BRIEF – May 2018

Towards a virtual collaboration platform for inter- and transdisciplinary research in support of international environmental policy that puts people at the focus: a new role for social sciences and the humanities

Dr Mariam Akhtar-Schuster and Dr Christiane Textor – DLR Project Management Agency, Bonn/Berlin, Germany
Prof Heike Egner – Alpen-Adria-Universität Klagenfurt, Austria
PD Dr Jens Jetzkowitz – Helmut Schmidt Universität Hamburg, Germany
Dr Martin Kowarsch – Mercator Research Institute on Global Commons and Climate Change, Berlin, Germany
Prof Josef Settele – Helmholtz Centre for Environmental Research – UFZ, Halle, Germany

Challenging traditional research communities: A need for inter- and transdisciplinary research in support of international environmental policy

In recent decades natural sciences have identified human-caused environmental risks across scales that threaten natural systems, livelihoods, human well-being and development. Recent landmark UN agreements such as the *Sustainable Development Goals* (SDGs), the *Paris Agreement*, and the *Sendai Framework for Disaster Risk Reduction* are political responses aiming at mitigating risks and fostering development.

International scientific assessments at the science-policy interface, which have been undertaken for example by the *Intergovernmental Panel on Climate Change* (IPCC), have played an important role in the establishment of these recent UN agreements. In the past, such international scientific assessments have been led by natural sciences as well as technical sciences and economics (see **Figure 1**). Today, there is a growing recognition in international environmental fora that social sciences and humanities (SSH) are required to inform environmental policy. SSH can enable the implementation of UN agreements, because they can contribute to the identification of relevant, realistic and feasible solutions for sustainable development, human wellbeing and human security.

Nowadays society takes a much more active role in designing political decisions than in the past. The perspective on societies worldwide is increasingly transforming to highly complex structures and processes, which also shape science-based solutions for sustainable development. SSH can objectify complexity in order to promote awareness of, involvement in, and consensus-finding for policies and actions. It is essential to systemise such knowledge and thereby foster learning in transformations towards sustainability. This knowledge also provides a context to involve non-academic forms of knowledge in environmental policy.

DLR Projektträger

Current situation – Fragmented research communities

SSH as well as other forms of knowledge play an increasingly important role in international scientific assessments such as the IPCC, and particularly in the assessments of the *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (IPBES), and the *Science-Policy Interface* of the United Nations Convention to Combat Desertification (UNCCD). Generally, these assessments follow a specific understanding of science. However, with the participation of SSH it becomes evident that scientific communities with various approaches to scientific research co-exist. These are characterized by different epistemologies, i.e., specific definitions and theories of knowledge, 'thought styles' and logical discourse cultures.
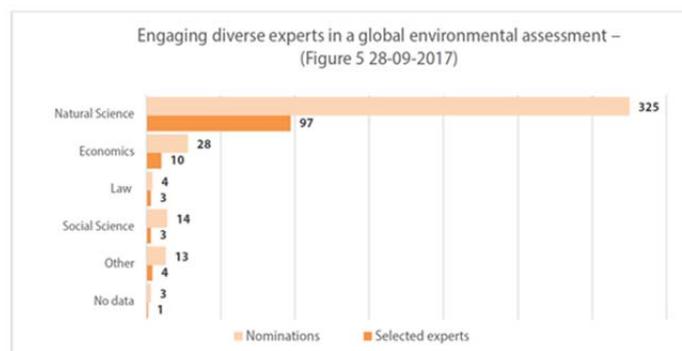

Figure 1. Disciplinary balance in the IPBES scoping of regional assessments.
(Source: Timpte, M. et al. 2017)[1]

Natural sciences, social sciences and humanities are characterised by their specific subject areas. This has driven the development of different scientific terminologies, concepts and methodologies. These disciplinary traditions presuppose different images of the world, of nature, and of humanity. Different presuppositions and perceptions of a scientific problem therefore lead to different scientific paradigms and schools of thought.

It is worth noting these different epistemologies, since they indicate the challenges for collaboration within science-policy interfaces. While the resulting diversity of conceptual frameworks and stances is an integral part of the scientific landscape, a simple integration of SSH in the existing approaches of global environmental assessments is not achievable.

The way forward – Establishing a virtual collaboration platform for inter- and transdisciplinary research

The transformation of societies also requires a trans-formation of the way scientists with different epi-stemologies collaborate. The formation of an inter- and transdisciplinary research community needs space for experimentation and innovative collaboration techniques in order to develop and promote the required new scientific skills.

