "concrete acts of navigating, teaching and surviving" – things we can no longer merely assume (Solnit 2005: 11).

This translates into an openness of minds, the need to relentlessly question orthodoxies, to embrace the discomfiture of stepping out of our echo chambers, to be less deferential to our unexamined assumptions and to value other knowledge systems (of indigenous peoples and assorted marginal constituencies) while restoring our vital connections to nature and other cultures. Most critically is to view ourselves as an integral part of nature and not outside of this frame. No easy task in the twenty-first century but well worth it if we are to get any closer to realising natural sustainability or international cooperation.

Another claimant as far as deeply worthwhile universal sensibilities go is *empathy*. A slew of associated values – acts of kindness and compassion or the quest for justice, for instance, can be rolled up in this offering. George Saunders in a farsighted and enormously well-received convocation address to students at Syracuse University confesses that "[w]hat I regret most in my life are *failures of kindness*" (Saunders in Lovell 2013). Exhorting a younger generation to place a premium on kindness without neglecting the regular pursuits of youth or necessarily retreating to the forests for spiritual growth, Saunders suggests that the key lies in this: "If we're going to be kinder, that process has to include taking ourselves seriously – as doers, as accomplishers, as dreamers. We have to do that, to be our best selves" (Lovell 2013).

Saunders hits the nail on the head when he talks about our constant deferral of individual acts of kindness. He observes, "Over the years I've felt:

Kindness sure – but first let me finish this semester, this degree, this book, let me succeed at this job, and afford this house, and raise these kids, and then, finally, when all is accomplished, I'll get started on kindness" (Lovell 2013). Alas, this is often too little, too late. There is a much more satisfying choice to exercise. "Find out what makes you kinder, what opens you up and brings out the most loving, generous and unafraid version of you – and go after those things as nothing else matters" (Lovell 2013). What on the face of it might appear like a pious plea is in reality something which sinks in with the passage of time. Empathy, kindness, compassion is a compact of sensibilities all likely to make a substantial difference to the tone and tenor of politics rebooted in the service of sustainability and cooperation.

Considerations of *equity* are vital if we have to make any real advancement as human collectivities. There is a rich body of literature now documenting the staggering income and wealth inequalities both between and within countries, both in historic and current terms. While I do not intend to burden this brief text with data, it is available at a glance for anybody who is curious. Equity considerations have a life that goes well beyond economic redistribution of resources. It has implications that are both social and political. If people increasingly fall off the system in the absence of a social safety net, societies cease to function as coherent entities. Politically, the fallout of the 2008 recession has been well documented. There is clearly a crisis of political liberalism stemming from the deep rooted structural economic crisis with all its attendant implications.

You could ask why equity considerations are central to both sustainability and cooperation as ideas. They are critical for two reasons. First, if equity is not hitched to considerations of sustainability there will be inevitable comparisons among those with better access to resources vis-à-vis those with poorer access to the same resources – both within and across generations. This is why equitable dialogue is another important pre-requisite if we are to secure durable international cooperation. The basic issues of human dignity tied to equity, and sustainability and international cooperation are essential dimensions to pave the conditions for ensuring a more equitable international order in every sense of the term. Such a worldview needs to acknowledge structural conditions, a case for the redressal of democratic deficits that characterise international institutions and an audit of the degree to which they genuinely represent diverse stakeholder interests. This has implications for the way in which even our domestic politics and policies are organised. Is it a mere spoils system with patron-client arrangements which results in a skewed distribution of any

available economic largesse or is it a more equity-driven, constitutionally guaranteed model of social, political and economic cohabitation?

As a provocation, I suggest another sensibility here that might provide the ballast for social and political action – namely, *anger*. A recent book co-edited by Agnes Callard with Paul Bloom, Judith Butler, Myisha Cherry and Martha Nussbaum has a rich mix of philosophers, social psychologists, political theorists and a legal scholar sparring over the 'value of anger' in public discourse (Callard 2020; Chasman & Cohen 2020: 6). Can anger entail 'righteous incivility' (Olberding 2020)? Why is it important to register one's dissent from prevailing certitudes especially when they prove unequal to the task of achieving our desired normative goals?

Callard concludes that "[w]e can't be good in a bad world" (Callard 2020: 28; Chasman & Cohen 2020: 7). Amy Olberding, making the case for 'righteous incivility', reminds us that "[c]ivil persuasion is a nasty sort of business. It takes patience, care, and work. It entails getting my hands dirty by trying to reason long and hard with others I often cannot like" (Olberding 2020: 157). Anger within bounds then appears as not such a bad thing. It is unacceptable when it tips over and torpedoes any possibility for reasoned discourse. It is harmful when it enters the slippery terrain of identity politics locking us into sticky combat positions without any inkling of possible reconciliation. In any case, it might be worthwhile reckoning, for instance, with generational anger for having left the world poorer because of conscious but deeply flawed choices. The environmental sphere is an excellent illustration of this public sentiment often voiced from around the globe.

A final sensibility worth bating for is *malleability*. What this means is that human transformations are possible. They do not necessarily have to take the form of major upheavals in social, political and economic terms. However, incremental change can chip away at some old blocks and contribute to strengthening rather than weakening the norms of sustainability and cooperation. With regard to the former, we may need to go back to our drawing boards to think about models of community participation and local solutions to local problems even as they are inevitably intertwined with global milieus. With regard to cooperation, we need to ask what might constitute more sensible models of internationalism. Can we, from a political perspective, reassert the value of multilateralism where bilateral or minilateral deals often appear more attractive? Can we harness the power of existing institutions to even partially resolve some of our contemporary collective action dilemmas or should we examine more lock, stock and barrel changes?

None of these questions are easy to answer, and political expediency more often than not tends to shape the trajectory of these commitments when it comes to major states and big corporations. However, our commitments as enlightened global citizens cannot be fickle in these matters. Notwithstanding identifiable constraints, any thinking person today has an obligation to pick up her boot straps and, with a certain degree of normative audacity, set out to clear at least in part the fog that has obscured our real objectives. It is only through incessant striving with an ethical urgency and pragmatic outlook that we can collectively hope to accomplish at least a modicum of global sustainability and worthwhile international cooperation in the twenty-first century. Do we have a choice in the matter? I am afraid not.

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Homo cooperativus: Rethinking international relations

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The Corona pandemic, which is far from over, and even more so the climate crisis, which is only just beginning, will change the international system for good. These immense challenges care little about national borders, and they will not be mastered by misguided 'my country first' nationalisms in the Trump mode nor by forming new antagonistic geopolitical blocs. Multilateralism is slowly returning, the standard mode of international politics post-1945, which prevailed in a world that, despite all Cold War bloc confrontation, became aware of the mutual dependencies that shaped it and in which East-West antagonisms were in fact toned down. Pursuing the own national interests? Sure – but only if it goes along with cooperation for the benefit of all.

All over the world, 'souvereignists' are putting up resistance against the renaissance of multilateralism, and their nationalism tends to be based on a classic economic principle: the self-preservative drive of the *homo economicus*, an ideal type that mainly pursues economic goals and is driven by self-interest. According to this notion, producers and consumers act rationally within a largely transparent market whose 'invisible hand' ensures that private vices (like the avarice of certain individuals) are channelled into public virtues, i.e., general wealth (Mandeville 1714). Many have challenged this simplistic conception of human behaviour, even in mainstream economics, and for good reasons. But what could an alternative paradigm look like, one that focuses less on self-interest and competition but rather on the human inclination and capacity to cooperate?

We propose that we turn to the *homo cooperativus*, the comeback model of human interaction in modern anthropology. While also inherent in primates, sharing and helping, as a group of experts around Michael Tomasello at the Institute of Evolutionary Anthropology in Leipzig found, are of particular importance to the *conditio humana*, even prior to language acquisition (Tomasello 2009). For example, toddlers spontaneously help adults to master certain tasks, be it by lending a hand or by providing information (e.g., about the location of a searched-for item). If we did not have this general disposition, conventions essential to survival and the good life would not be passed on, from shared basic social norms to practices of symbolic exchange to higher-level social institutions. The more independent they become, children learn to differentiate and behave altruistically even towards persons unlikely to return the favour. Anthropologists recognise this as a part of our natural endowment that all subsequent enculturation builds on: Rousseau's innately cooperative and compassionate human being, then, triumphs over the selfish, inconsiderate *homo economicus* à la Hobbes, who can only be tamed by taking away his weapons. "The degree to which we cooperate", the biologist Martin Nowak echoes, "sets us apart from the rest of creation. This is the fundamental reason humans have managed to eke out a living in almost every ecosystem on Earth and indeed have started to venture well beyond Earth" (Nowak 2011: 268). That everyone benefits from cooperation is the golden rule of human life on Earth, and mutual expectations make it easier to abide by social norms and behave empathetically. For this to work, however, our institutional environments have to be built accordingly – and that, as many times before in the history of humankind, is clearly not the case at present.

Could an interpersonal pattern of empathy and collaboration also shape the spirit and procedures of international relations? Indications that it can are provided by the gift-exchange paradigm which the French sociologist and anthropologist Marcel Mauss (1872–1950) detected in tribal relationships and also normatively applied to the building of a post-World War I order in Europe (König 1978; Moebius & Papilloud 2006; Adloff 2017). Mauss called the gift a "total social phenomenon" that combines symbolic, religious, economic, legal and social aspects, thus constituting more than a merely economic exchange phenomenon. As we all know, a gift should go beyond taking out one's wallet or chequebook. It has to mean something to both giver and recipient, and it has to be presented at the proper time – only then can it stabilise a relationship beyond the moment of giving, which is its basic function. Things get complicated, though, because giving and receiving entail a mandatory reciprocation. Mauss iden-

tified exactly this triad of giving, receiving and reciprocating in archaic practices like the potlatches of the North American Indigenous peoples, a ritual ceremony in which the parties attempt to outdo each other in presenting gifts (Harkin 2011). This, Mauss realised, was an alternative to the modern logic of calculation and to bureaucratic fiat – a third model of social integration. By creating a precarious balance between voluntariness and social obligation, gift-giving brings about long-term relations between individuals, groups or whole societies, thus safeguarding social cohesion. Mauss hoped to have discovered in this paradigm a 'solid rock' within the turbulent seas of the post-war 1920s, a resting place even for modern societies.

Can the considerably expanded *do ut des* of gift exchange, located by Mauss in largely pre-capitalist societies, be transferred to today's international politics as well? We can test and make plausible such a transfer to our own global conditions by way of three examples: debt relief, refugee rights and the global gift economy that is beginning to emerge in debates on patent waivers in the health care system.

We will concentrate on the most recent example illustrating the necessity for global cooperation, the current COVID-19 pandemic and the opportunity it entails for gift exchange, the release of patents (Fratzscher 2021). Countries with budget deficits and dysfunctional health systems ought to receive vaccines, drugs and medical infrastructure for free, so that immunisation can at last happen globally – if it does not, the virus and its variants could always rapidly spread again, not least in the rich North. Although this solution is self-evident, patent protection and the understandable aim of companies to make profit continue to stand in its way. It is important to recall, however, that the idea behind patents was simple and non-exclusive: inventors were supposed to report on their innovations in such a way as to enable all fellow specialists to recreate them; in return for their openness, they receive the right to sell their invention exclusively for a certain period of time.

The call for a temporary patent waiver for COVID-19 vaccines, for the ultimate sake of all humans on Earth, originated in South Africa and India, countries that lacked such vaccines (Nature 2021). US President Biden's affirmative response was quickly countered by practical concerns: the production of vaccines is a highly complex affair, manufacturing capacities are lacking, and should we really dispossess drug makers of their intellectual property? In cases of absolute emergency, the answer has to be yes. If pharmaceutical companies do not voluntarily waive their patents in the current situation, we have to resort to stipulations in international conventions

that allow for compulsory licensing. Surely, it is not legitimate in such a state of emergency to privatise vaccines whose development has for the biggest part been funded by tax money?

As France's president Macron proclaimed, vaccines should become a global public good. The WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) hampers direct access to affordable vaccines and drugs. Even some companies proposed alternatives, such as bans on exports of raw materials or selling vaccines at cost price. Concerns that a patent waiver may result in less investments in research or that it could take very long until the countries of the Global South are able to produce vaccines themselves are ultimately invalid. After all, patent protection deterred these countries from building the necessary capacities in the first place. The obvious conclusion would be to reorganise the production of goods essential for survival along the lines of Open Source. Everybody must have affordable access to vaccines. But this will only come about by means of a veritable gift economy, which would protect the rich as much as the poor. A waiver on patents is just one aspect of the larger project of overcoming the unjust international division of labour and finally following through with the idea of knowledge transfer.

Our contemporary society has many areas of conflict that call for global cooperation – or in fact for a modern type of gift exchange between wealthy and poorer nations. Our suggestions emphasise the equality of countries, and even more so of their inhabitants, vis-à-vis arguments of utility and competition for scarce resources. This is certainly a normative approach, and who advocates it should be aware that international politics unfortunately does not function that way, that our capitalist world society is riddled with injustices which will not just vanish once certain rights are codified globally. The renationalisation of interest-driven politics has widened gaps and intensified tensions. And it is true that, as the 'realists' among international relationists stress, even liberal constitutionalism may reflect and solidify power hierarchies. The multilateral post-war order never was an assembly of equals to begin with; it mirrored the material North-South divide, colonial and postcolonial power relations, and the dominance of the Western, liberal conception of the modern world. And yes: NATO never was the guardian of regional security for the benefit of all, the WTO no guarantor of justice and the EU hardly ever a court of appeal for the oppressed and offended. And yet they provided norms, legal options and procedures for critiquing and mitigating the inequalities and injustices – international courts of law and arbitration in particular adorn their statutes with enlightened, cosmopolitan ideals. The only 'realist' alternative would be to pursue these ideals even more resolutely or else

descend into chaos and anarchy. Despite the autocrats' beliefs and actions to the contrary, humanity needs binding rules, respected agreements and enforceable sanctions in case of violations. Only thus can global problems like a pandemic, climate change or species extinction be mastered; only thus can corruption and autocratic hubris be contained; only thus can ethnic cleansings and religiously motivated persecution be terminated.

As if that was not already ambitious enough, the theory and practice of international politics now needs to open up in two more regards: first, with respect to the ecological and financial debts we leave to posterity, debts that have been accruing since the 19th and escalating since the late 20th century, making it necessary to modify the classic social contract to include future generations. Secondly, that contract would also have to be expanded in view of non-humans. We must come up with a 'natural contract' that bids goodbye to the arrogant notion of *homo sapiens* as the crown of creation, entitled to impose his will on nature *ad libitum*. Not just disadvantaged people but also animals, plants and even inanimate nature must be given a voice in international politics (somewhat in the spirit of Bruno Latour's 'parliament of things') (Eroukhmanoff & Harker 2017; Corry 2020).

Homo cooperativus is not just an airy cosmopolitan fantasy: nice to have but utterly naïve or, as some experts think, even dangerous in the rough world of global modernity. In fact, in all fields of knowledge, voices have by now emerged who contribute very pragmatically to the realisation of cosmo-political ideas (Leggewie 2021). Certain fine artists come to mind who fuse experimental nature research, advocacy for threatened peoples or species, the documentation of damages and down-to-earth imaginations of the future into impressive works of Anthropocene art. Those who find this too vague and of marginal relevance can instead turn to the latest decisions of national and international courts (Bundesverfassungsgericht 2021; Birschel 2021), which harshly sanctioned instances of a further exploitation of nature, a neglect to institutionalise climate and species protection and the prevailing of inhumane supply chains in global trade – with the result that private companies as well as public financial institutions have already started to put their investment and procurement procedures to the test. Contrary to the objections constantly raised, such a new international politics will not turn out to be a gateway for authoritarianism but an instrument of strengthening democratic participation.

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When cooperation meets negotiations
– An approach to address the complexity of transformation to sustainability

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1. Introduction

The Sustainable Development Goals (SDGs) serve as a 'blueprint' for a more sustainable future. The achievement of this vision is a difficult endeavour not only because of the issues involved but also of the process defined by uncertainty and the lack of precedents (Hernandez 2021). In addition, the SDGs entail critical questioning whether the current multi-scale framework for global cooperation between states and between state and non-state actors is conducive to transformation to sustainability (T2S). One question refers to the role of power and power asymmetry in global and domestic cooperation. Given the current power imbalances, does the achievement of the SDGs require the prior dismantling of inequities that reinforce power asymmetry? Dirk Messner et al. (2016) argue that, while actors will reflect upon the payoffs of cooperation given the existing power asymmetries, cooperation can still result to the achievement of goals. The reason behind this is that cooperation goes beyond the assumptions of rational choice and narrow self-interest. Therefore, power asymmetry does not need to hinder cooperation if the so-called 'cooperation hexagon' (reciprocity encompassed by trust, we-identity, enforcement, communication, reputation and fairness) defines the interactions between actors. In other words, this cooperation hexagon enables the creation of a shared reality even in the case of heterogeneity.

Moreover, the achievement of the SDGs will most likely depend on how international relations adapt to the changing meaning of power as the progress on SDGs further changes various frameworks for global cooperation. The SDGs might have significant implications for foreign policy because they can mitigate several grievances that fuel conflicts between states. At the same time, the progress on one SDG in one country can hinder the achievement of another in neighbouring countries. For example, while the hydropower generated through the Grand Ethiopian Renaissance Dam helps Ethiopia achieve reliable and green energy (SDG 7), it shifts power in the region and threatens stable water supply (SDG 6) in Egypt and Sudan. Others problematise the entanglement of the SDGs in the North-South divide, because the SDGs do not fully recognise the postcolonial context of development in the Global South.

Concurrently, the progress on SDGs is redefining the cycles of domestic policies. This type of scaling complexity calls for the need to contextualise the SDGs. The progress of SDGs in each country is driven or impeded by the legacy of development, governance and political economy, population and demography, and human and social capital. These factors require a set of policies that aims to initiate structural changes and mitigate their negative effects. Each SDG-policy cycle is entangled in a highly complex web of multidimensional decision-making. Because of this, SDG-related policymaking needs additional efforts to ensure policy coherence by addressing trade-offs between SDGs and by addressing impediments to goal achievement. Ensuring policy coherence and effectively addressing trade-offs are however outcomes of exchanges of information between affected parties. Here, a comprehensive understanding of cooperation as an instrument of exchange becomes inevitable.

In addition, the 'aspirational' character of the SDGs paves the way to an 'ideology'-loaded type of complexity. Because sustainable development is a normative framework composed of aspirations and principles 'dressed-up' as rules, it becomes an ideology. Implementing some sustainability principles, for example, in the market organisation involves 'romanticised' alternative systems such as the Scandinavian models that favour the communalisation of energy, health and transportation sectors. These alternative systems are often taken as proof of a 'have-it-all' future that equates 'good' with 'smart' actions that are supposed to be achievable within the current political-economic paradigm (see Matikainen 2018). The SDGs are increasingly becoming entangled in 'culture wars' in many countries where individual value choices are broken down along partisan or political lines. Issues such as environmental protection or infrastructure modernisa-

tion are easily politicised and nested within a broader context of political conflict.

2. *The transformation to sustainability from the negotiation perspective*

The application of the cooperation hexagon to T2S opens the door for the negotiation perspective to elaborate how cooperation can be managed, scaled and prepared for in a highly complex environment. The outlook of cooperation and negotiation studies can help manage the complexity of T2S by:

(1) understanding the different facets of complexity of T2S;
(2) tracing how actors can build trust and agree to cooperate to resolve a common complex problem and agree on the unprecedented 'new normal';
(3) managing reputations, expectations or learning from regressions;
(4) identifying solutions that do not further reproduce existing asymmetries and inequities.

This diversity of how the SDGs can be achieved and what they entail in terms of necessary changes compels an analytical framework to have a grasp of the complexities involved. Negotiation scholars use theoretical frameworks to conceptualise how collective decision-making is used to achieve agreements, whereas collective decision-making becomes an interchangeable term for the cooperation hexagon. In addition, negotiation scholars characterise negotiation as a process that has a temporal start and end, and they developed *stage* and *episodic* models as analytical frameworks that divide the process into different phases or segments.

   T2S is a concert of various negotiation processes. There are conditions required for negotiations to be effective. One condition pertains to a conflictual situation that needs to be resolved. The SDGs foresee the restructuring of governance and societal practices that cause frictions. In addition, by addressing the trade-offs between SDGs, new inequalities can be prevented. Moreover, the failure to resolve the conflicts related to the SDGs can be 'mutually hurting'. T2S is itself a response to the costs of the 'unsustainable' business-as-usual scenario. Furthermore, negotiated agreements are necessary to resolve conflicts notably in cases involving common vulnerabilities. In addition, explicitly when addressing complex and uncertain phenomena, negotiation serves as an apparatus for adaptive learning, for improving social relationships and therefore for paving the way for future cooperation.

3. *The types of cooperation in the transformation to sustainability based on the negotiation perspective*

In T2S, there are four possible types of cooperation: *collaboration, coordination, deliberation* and *orchestration.* They reflect the cooperation approaches actors will most likely take when negotiating. However, the actors need to resolve the corresponding four '*cooperation problems*' to identify the 'pressure points' and engage the type of cooperation necessary to push forward with the negotiation process.

Collaboration

Collaboration is where actors seek to create a shared sense of reality by formalising channels to exchange information to better understand the problem issue involved and explore how the others can be part of the solution. The intention to collaborate is driven by the acknowledgement that unilateral solutions are not feasible to resolve common problems. Actors seek to resolve the 'collaboration problem', which refers to the caveat to collaboration. Resolving this problem mirrors the 'ripeness' concept in negotiation of I. William Zartman. Actors will collaborate only when the expected costs (e.g., value of information) are expected to be less than the benefits of collaboration. In addition, actors collaborate when they can trust that the efforts they make will be reciprocated by the other actors. Resolving the collaboration problem is thus highly dependent on existing social capital, i.e. the level of trust among actors. Moreover, to resolve the collaboration problem, actors need to have the capability to monitor and assess the actions of the others. This also means that exploratory interactions between the actors would be useful to build rapport, for example by improving communication and learning.

Cooperation advances when the collaboration problem has been resolved and actors are able to recognise the 'ripeness' of transformation despite its perceived ramifications to power relations. In addition, the perception of power and the ability to reciprocate concessions facilitate the collaboration between the actors. Because collaboration entails the expectation of synergies and co-benefits leading to additional values, power asymmetries can even be helpful in identifying formulas for burden sharing. Competition among actors does not need to hamper collaboration particularly when there is transparency and when competition assures quality. Under strict competition, collaboration tends to focus on distinct

tasks and less on synergies. It is often characterised by strict tit-for-tat procedures.

Coordination

Coordination is a self-enforcing type of cooperation. It can be initiated through conventions, norms and practices. "Coordination problems" arise when the "dilemma of common aversions" (Stein 1983) comes into place where actors disagree on the choice of parameters and the common equilibrium. In addition, coordination problems may also involve the situation where it is unclear where policies should match to ensure policy coherence. To initiate and facilitate coordination, a 'tolerable window' needs to be established to enable actors to compare their actions to those of the others. Coordination has a functional purpose. For example, when a ministry coordinates with other ministries or when a government coordinates with its counterparts from other countries, they seek to combine resources to achieve the goal with the least possible cost for individual actors. For example, countries are able to assess their own emission reduction goals vis-à-vis the global emission reduction goal through the Nationally Determined Contributions (NDCs). At the same time, coordination allows actors to review whether their own actions match or are comparable to those of their counterparts. To do this, they agree on shared parameters to allow the comparability of their interests and behaviour.

Coordination can generate new norms that can further reinforce shared realities. Germany's *Energiewende* exemplifies how coordination can occur. After the political framework of the *Energiewende* was developed, relevant state and non-state actors started to establish their interests by supporting their positions with scientific evidence. Several German ministries have launched their own research and development efforts in addition to the existing efforts of the Federal Ministry of Education and Research (BMBF) to draft their positions on certain themes related to the implementation of the new energy policy framework. In addition, sub-state actors such as 16 German states have started to develop their own implementation strategies, goals and energy concepts. In addition, representatives of affected sectors such as energy and industry have mobilised their constituents and started to seek popular support or resistance through various networks.

Ariel Macaspac Hernandez

Deliberation

Deliberation pertains to the type of cooperation where actors assess how the discourses on sustainability solutions should be transformed into concrete actions. It builds on the already existing interconnectedness between actors within a system. It involves the micro-politics of planning and participation to connect bargaining with policy games. 'Deliberation problems' refer to the incapability of stakeholders to participate effectively in deliberations. Lack of proper channels, low negotiation expertise, distorted representation or deficient accountability mechanisms hinder exchanges between actors about concrete details of the solutions. Deliberation aims to legitimise the process through participation and to ensure effectiveness of measures by identifying the appropriate mixture of actions. In addition, legitimacy enables actors to focus on solutions rather than on procedures. It also broadens the set of available resources due to the more stratified and equitable distribution of burden, which further strengthens the sense of shared reality. In addition, deliberation is made to find efficient solutions to make sure that the intended solutions solve the problems at least cost possible.

Orchestration

Orchestration refers to the communication between transformation processes. In the age of synergies and nexus-thinking, ensuring coherence between multiple policies limits trade-offs. Knowledge creation is 'orchestrated' across different transition processes to identify both possible synergies and trade-offs. This type of cooperation is similar to the concept of orchestration elaborated by Thomas Hale and Charles Roger. As non-state actors and sub-state actors participate in a transformation process, for example through transnational networks, they aim at establishing de facto regulation such as voluntary sustainability standards. At the same time, the concept of orchestration used in this paper also refers to how, for example, Mexico's energy transition is strongly connected to reforms achieved in gender equality and social justice. Although each sector has a different set of actors, structures and outcomes, it can promote or undermine transition in other sectors.

Orchestration refers to the type of cooperation that addresses exchanges of information between various (sectoral) transformation processes. Orchestration problems arise when the effects of preceding and parallel transformations become so diffuse that the success or failure to achieve

certain goals cannot be clearly attributed to specific measures. Hereby, the discernment of fairness and reputation becomes difficult. For example, increasing household incomes in India are leading to the increasing energy demand, which is most easily satisfied with fossil fuels, sending the wrong signals to policies that aim to reduce poverty alleviation. This diffusion poses challenges to (1) the calculation of costs and benefits for rent-seeking actors, (2) the accountability of unsuccessful and inefficient measures and (3) the equitable attribution of credits to the niche players that sacrificed resources. These orchestration problems can hinder the adequate analysis of the reasons behind a specific outcome.

4. Conclusion – Finding lessons for transformation to sustainability

T2S can be contentious, if not disruptive, primarily because of its complexity. This article called for the structuring of these complexities to facilitate cooperation for T2S. The negotiation outlook suggested building on existing concepts in cooperation research such as Messner's cooperation hexagon to understand and explain dynamics that occur as the transformation process unfolds. The negotiation perspective can help identify 'pressure points' of T2S by knowing more about human perception, cognition and motivations for cooperation. These pressure points can help practitioners develop strategies how to engage other stakeholders. The complexity of T2S can be managed by looking at T2S as a framework for cooperation. At the same time, applying the negotiation logic in establishing this framework addresses the role of power. When actors cooperate, they resolve power asymmetries not by dismantling them but by making them less relevant and even useful. When power asymmetries motivate differentiated responsibilities and commitments, then power becomes a driver of change.

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Duisburg's other Silk Road: revisiting international cooperation

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Prof. Dr. Imme Scholz is a sociologist and president of the Heinrich Boell Foundation in Berlin. She is very active at the science-policy interface on several arenas and matters related to global sustainable development, including the German Council for Sustainable Development, the Independent Group of Scientists charged with the next Global Sustainable Development Report, and the Think 20. She met Dirk Messner in 1990 when both were researchers at DIE in Berlin and joined him as his deputy in 2009 while he was director of the Institute. Leading and shaping the Institute with him was both an intellectual pleasure and a rewarding learning process for her.

Germany's western city of Duisburg is one of the main end points of the New Silk Road with 60 freight container trains per week arriving from China, still half of them going back empty. China's New Silk Road probably is the biggest state-driven international investment endeavour since the Marshall Plan of the United States after World War II. But Duisburg is also one of the places where in 1995 the delicate silk threads of new ideas on international cooperation for the global common good began to be spun into a broader concept of global governance. By their critical examination and further development of the approach of the Commission on Global Governance, Dirk Messner and Franz Nuscheler, both then with the Institute for Development and Peace in Duisburg, introduced quite a

new thinking (the 'Duisburg School') into the German discourse on development and international cooperation. They spoke of shared sovereignties through the transfer of competencies, the intensification of international cooperation by means of international regimes governed by binding rules, and a foreign policy geared to the global common good (Messner & Nuscheler, 1996). Their ideas inspired an aid community that was moving beyond a primary fixation on reducing poverty by implementing reasonable projects and programmes in developing countries. The ensuing new development discourse focussed on global structural policy instead. However, the optimism of the 1990s which culminated in the United Nations Millennium Declaration was quickly challenged by the war on terror after 9/11 and the resurgence of geopolitical tensions. In the aftermath, the realist school in international relations regained sway in academic debates and political practice.

What is international cooperation and why should it change?

Is mankind doomed to a world where 'man is a wolf to man' and nations behave just like this? Whoever had a chance to listen to one of Dirk Messner's speeches has been taught otherwise. His trust in humans' inclination to strive for the better and their ability to cooperate is as intriguing as his proficiency in spotting movement into the right direction against all odds. Fifteen years after his first stint in Duisburg and during his time as Director of the German Development Institute (2003–2018), Dirk Messner was a key partner in setting up the Centre for Global Cooperation Research at the University of Duisburg-Essen. By drawing on research on human behaviour, Messner and colleagues arrived at the conclusion that there may be a natural human propensity to cooperate and that the predisposition to cooperate is independent of culture (Messner et al. 2016). They identified a relatively small set of mechanisms that enable successful cooperation, encapsulated in a cooperation hexagon (figure 1) with reciprocity at its centre. While acknowledging the reality of power struggles, they argued that this hexagon could be scaled up to international cooperation.

Figure 1: The cooperation hexagon, Messner et al., 2016: 134.
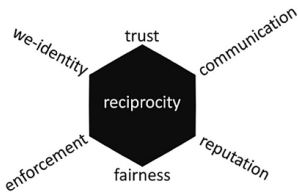
This is a much more qualified understanding of cooperation compared to the standard definitions and can be applied to international relations in the forms of diplomacy and international cooperation in an operational sense. In this context, international cooperation is understood as working together to achieve specific objectives via joint projects by using financial and other means. In contrast, diplomacy is primarily about regulating relations and competition between nations including multilateral regimes, e.g. on trade or global public goods.

The elements of the cooperation hexagon could be well observed when in 2015, in a rare and historic achievement of diplomacy, the world came together in adopting the 2030 Agenda with its 17 Sustainable Development Goals (SDGs) and the Paris Agreement on climate change. Indeed, reciprocity is at the heart of both agreements, aiming at transformation everywhere with a view to the global common good. They were an expression of both a we-identity of humankind and the quest for reputation which no country would like to put at risk by staying away. They could only be achieved by a long process that created trust and gave all sides the necessary assurances about the fairness of the deal. They built on intense multi-level and multi-actor communication and entail at least some means of enforcement. However, the first six years of the implementation of both landmark agreements did not meet expectations. A rise of populist and nationalist counter-transformations and a further increase of geopolitical tensions let multilateral, solution-oriented cooperation grind almost to a halt.

But can this failure be attributed only to the 'big picture' or are there also weaknesses in the cooperation system embodied in both agreements that hinder effective implementation? So far, most of international funding is channelled through the agencies and procedures of development cooperation. But what do we learn when we look at them through the lens of the cooperation hexagon? The main feature of development cooperation is built around the concept of aid, not around the idea of reciprocity. As the desired change lies only at one end of the partnership, a we-identity

is difficult to arise and reputation is trapped in the donor-recipient model. Mutual trust and fairness are often perceived as weak, communication and enforcement mainly come as one-way streets.

Towards a new narrative

In contrast, the universal character of the 2030 Agenda and the Paris Agreement constitutes sort of a Copernican turn in the thinking about global development (Kloke-Lesch, 2020; Messner & Scholz, 2018) and stipulates transformative change to happen everywhere if it is to happen globally. Taken seriously, this requires a comparable overhaul of the pre-2015 world's cooperation architecture. A fit for purpose 21st century cooperation must spur transformation not only in poorer but in richer countries alike, because the latter are also critical to global success. This is all the more important as domestic and external policies are intricately related and need each other more than previously, due to external effects of domestic policies (spill-overs of action and non-action).

In 1996, Messner and Nuscheler posited the global common good as the horizon against which foreign policy should define its objectives and priorities. They were confident that international regimes could be equipped with strong mechanisms for monitoring and enforcement. Twenty-five years later, it is clear we cannot rely only on international regimes to foster a decision-making at national levels that situates national well-being within the global context, spatially and time-wise. Rather and in addition, we need a system of cooperation that supports and enforces the achievement of these global goals by engaging all countries in a universal and reciprocal way.

Overcoming hindrances to universality

The 2030 Agenda and the Paris Agreement leave no doubt about their universal character. To achieve their goals, both call for an international cooperation that is as wide as possible. However, both accords focus cooperation on support for developing countries and have little specifics about cooperation beyond North-South and South-South. This reflects the broader lopsidedness of the means of implementation as encapsulated in the 2030 Agenda. Not one of them is geared specifically towards 'developed countries'. This obviously reflects the interests of major groups

of countries as well as institutional path-dependencies. Still, the letter and the spirit of the majority of these means are truly universal and establish a responsibility of 'developed countries' to act on the SDGs also in their relations with each other (Kloke-Lesch, 2020).

Against this aspiration of universality, there are two main weaknesses in today's cooperation architecture, the first related to the concept of 'graduation' within the framework of North-South cooperation, the second referring to North-North cooperation.

Development cooperation (North-South) has been framed around the concept of official development assistance (ODA). It still is by far the most important source for external funding to implement multilateral agreements and insofar is related to universality. In a way, also the eligibility to ODA could be seen as a conditioned expression of universality since all countries can receive ODA if they are or become low or middle-income countries. History has shown countries entering the recipients list of the Development Assistance Committee (DAC), like Eastern European and Central Asian countries in the 1990s, or leaving it after becoming high-income countries or joining the European Union. These changes reflect ups and downs in countries' economic development as well as geopolitical changes but unfortunately not the ever more pressing needs related to global sustainability. Graduating countries from the ODA recipients list means that cooperation with them towards the global common good will not be counted as ODA anymore, leading in most cases to its phasing-out. In addition, there is a more creeping graduation taking place when cooperation with middle-income countries is wound down due to a focus on low-income countries. In both cases, the contradiction between the inner logics of the ODA system and action towards global sustainability becomes strikingly apparent. As a result, many middle-income as well as formally graduated countries fall behind the traditional horizon of cooperation although many of them are highly relevant for achieving the SDGs and securing the global common good.

While South-South cooperation and triangular cooperation nowadays is perceived as a growing dimension of development cooperation for the achievement of the SDGs, a rarely asked question is whether and how North-North cooperation satisfies these requirements. North-North cooperation is not an established concept, but it entails many features familiar to South-South cooperation which ranges from trade to investment to science and technology and to jointly implemented projects. It encompasses, on the one hand, bilateral cooperation like the Franco-German Treaty of Aachen or the European Union-Canada Comprehensive Economic and Trade Agreement, both of which indeed at least refer to the SDGs and

climate goals. On the other hand, there are platforms such as the Group of Seven (G7) and the Organisation for Economic Co-operation and Development (OECD) as well as multilateral treaties that are limited to 'Northern' geographies like the Arctic Council. In these cooperation settings, the main objective is to regulate competition in economic and political terms instead of engaging in concrete collaborative efforts to achieve specific goals, such as climate neutrality. Thus, North-North cooperation is bound to change, too. Propelling transformative change also in richer countries needs to become an indispensable element of a future cooperation architecture.

Strengthening reciprocity

The weaknesses of the cooperation architecture with regard to enhancing transformative change in graduating middle-income and in richer countries are mirrored in a low level of reciprocity in cooperation formats. In this context, South-South cooperation follows a specific approach. It claims being not asymmetrical but reciprocal as it is agreed among equals and pursues mutual benefits. In practice, however, asymmetries abound. It requires much effort to avoid the pitfalls of donor-recipient relationships. Still, the conceptual starting point is an acknowledgement that cooperation depends on the objectives and interests of all participants while not assuming that they are altogether altruistic on the side of the provider of funding and expertise. In addition, the mutual benefit of South-South cooperation seems only rarely being linked to structural change on both sides of the partnerships. Interestingly, also triangular cooperation is geared only towards change at one end, forgoing the opportunity of a circular process of learning for the global common good.

This is all the more the case with North-South cooperation that does not consider engaging in a reciprocal change and learning experience with so-called recipients and invest very little in education and science systems in developing countries which would enable them to devise local solutions and accelerate learning, change and exchange. Reciprocity builds on shared interests in creating solutions for shared problems and on the benefits of learning to do this together. An example: a transformative alliance of countries with a sizeable share of coal in their energy systems could be crucial for accelerating the transition to climate neutrality. Such an alliance would have to comprise countries like Poland and Australia, India and South Africa as well as countries like the Philippines and Vietnam where coal-fired plants are still being planned.

One factor that makes it especially difficult to discover the advantages of reciprocal North-South cooperation is the above-mentioned concept of graduation. It kicks countries out of the group eligible for development cooperation just when their potential for reciprocal partnerships is advancing in a way that could facilitate learning experiences and transformative change also for so-called donors. But reciprocity can and should be possible also with poorer and smaller countries. They should have more possibilities to address domestic policies in richer countries that they deem relevant to them and the global common good. Obviously, this can be started easier within regional or multilateral formats, e.g. by giving the World Bank or the African Union a role regarding transformative change in the European Union. Also within bilateral cooperation formats, partners could take visible roles in specific contexts that demonstrate the riches they can contribute to a common we-identity. Another way of moving forward is by opening cooperation formats with developing countries to other developed countries, tearing down the walls between North-South and North-North cooperation.

Against all odds

Sustainable development can become the biggest global investment endeavour of our times. A universal and reciprocal approach to cooperation would emphasise co-responsibility and co-creation aiming at a global public investment system where "all contribute, all benefit, and all decide" (EWG-GPI, 2021). When all countries invest financial and knowledge resources, they are more prone to engage in processes of mutual structural change. The governance of this system would depart from the distinction between donors and recipients and underline shared interests and responsibilities. It would probably rely on a mosaic of global funds, UN organisations and multilateral development banks as well as bilateral and interregional cooperation settings. Currently, it is hard to imagine how such a reform could be implemented – but in times of crises bold visions are needed to guide action when sudden change appears to be possible. In the meantime, we should follow disruptive incrementalism. Universality and reciprocity come in many ways. By looking for doable, smaller steps we can trigger bigger, transformative change. Sooner or later, containers from Africa will be arriving in Duisburg full of fresh ideas for the development of Europe.

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Cooperation, echo chambers and the future of global governance

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Introduction

I would like to briefly discuss what I consider to be two of the most important contributions of Professor Dirk Messner to the debates on international cooperation and global governance: on the one hand, the significance of interdisciplinary work, and on the other hand, the 'simple' proposal that cooperation is much more frequent than most scholars think, a simple idea that has changed our cognitive models and mental sets.[1]

Mental sets and interdisciplinarity

The proposal that cooperation among individuals happens much more frequently than many social scientists and philosophers would be willing to accept is nicely summarised in Messner et al. (2013). Defying a Hobbesian perspective that the law of the strongest will prevail, that the natural state of humans is permanent war and that humans are not inclined to cooperate with each other, Messner and his colleagues propose a hexagon that includes seven elements that are necessary for cooperation to emerge and sustain through time: 1) trust, 2) communication, 3) reputation, 4) fairness, 5) enforcement, 6) we-identity and, as central element, 7) reciprocity. The main thesis is that these seven components need to be enabled to increase the likelihood that cooperation emerges in a given situation. Taken to international studies, this perspective contrasts significantly with realist

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1 Throughout this paper I will use the term 'mental set' in the way experimental and cognitive psychologists do: "a tendency to solve certain problems in a fixed way" (Luchins & Luchins, cited in Öllinger et al., 2008).

views claiming that narrowly defined interests and *realpolitik* explain the low levels of cooperation that we observe among traditional nation-states.

The cooperation hexagon is valuable precisely because it offers a different account of human exchanges, one that seems counterintuitive. In a few words, it can be summarised in a short phrase that re-frames the way we think about the subject: cooperation is not only possible but much more frequent than we usually think.

Fair enough, but how did Messner and colleagues reach this conclusion and how did they build this conceptual model? My claim is that the value of the cooperation hexagon lies not only in its content but also in the procedure that was used to put together the different elements. It is less about the building as a whole and much more about the bricks, the walls and the windows; the key lies in an approach that is both multidisciplinary and interdisciplinary. Looking at the arguments in detail and analysing the different authors that are referenced in Messner et al. (2013), it is evident that the literature belongs to a collection of different areas: economics, international relations, history and evolutionary biology just to mention those which are most visible throughout the different argumentative steps. This multidisciplinary approach that eventually gives place to a conceptual model that is interdisciplinary is at least as significant as the discussion on cooperation itself.

This kind of academic work is urgently needed in the social sciences. We experience an era of super-specialisation in every productive activity, and the academic world is not an exception. This trend may be useful sometimes and may have some advantages in particular contexts when a problem is so complex and yet so specific that it requires, effectively, years and years of focused and narrowly defined research. However, such narrow approaches also carry significant risks, which are mainly related with the way our expertise in a particular area of knowledge shapes the way we conceive reality in general.

A number of studies within the area of experimental psychology suggest that experts may have an advantage over novices (or non-experts in general) because 'to be an expert' is equivalent to having at hand a number of analytical tools and conceptual models that have become routine ways of thinking (Öllinger et al. 2008; Wiley 1998). In other words, when faced with a problem that is familiar and that falls within our discipline or area of expertise, we can make use of knowledge that is specific to that field and take short cuts to find a solution.

However, such acquired knowledge might also become an obstacle when the expert faces a problem that cannot be solved by applying the procedures that have been cognitively absorbed through a professional

trajectory, especially when this problem also demands a 'representational change'.[2] Furthermore, expertise creates mental sets and mental sets create fixations (Wiley 1998: 718). Thus, the problem is not only that the expert always wants to solve problems with the same tools and procedures within certain field but that he or she looks at everything in the social world through the same lens.

Multi- and interdisciplinary endeavours allow us to expand and complement our mental sets because we increase the number of procedures that we have at hand. We also expand our insight on a particular problem since we are able to look at things from different angles. In a few words, if we engage in a continuous dialogue with people who come from other disciplines and hold other points of view, we tend to frame reality differently, more comprehensively. The cooperation hexagon is a good example. The counterintuitive (but convincing) proposal that cooperation is more frequent than we often assume is only possible thanks to an explicit effort to combine insights from different disciplines.

And yet, no matter how much we try to integrate different perspectives, the danger of converging in spaces where we mostly encounter people (i.e., other experts) who think very similar to us, is always there. We end up meeting in similar academic conferences, in the corridors of international cooperation agencies or at the summits organised by multilateral institutions. We engage in the same debates and we are interested in promoting specific concepts and agendas: Agenda 2030, SDGs, Paris Agreement etc. In this context, the very fact that individuals from different countries and with a variety of cultural backgrounds meet and are willing to talk about these concepts confirms the cooperation hexagon. That is, once the seven elements come together (trust, reciprocity etc.), it is more likely that people from diverse backgrounds will be willing to cooperate.

But a question lingers in my head: Aren't we creating our own echo chamber, albeit one that is better furnished and more comfortable? Are we not trapped by our own mental sets and framing of global challenges? The cooperation hexagon is useful to understand the enablers of cooperation among individuals, and the main challenge, according to Messner et al. (2013), seems to be how to *scale up* cooperative behaviour to the level of

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2 Experiments in cognitive psychology include situations where the only way to solve a problem is by using an object in ways that do not resemble its original functionality (example: to use a hammer and a rope to create a pendulum). These are good examples of 'representational changes'.

217

international cooperation. What an interesting intellectual provocation! Is this truly the case?

The threat of 'echo chambers'

The concept of an echo chamber, developed by mass communication theorists, describes how people tend to group and join individuals who are like-minded and how their beliefs tend to be reinforced by systems of communication that are relatively closed. Although research in this direction has reached mixed conclusions, the general line of argument is that heterogeneous ties increase ambiguity whereas hanging out with similar people increases certainty. The whole argument is about social expectations: if an individual prefers certainty, this means that he wants to know what to *expect* from the others and he will tend to hang out with people that are like-minded (high degree of social homophily); if an individual does not mind ambiguity, this means that she is less anxious regarding her peers showing social behaviours or expressing political preferences that are different from hers (low levels of social homophily).

For example, the research undertaken by Boutyline and Willer (2017) suggests that people located at the extremes of an ideological spectrum will show greater levels of social homophily. In other words, extreme ideologists are less likely to tolerate different opinions and ideas regarding a particular political issue. They will tend to hang out mostly with people that are like-minded. Then, of course, if we take this trend to the on-line world, algorithm dynamics that characterise many social media platforms (Facebook, Instagram etc.) will also play a role exacerbating the problem.

At the basis of the discussion lies the issue of trust, which is the angular stone of cooperation (Messner et al. 2013). People with high levels of social homophily, who meet and interact in the context of echo chambers, do not need (and do not want) to confront their beliefs in any way. They share similar mental sets and similar ways to frame the world. They only need to hang out with like-minded individuals to confirm that their beliefs are right and to feel that they trust each other. They are less likely to change their mind or to understand other points of view.

If we consider that some echo chambers are characterised by particular political ideologies, this has a huge and direct impact on global governance issues. At the end of the day, populist leaders who have shown little interest in supporting responsible policies regarding climate change are the product of electoral politics where both grassroots movements and some sectors of the middle-classes have voted nationalist conservative

218

agendas. In this respect, the research undertaken by Lockwood (2018) explores the links between right-wing populism and the climate change agenda. According to his findings it is not that people refuse to act on climate change because they fear that policies will affect their jobs and their economic well-being. The factor that seems to be stronger is merely ideological.

Lockwood's explanation is that the rhetoric is very important because populism is by definition nationalist and anti-elitist. Some right-wing movements and political parties might even include climate change concerns as part of their agendas, but this is very rare, not because they think that climate change policies pose a threat to their material interests but because the relevant electoral cleavage is merely ideological, it is constructed as a case of cosmopolitanism vs. nationalism. Thus, since climate change policy refers to something that is – apparently – very remote from everyday problems, it can be constructed and easily perceived as a preoccupation that belongs to an elitist, cosmopolitan minority. The very fact that climate change and other global governance challenges can only be tackled through supranational agreements increases the feeling among 'the people' that such 'global' efforts pose a threat to sovereignty.

Although labelling climate change and other global challenges as 'cosmopolitan concerns' may sound very harsh, perhaps there is something of our particular mental sets and ways of framing social reality that 'we', the people preoccupied for global governance, and 'we', the professionals in the international cooperation sector, may need to consider. Perhaps we have created our own little echo chamber.

The question is whether we have only expanded the size of our echo chamber to include a wider variety of colleagues, from various disciplines, cultures and nationalities. We have allowed that our walls are painted with new, more lively colours, but we are still hesitant to let the folk artisan and the graffiti artist to decorate our living room (although more than one of us would love to own a Banksy). We know that individuals coming from different cultures will cooperate if the seven components of the hexagon are enabled in the right way. At the meso-level of politics, individuals from dissimilar cultures will meet in the corridors of international venues such as the different UN agencies with the legitimate and honest intention to cooperate and to reach agreements. In this process, we may tend to defend global governance and ignore the ineffectiveness of a system which is still rooted in a post-1949 world and which remains disconnected from the preoccupations and everyday reality of regular citizens.

The challenge, however, does not lie in our differences but in our *similarities*. Said otherwise, I have the impression that there is an analyti-

cal layer at which the cooperation hexagon presupposes individuals that do share a similar mental set, one that is indeed cosmopolitan and, yes, unfortunately, to a certain extent also elitist. And thus, many of our valid and honest preoccupations regarding global governance challenges do not trickle down to society in general.

The passer-by

In this respect, I kindly invite the reader to go out to the street once he or she finishes reading this text and to ask a few passers-by their thoughts regarding Agenda 2030, the Sustainable Development Goals, the Paris Agreement or the World Health Organisation. I suspect that, even in the middle of a global pandemic that has literally transformed the lives of almost every human being on this planet, the average passer-by will have little idea about what we are talking about. No matter which country we take as an example, the mental set of the average citizen differs enormously from the way in which we, 'the experts', frame global problems. In other words, we also need to become aware of how our very own fields of knowledge shape and become an obstacle to understand the mental sets that others, with less 'expertise', may have.

I do not intend to underestimate the importance of professional experts. Our job is indeed very important to identify paths of possible action at a time when the future of humanity is uncertain to say the least. However, as long as the population in general gets trapped in their own echo chambers, showing high levels of social homophily and feeling that our ideas are remote elitist preoccupations, it becomes more likely that electoral politics in democratic systems will end up producing populist leaders who are not interested in promoting policies for the common good that contribute to solving immediate global challenges.

Thus, the question is not so much how we scale-up cooperation from the meso-level (i.e., the individuals who meet at concrete policy venues) to the level of international (macro) cooperation but how we scale it *down*, so that global concerns are shared by the general public, by the average citizen, by the concrete person that goes to the ballot to elect those leaderships that will eventually help us to scale up.

In this respect, Messner's hexagon is a conceptual model that has changed the way many of us think about cooperation. Our echo chambers are now larger, more rich and diverse. Let's use such great intellectual stimuli to go further and trickle down these ideas to the grassroots, to the level of electoral politics or, simply put, to the level of the layperson.

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Ubuntu, a planetary contract and the thigi tree

Elizabeth Sidiropoulos
Elizabeth Sidiropoulos is the chief executive of the South African Institute of
International Affairs, based in Johannesburg. Her association with Dirk Messner
goes back some 15 years. She met him first in 2006, at the first meeting of
potential partners of the Managing Global Governance (MGG) programme of
the German Development Institute, which was prescient about the necessity to
develop linkages and relationship across seeming divides – between North and
South – as the world's transnational challenges grew, became more acute and
required collective solutions and actions. This network of Southern and Northern
organisations has now developed a momentum of its own and can play a role in
developing shared values, born of trust and understanding of the so-called 'other',
which is so vital for overcoming the problems that face humanity and the planet
today.

There is a well-known African story that tells of an anthropologist who was doing field research in a remote African village. The children in the village used to follow him around; their elders had told them that the anthropologist was a clever man who had come from a big city far away to learn about their culture and their community. The children were intrigued by him. One day the anthropologist suggested to the children that they play a game. He filled a basket with some 'goodies' he had brought from the city (sweets and biscuits), placed it under a tree a few meters from where he and the children were sitting and told them that whoever got to the basket first would get all the 'goodies' as a prize. He expected the children to all run as fast as they could to reach the basket first. Instead, something else happened. The children all held hands, walked together to the tree and proceeded to share the contents of the basket. The anthropologist was stunned and said: "Why did you do this when one of you could have taken all the goodies in the basket?" One of the children replied: "How can one of us be happy when all the rest are sad?" That day the anthropologist learned something new about the community – the philosophy of ubuntu.

Ubuntu is a Southern African word that means "I am because we are." It is rooted in humanist African philosophy that recognises that humanity is bound together and that we are all defined not by our individualism but

by our relationship to the community. It means that we have a responsibility to others rather than only to ourselves.

The concept of ubuntu is not limited to people. One of the most prominent scholars of ubuntu, James Ogude, notes:

> That principle extends even to animals because the ubuntu cosmology, especially among the Bantus, is about the totality of the universe. You have a responsibility to the plants around you. You have a responsibility to the animals. You have a responsibility to the ancestors, and, by extension, to the Supreme Being. So, there's that connection, that when you do anything, whether or not it's a form of sacrifice, it is about creating harmony within that hierarchy of human beings, ancestors, the environment. Many people don't realize how deeply revered is the environment in ubuntu; that's why, in many African communities, you sacrifice to the lakes. (Ogude, Paulson & Strainchamps, 2019)

Another scholar, Edwin Etieyibo (2017: 646), argues that even if one considers ubuntu to be an anthropocentric ethic, the "values that flow from it foster a better attitude towards the environment and protect it much more robustly than those that flow from the present dominant 'Western' individualistic system of capitalism".

The harmony that Ogude refers to above should be the overarching goal of a new set of universal ethics for the global common good. They need to address two fundamental disharmonies: first, within society (inequality, poverty, social injustice); and second, between society and the planet. Agenda 2030 recognises these interlinkages in the articulation of its 17 goals. What is an essential corollary, however, is a universal compact that articulates the global values and norms that would be necessary for the achievement of these interlinkages.

Wangari Maathai, African Noble laureate and founder of the Green Belt Movement in Kenya, was a long-time advocate of this inter-relationship. Tackling developmental challenges required a holistic economic, political and environmental approach. Moreover, for Maathai protecting the environment was intimately connected with advancing social justice (Gonzalez, Mutua & Wolbert, 2018).

Ethics to steer us from the precipice

All of these elements strike at the heart of how global economics and politics are conceived. While there are many international aspirational documents about rights, a new ethical recommitment is required, which

is driven from the bottom up rather than from top down – a new Magna Carta that is more inclusive than the original one adopted in England in 1215 and goes beyond regulating relations between the 'sovereign' and the people, now considering the relationship between the people and the planet.

A new set of shared norms and values has to tackle the impact of the dominant 'philosophy' that globalisation has come to represent: greater private wealth accumulation encapsulated in the rise of the global consumerist society, where the public good often plays second fiddle to entrenched interests. There needs to be a recalibration of what constitutes 'sufficient wealth' and at what cost.

The last two hundred years have been driven by huge scientific progress which has seen standards of living rise significantly – people have better health and education, clean water and sanitation and greater opportunities. But the other side of the 'progress-and-growth' coin has been a rising inequality and pockets of deep poverty amid great opulence. Progress at large has also come at significant cost to what is a finite resource – the planet. And paradoxically, science's greatest achievements may be the catalyst for humanity's own demise. The climate emergency and the COVID-19 pandemic illustrate the consequences of scientific progress when the concomitant progress in institutional and social structures to regulate innovation and to redistribute the economic benefits and knowledge equally across the world is absent and imperatives of safeguarding the environment are missing.

Ironically, humanity is able to see the potential destruction and recognise the need for greater transnational cooperation for the common good. Unfortunately, political leaders around the world still find arguments for continuing to kick the can down the road.

So can ubuntu provide a unifying framework for a universal set of ethics to enable humanity to overcome its existential crisis and cooperate for the global common good? Ubuntu is a concept that has universal relevance because most cultures have, at one time or another, told similar stories and espoused similar values: inclusion, consideration for others, fairness and mutual support; it has relevance because many cultures, though having put humans at the centre of their ethical system, are ignoring the planet. Above all ubuntu recognises that, if each of us acts for our own self-interest (where we consider ourselves as lords of this planet rather than it stewards), there may be short-term benefits but longer-term distress. Ubuntu's ethics are what should drive our commitment to realise Agenda 2030.

The challenge to achieving Agenda 2030 is balancing the need to continue improving the lives of people, especially in the Global South, while

not destroying the planet; mobilising science for advancement while not losing the essence of what it means to be human; and retaining cultural diversity while building a universal social contract that reflects our collective responsibilities to each other and to the planet.

Attaining the SDGs requires a rewiring of what drives the global economy and what values designate success. More specifically, we need to produce differently, consume differently and distribute differently.

Produce differently: The global economy is driven by fossil fuels. The developing world cannot use the same trajectory of development that propelled Great Britain, Europe or America from the 18th century onwards. But citizens of the Global South should have the right to achieve living standards that ensure dignity and freedom from want. Achievement of this requires a global effort to transform the drivers of the current economic system, not just the actions of individual states and governments.

Consume differently: Our economic model is premised on ever-increasing consumption. As more people are brought out of poverty, such consumption will grow! The solution is not for poor people to stay in poverty. The solution is for us all to consume differently. This will require reduced consumption in the rich world. For example, Italy's population of 60 million consumes almost twice as much as do Africa's one billion people. Or put differently, average per capita consumption rates of resources and average per capita production rates of wastes like plastics and GHGs are about 32 times higher in the first world than in the developing world (Diamond, 2019: 410–411).

In both these cases, the concept of the *circular economy* is important because it advocates for an economic system that aims to eliminate waste and re-use resources. It involves sharing, reusing, repairing, refurbishing and *recycling* existing materials and products so that the products' life cycle is extended.

Distribute differently: Our current economic model has enabled millions of people to emerge from poverty in the developing world. Nevertheless, while poverty levels have been dropping, Africa remains the continent with the largest concentration of low-income and fragile countries. Hyper-globalisation has also made inequalities much more acute both within and across countries. The most recent part of this debate relates to the way in which big tech is able to harvest our data, build up their e-commerce portfolios, earn huge profits without taxes accruing to developing countries or people being able to benefit from the utilisation of their data.

In its 2020 report entitled "Time to Care", Oxfam reported that the world's 2,153 billionaires had more wealth than the 4.6 billion people who make up 60% of the global population (Lawson et al., 2020). Its

2021 report found that the world's 1,000 richest people recouped their COVID-19 losses within nine months, while the world's poorest would take more than a decade to recover from the pandemic's economic effects (Berkhout et al. 2021).

The norms that underpin rules that facilitate such disparities help to privatise profit while socialising social and ecological costs and inequalities.

Towards a universal social and ecological contract

So what would an ubuntu-infused universal social and ecological contract encompass? Such a contract would need to be based on a set of ethics that are not so much new as they are reclaimed. This international contract would be driven by the values of inclusiveness, human dignity, transparency, solidarity and burden-sharing, and respect for nature. In so doing we would need to reconceptualise the norms that govern much of the current international rules.

It would need to reconstitute the relationship of trust between the governors and the governed and to establish a new commitment of responsibility between human society and the ecosystem.

In the first case, the contract should set out the governors' commitment to eliminate what Amartya Sen calls 'remediable injustices'. Redressing poverty and social dignity would be its two fundamental pillars. Without this, faith and trust in government and international institutions cannot be restored. Globalisation in its current form is increasingly the catalyst for what Nadav Eyal calls "Revolt" in his recent book of the same name. If the 'remediable injustices' are ignored in practice (if not in rhetoric), a global insurrection might not be avoidable. This is why another element of this social contract must be amplifying the voices of communities and ordinary people in responses to the social and ecological challenges. This amplification requires meaningful participation that is channelled and is listened to rather than one that is only in the streets. Failing this, the second element of the contract – the ecological one – may have limited resonance, especially among communities that face daily deprivation. Ecological sustainability has to be linked to equity and justice.

In both legs of the compact, all the stakeholders carry responsibilities and a set of reciprocal obligations – governments, international institutions, business, organised civil society and ordinary citizens. For example, big corporations have to adopt a set of values that recognises their role is not to maximise profits but to contribute to the public good. Corporations can be profitable and ensure they pay their societal share and avoid social

or environmental harm. Ordinary citizens can lead by limiting excessive consumption and taking individual actions that contribute to the re-use of resources. This is the philosophy of ubuntu.

In her work with the Green Belt Movement, Maathai recognised the importance of rituals in 'enhancing the meaning of our actions' (Gonzalez et al, 2018). For example, when trees were planted, the community would recite a statement proclaiming their commitment to protect the environment (Gonzalez et al, 2018). She also held that it was through discussion and analysis that problems could be understood better and solutions devised, not at the top of the power hierarchy but from the grassroots upwards. In developing such a global contract, both ritual and dialogue need to be instruments for building transnational commitment and action to global challenges.

Societies today are polarised and enraged, exacerbated by ubiquitous communication and social media, at a time when transnational cooperation is essential for our very survival as a species. It is thus appropriate to end with another relational story that shows the harmony that an equilibrium with the natural world can bring. In her Nobel Peace Prize acceptance speech, Maathai recounted a tradition from her native Kenya. "The elders of the Kikuyu carried a staff from the thigi tree that, when placed between two disputing sides, caused them to stop fighting and seek reconciliation. […] Such practices are part of an extensive cultural heritage, which contributes both to the conservation of habitats and to cultures of peace." Ubuntu – I am because we are!

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Metamorphosis of the technosphere.
A tribute to Dirk Messner, intellectual, politician and friend

Jürgen Renn
Jürgen Renn is director at the Max Planck Institute for the History of Science in Berlin and honorary professor at Humboldt-Universität and at the Freie Universität Berlin. His research focuses on structural changes in systems of knowledge with the aim to develop a theoretical understanding of knowledge evolution, taking into account its epistemic, social and material dimensions. He first encountered Dirk Messner as one of the Chairs of the newly created Science Platform for Sustainability ("Wissenschaftsplattform Nachhaltigkeit"), a unique interface between science, civil society and government. Deeply impressed by his eloquence, intellectual sovereignty and diplomatic tact, which contributed much to the success of this institutional experiment, he began to delve into Messner's work and became even more impressed by the scope of his interests and activities.

1. Global co-operation in the Anthropocene

The work of Dirk Messner covers a broad range of themes, from the challenges of global cooperation to the digital transformation and the future of energy provision to the climate crisis, but his contributions are all characterised by a strong will to address fundamental problems of humanity by drawing on all available intellectual resources and by focusing on what can be done concretely to solve them. 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.

In my contribution to this Festschrift I follow up on some of his thoughts on human cooperation in the age of the Anthropocene. The stimuli his work holds for future research in this field, for instance about the behavioural roots of global cooperation, are so rich that I can only touch upon one point that I find particularly remarkable: the bridge that Dirk and his collaborators have constructed between the findings of developmental psychology, evolutionary cultural history and the study of international relations (Messner & Weinlich 2016).

In more recent studies Dirk has squarely addressed the challenges of the Anthropocene and what they imply for the governance of global commons

and for the future of urbanism and mobility, for example. In this paper, I discuss a key analytical tool for understanding our predicament in the Anthropocene, the concept of the technosphere. It mostly explores theoretical issues which are, however, as I believe, relevant also for the questions close to Dirk's political concerns about global cooperation.

I want to start from the perspective of Earth system science and then suggest how it may be reconciled and more strongly integrated with approaches rooted in the humanities and the social sciences. In particular, I want to take up the question of how the human-constructed technosphere can be conceptualised not as a technocratic alternative to politics but as a framework in which global cooperation and politics can become a meaningful answer to the challenges with which the Anthropocene confronts us.

2. Rules for the technosphere

The notion of Anthropocene emerged in outcry against an inadequate description of the geohistorical state of the planet, inadequate because it did not acknowledge the thorough modification of the planet through human industrial activities. Taken literally, the Anthropocene is a technical term that focuses on a specification of geological epochs and eras. From an Earth system perspective, however, the Anthropocene is more than a geological sequence: it is a shift in planetary affairs; it designates, in other words, the planet's new state.

Contemplating this new planetary state and its relation to human powers, a number of scientists have assessed this development to be akin to the introduction of a qualitatively new Earth sphere, one that joins the other natural spheres: the biosphere, hydrosphere, lithosphere and atmosphere. Human activities and their impact can no longer be seen to simply extend from biological evolution, as a kind of 'biology with brains', since they go beyond the biospheric state of the planet. Proposals to name this new sphere range from 'anthroposphere' to 'noosphere' to 'technosphere'. While the label may seem to be a simple matter of convention, it is central in characterising the nature and dynamics of the changes induced by humans. What the term 'Anthropocene' does for stratigraphy, the study of sedimentary layers, a new Earth sphere does for Earth system science: it deals with the human impact on the planet as on a par with other geological forces, including that of the biosphere itself.

Recently, the notion of technosphere has gained prevalence over alternative proposals, and for good reason. It emphasises the human-made

232

fabric of industrial technologies, infrastructures, harnessed energy sources, social institutions and powers, and knowledge and belief systems. But what exactly makes this wide-ranging set of technologies and techniques a 'technosphere', and what are its defining features? In a trail-blazing paper, the Earth scientist Peter Haff claimed in 2014 that the technosphere operates quasi-autonomously, and he summarised these autonomous dynamics in six rules. The rules of "inaccessibility" and "impotence", for instance, state that "large components of the technosphere cannot directly influence the behaviour of their human parts" and that "most humans cannot significantly influence the behaviour of large technological systems." The rule of "provision" states that "the technosphere must provide an environment for most humans conducive to their survival and function" (Haff 2014).

Haff arrived at these characterisations, which shimmer between resignation and a residual trust into some bleak form of salvation, by mimicking a method of statistical physics. The method adopts an intermediate level of resolution for a 'coarse-grained' description of a system in which only collective behaviour matters, such as in describing highway traffic by considering only the density of cars on the road but not the individual cars. In more recent writings, Haff emphasises the challenges posed by ongoing technological acceleration and arrives at an even more sceptical assessment of our planetary predicament – one that would spell disaster unless we are able to slow down this accelerated development (Haff & Renn 2019).

But how realistic is this assessment and how useful is the underlying description of the technosphere? To what extent does this technosphere concept prolong the problematic conception of technology as a device used to elevate oneself above and separate from nature, imposing its own logic on it, rather than considering how technology stands as an intermediary between humans and nature and, in that way, as something that occupies a flexible and negotiable position between them? The former position pervades both affirmative and critical assessments of technology from Plato to Heidegger, whereas the latter has been emphasised, within the European tradition, by thinkers such as Hegel and Marx, although it goes back to a much older and broader tradition. In this essay, I would like to briefly comment on these conceptual demarcations of the technosphere's role, given its significance for our understanding of the Anthropocene and for our future prospects as a species confined, for the time being, to a single planet.

3. The technosphere as a borderline problem

In earlier writings on this issue I suggested an alternative concept for the new human-made Earth sphere, the 'ergosphere' (Renn 2020: ch. 16). I conceived of it as a sphere of human 'work' (Greek ergon) characterised by the transformative power of human labour, both with regard to the global environment and humanity itself. It encompasses the cumulative effects of human interventions, including technology and infrastructures, but also the impact of works of science and art, all of which express human needs, desires, fears, hopes and insights. In contrast to Haff's claim that the technosphere is essentially autonomous and preserves itself like some kind of superorganism, I emphasised how the ergosphere is open to different ways of shaping the relationship between humanity and its planetary home. The ergosphere concept thus pays tribute to the transformative power of human labour and offers more room for taking into account processes and practices negotiated politically and scientifically. In that sense, it does justice to Dirk's view that global cooperation may suffer from blockades but is not impossible on principle, for instance behavioural, grounds.

It is true that the development of technology is accelerating, with consequences that are sometimes unforeseeable and often uncontrollable. There are also planetary limits that we should avoid overstepping if we want to avoid risking the collapse of societies. And there is the immense heterogeneity of humanity and its asymmetries of power, which does, as Haff writes, make it difficult for most humans to influence the behaviour of large systems. He is also right when he claims that the technosphere, as a complex regulatory system, is self-organising. Its self-reproduction by the renewal or exchange of its human and technological components is controlled by structures – societal or technological –, which tend to persist through such changes.

But we should not forget that these structures may change gradually in an evolutionary process or, under certain circumstances, even break down. As a consequence, the resilience and long-term stability of the technosphere is not guaranteed, just because it can self-organise. Instead it seems to me that the future is not predetermined: the new Earth sphere has some plasticity, and it can even be shaped by our interventions to become favourable to the flourishing of human cultures and also to global cooperation – provided that we get a better handle on its dynamics.

The concept of technosphere turns out to be widely used, without any strict adherence to Haff's six rules, implying that a largely autonomous system is governing us, with little chance of being governed by us. This leaves room for, and perhaps even necessitates, a new definition of the

technosphere that does justice to the actual use of this term, but also to the insights of history, political science and anthropology that I have attempted to capture with the notion of ergosphere.

Rather than deriving the properties of the technosphere from a physics viewpoint, I propose to consider it instead as a borderline problem of different perspectives and disciplines.[1] By this I mean that the technosphere can only be adequately described by taking into account and bringing together different systems of knowledge, just as one can only understand humans when considering them as biological, cultural, social and indeed technological beings. In the same way that digital computing can only be understood as the result of addressing borderline problems across different fields (e.g. solid-state physics, mathematics, information science), the concept of the technosphere belongs, in equal measure, to diverse fields of knowledge whose methods need to be brought together to really appreciate it as a borderline problem.

This integration may come with major repercussions for the different frameworks involved in the process, because borderline problems require different perspectives to be related to each other, not in an abstract or meta-theoretical way but in terms of a concrete challenge. This is clearly the case for the technosphere. As an Earth sphere it falls under the domain of the Earth system sciences, but as a human construct it also falls under that of the social and human sciences. What, then, are the consequences for our definition and understanding of the technosphere?

Before coming to my preliminary proposal for rules to define the technosphere as a borderline problem of the natural and the human sciences, which include the social and behavioural sciences as well as the humanities, I need to address a key issue for such an integrated perspective, one that brings together quite different approaches and attitudes. Let me illustrate my point by referring to what Dirk and his collaborators have called the 'cooperation hexagon', describing basic enablers of cooperation, such as reciprocity, trust, communication, reputation, fairness, enforcement and we-identity (Messner, Guarín & Haun 2016).

The hexagon spells out important preconditions for successful co-operation that should be applicable, at least in principle, not only to small groups and societies but also to global cooperation. From this perspective it becomes legitimate – and this is the highly original thought of Dirk and his collaborators – to ask whether and to which extent failing international co-operation may be due to an underprovision of the prerequisites of

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1 For a discussion of the notion of borderline problems, see Renn (2020: 81).

cooperative behaviour at the level at which this co-operation actually takes place.

So far, the analysis of these prerequisites has largely relied on recent results of the behavioural and social sciences which need to be extrapolated to the political realm. The hexagon thus defines co-operation as a borderline problem of the behavioural and social sciences. But many of the underlying conflictual issues have actually been dealt with also by the humanities which offer a rich treasure of human experiences not limited to the focus of the behavioural sciences on human behaviour as something to be observed in current practices or laboratory settings. Adequately framing cooperation as a borderline problem thus requires an even larger perspective that also takes these historical experiences into account, and this is, as I understand, what Dirk and his colleagues have in mind.

4. Which narratives count?

History often comes in the form of narratives. But which narratives count and can help us to address this challenge? It is, in my view, not just a matter of taking the insights of the Earth sciences seriously. The challenge is actually larger, as we need to incorporate the multifaceted experience of our species into our stories about an altered planet, including the conditions of its planetary existence and coexistence with other species. In telling evocative stories about existential threats to these conditions, we should neither belittle them nor reinforce the ever-present tendencies for self-destruction, which may even present themselves as tempting escape routes from impending disasters.

Narratives are forms of linearising complex networks of relations. Building networks is itself an emancipatory act because it relates different origin powers to each other, each assuming exclusive rights, and offers the chance to find a balance between them. As the theologian Paul Tillich pointedly observed, origin myths answer the question of where we came from by referring to the authority of such origin powers.[2] They claim that what came from the origin must inevitably return to it, be it the social group, soil and blood, or 'Nature'. Origin myths are at the root of all conservative and romantic thinking in politics, Tillich writes.

But human beings are capable of breaking the biological cycle of birth and death by creating their own cultural reality, in which the origin

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2 See, also for the following, Tillich (1977).

powers threatening to devour us can be withstood, for instance by bringing them into a balance, but for which we then must take responsibility. Hesiod's mythology, which created the Greek polytheistic pantheon, is an example of such a balancing act, constructing a divine aristocratic model society from a conflicted human history encoded in competing origin myths. The form that the narrative linearisation of networks takes is evidently not indifferent: it may reveal or hide conflicts and suggest different modes of dealing with them.

In addressing the Anthropocene in our narratives, we should be wary of reproducing archaic forms of thinking, giving in to temptations presented by origin powers. We should not only avoid setting our hopes on compulsive forms of stabilisation, for example a technocratic dominance of nature and society. We should also resist the temptation of 'subject swapping' (Heinrich 2007), that is, ascribing subject qualities and agency to some larger, quasi-divine power – be it the 'Fate', the 'Being', 'Nature' or 'Mother Earth' herself –, on which one can then seemingly rely, even if these larger powers impose sacrifices or even disasters and subsequently promise rebirth, as origin powers do. From evolutionary theory, anthropology, psychoanalysis, complex system analysis and rich historical experience, we know that these forms of thought will never work, because, according to Freud, the repressed always returns, eventually in an even more devastating form. Only by substantially addressing conflicts, rather than repressing them, will we have the means to develop a perspective that is adequate to address our predicament in the Anthropocene.

5. Toward a new knowledge economy

In ancient urban societies, the evolution of knowledge as an aspect of cultural evolution gave rise to science that has – since the so-called Scientific Revolution of early modernity – turned from a marginal activity into an essential prerequisite of cultural evolution. Just as cultural evolution eventually developed from a marginal aspect of biological evolution into an evolutionary process in its own right, the growing integration of science into economic practices has given rise to new dynamics with planetary consequences, particularly since the use of fossil fuels in the Industrial Revolution.

The combination of economic, technological and scientific developments may be characterised as an even further accelerated and novel form of cultural evolution: as an 'epistemic evolution'. Just as biological evolution has been shaped – at least since the Neolithic Revolution – by cultural

evolution, cultural evolution is becoming ever more dependent on science and technology in an accelerated process that is driven by feedback loops between the material economy and the economy of knowledge.

The natural and the human sciences have been catalysts of the self-accelerating dynamics of cultural and epistemic evolution. But how can they be part of the self-analytic process of our species as well? This is ultimately the question of whether or not we can extract ourselves from these destructive dynamics that risk crossing planetary boundaries. How can the sciences contribute to the critical knowledge needed to engender the necessary transformation processes? Given that we are now dealing with a coupled human-Earth or rather techno-Earth system, it will not suffice to simply include scientific insights into the new narratives of the Anthropocene or to strengthen the pluralism of the many perspectives characteristic of human cultural evolution.

What, in my view, we need instead is a new operating system or, to put it differently, a new societal knowledge economy for generating, sharing and implementing relevant knowledge. This new knowledge economy should help to bring the riches of this pluralism to bear on the array of current challenges by integrating knowledge within and outside of academia, by strengthening the relationship between natural and social sciences and the humanities and by encouraging alliances between the sciences and the arts, thus mobilising their resistance power against the totalising dynamics of the technosphere. We need more system thinking, but we need also more transformation and orientation knowledge that allow us to realistically assess our situation and act accordingly. In a recent joint paper with Dirk, we explored these ideas with regard to the critical role of the interface between science and society for a sustainable future (Messner & Renn, forthcoming 2021).

6. *The technosphere as a challenging object of geoanthropology*

One important step on the way to such a new knowledge economy is to integrate the insights of the sciences and the humanities in the understanding of the Anthropocene. The technosphere is a new Earth sphere, but it is also a product of evolution, firstly of biological evolution, then of cultural and epistemic evolution. Like the biosphere, the technosphere represents a borderline problem to which fundamentally different perspectives apply, in particular those of Earth system science and those rooted in evolutionary theory. Such borderline problems have often been the starting point of major conceptual upheavals or even scientific revolutions,

238

as when borderline problems within classical physics engendered the revolutions of modern physics or when borderline problems between biology and natural history triggered the Darwinian synthesis.[3] The diagram illustrates the co-evolutionary dynamics of the techno-Earth system with the technosphere that has emerged from human niche construction and now represents a novel Earth sphere on a par with other Earth spheres.

I believe that we need a new transdisciplinary, transformative science in order to understand the techno-Earth system from an integrative perspective. Just as biogeochemistry studies the biosphere as a borderline problem of chemistry, biology and the synthesising qualities of the Earth system sciences, this new science of 'geoanthropology' should study the technosphere as part of the techno-Earth system by integrating different disciplinary perspectives.

Geoanthropology responds to the challenge of reorienting research to a systemic understanding of the technosphere by merging an updated version of Earth system research (the 'geo' including the 'bio') with cultural theories and histories of socio-material, energetic and informational flows (the 'Anthropos') to form a new discipline (the 'logos'). Cast into a research framework that studies the complex co-evolution of natural and human systems, geoanthropology aims to investigate the concrete human-created conditions of ongoing Earth system and biosphere destabilisation, the limits of socioecological carrying capacities, possible system thresholds and collapses, tipping elements and points of no return, and necessary socio-economic and cultural reaction times.

Finally, against this background, I want to come back to the task of defining the technosphere, not as a result of coarse-graining, which essentially reduces it to an object of physics, but as a borderline problem of the various disciplinary perspectives concerned with the multiple dynamics to which it is subjected – and thus as the challenging object of the new science of geoanthropology. Following the illuminating example of Peter Haff, I will formulate six rules that are intended to bring out these multiple dynamics:

1) The rule of the spheres: The technosphere is an Earth sphere in its own right and has global material and energetic dimensions comparable to those of other Earth system spheres.

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3 For historical discussion, see Renn (2020: 124–127).

2) The rule of entanglement: The technosphere is entangled with other Earth spheres, shaping the dynamics of a composite techno-Earth system.
3) The rule of cultural evolution: The technosphere is subject to an interplay of niche construction and cultural evolution.
4) The rule of co-evolution: The evolution of the technosphere and the evolution of the biosphere condition each other.
5) The rule of expansion: The expansive dynamics of the technosphere as an evolving complex regulatory system with virtually unlimited energy resources risk to destabilise the techno-Earth system by transgressing planetary boundaries.
6) The rule of epistemic evolution: The technosphere is subject to an interplay of global changes and knowledge evolution involving an ever-greater dependence of human societies on science and technology, a dependence which contributes to its accelerated expansion but is also potentially capable of ensuring favourable conditions for the flourishing of human cultures.

The first rule defines the technosphere as a separate Earth sphere, without pretending to be a homeostatically stable system; the other five rules specify different types of dynamics that shape its evolution as a hybrid human/non-human system. The second rule states that the technosphere is subject to an overall Earth system dynamics, for example to continued human-induced climate change that may drive the system into a hothouse state or otherwise lead to the crossing of planetary boundaries. The third rule describes the continued dependency of the technosphere on the dynamics of cultural evolution, which involves niche construction as well as the cultural, social and economic changes interacting with it.

The fourth rule stresses the interaction between technosphere and biosphere in the sense that humans, their domesticated plants and animals, their ecologies, microbiomes, diseases and so forth are, at once, components of both the technosphere and the biosphere and are thus still subject to the biosphere's laws and evolutionary dynamics. The fifth rule addresses the expansive tendencies of the technosphere. These tendencies are due to various mechanisms, such as the feedback loops inherent in cultural evolution, population growth and access to virtually unlimited energy resources, first by tapping into fossil fuels, then by using nuclear and renewable energies. The sixth rule stresses the importance of knowledge evolution for the dynamics of the technosphere. It specifies the deeply ambivalent role of knowledge as a catalyst of its expansion and as a potential for mitigating and controlling its dynamics. Epistemic evolution may even

240

present the possibility of a veritable metamorphosis of the technosphere into an ergosphere in which humans can still recognise themselves.

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