We propose to establish a new virtual platform for inter- and transdisciplinary research to collaborate in partnership of equals. This virtual collaboration plat-form will enable different institutions from academia, other knowledge systems and practices, also including the private sector and decision-making arenas, to jointly coordinate heterogeneous consortia that analyse emerging complex research questions targeting sustainable development for the benefit of society.[2]

---

[1] Timpte, M., Montana, J., Reuter, K., Borie, M. and Apkes. J. 2017. Engaging diverse experts in a global environmental assessment: participation in the first work programme of IPBES and opportunities for improvement, Innovation: The European Journal of Social Science Research, 31:sup1, pages 15-S37.
https://www.tandfonline.com/doi/full/10.1080/13511610.2017.1383149

[2] See also Vaegs, T., Jooß, C., Leisten, I., Richert, A., Jeschke S. 2014. A Virtual Collaboration Platform to Enhance Scientific Performance within Transdisciplinary Research Networks. In: Jeschke S., Isenhardt I., Hees F., Henning K. (eds) Automation, Communication and Cybernetics in Science and Engineering 2013/2014. Springer, Cham
https://link.springer.com/chapter/10.1007%2F978-3-319-08816-7_55#citeas

Many scientists have already gained experience in collaborating with other disciplines. Such 'hybrids beings' can support the launch of the virtual platform, which should enable continuous learning, benefiting from the diversity of epistemologies.

The virtual collaboration platform for inter- and transdisciplinary research…

- ✓ **… will bring together relevant players and ensure an open and long-lasting dialogue between and beyond scientific disciplines to strengthen collaboration focused on tailoring demand-driven solutions** – The platform will promote the understanding of methods (including taxonomy and concepts), languages, definition and agendas used by different disciplines, and continuously explore the need to involve other knowledge dimensions, such as religious or spiritual aspects. However, the virtual platform will not be a means for unifying the inherent heterogeneity of scientific stances.
- ✓ **… will promote knowledge generation towards science-based solutions to inform environmental policy and strategic research agendas** – The work of the platform will be shaped according to how different epistemologies can effectively and efficiently perform together to address emerging policy needs for the implementation particularly of national sustainable development plans. It will ensure greater relevance and impact of research through coordinating joint actions. It will systematically explore practical policy pathways and challenge unreflected policy claims and unrealistic development visions that might have undesirable outcomes.
- ✓ **… will provide science-based information for the implementation of recent UN agreements** – Recent UN agreements, e.g. the SDGs or the Paris Agreement, refer to goals, objectives or targets. The platform's work will include the identification or development of science-based criteria or indicators that can serve as tools for measuring and monitoring progress towards the targets or for choosing the best possible policy options in the operationalisation of a given target. The virtual collaboration platform will address society as an object of solution-oriented research but more importantly involve society as a subject in such research. It will allow the consideration of alternative models of social change, and at the same time raise public awareness about the impacts of such models.

The results emerging from the virtual collaboration platform for inter- and transdisciplinary research will enable the provision of timely and relevant information to feed into the assessments of the IPCC, the IPBES as well as the Science-Policy Interface of the UNCCD.

To operationalise the platform, we propose the launch of a pilot case study. This approach will help identifying the forms and functions in practice and thus avoid time-consuming and costly failures that could emerge from theoretical assumptions.

Pilot case study: research to support the development of evidence-based transformation of urban societies

Official SDG 11 Icon © UN

It is projected that by 2030 more than half the world's population will have moved to cities in search of a better life. Currently, this movement of people is rapidly transforming societies, especially in Africa and Asia, from rural ways of life to urban lifestyles. Rapid urbanisation is also posing immense challenges on existing urban infrastructure and mobility. Moreover, it is stimulating the increasing and usually uncoordinated compaction of living space and other infrastructure in conurbations, and at the same time leading to the uncontrolled expansion of the geographic boundaries of cities. These processes will affect any instruments developed to attain the SDGs, in particular SDG 11 addressing "sustainable cities and communities".

Inter- and transdisciplinary research will play a key role in informing policy about sustainable development options for cities and communities in sustainably managed natural environments. Initial research questions for the virtual collaboration platform for transdisciplinary research could include the following aspects:

- What measures are needed to make cities increasingly *"inclusive, safe, resilient and sustainable"* (SDG 11)?
- How can cities sustain and improve livelihoods and human wellbeing for all sections of society, and at the same time reduce negative impacts on their biophysical environment?
- How can cities reduce their carbon foot print and other pollution and ensure access to basic services e.g. energy, housing, and transportation?
- How can human movements be regulated to, in and from urban environments, thereby safeguarding the natural environment and in consideration of climate change impacts?
- How can scientific debates on *sustainable cities and communities* be designed to respond in a timely manner to inform emerging policy actions for transformation towards low-carbon, and soil-, water- and biodiversity-friendly societies in cities?
- How can SSH best contribute to the inter- and transdisciplinary identification of key policy and research questions on urban management?
- How can collaborative assessment processes on urban management best include multiple viewpoints and stakeholders to facilitate science-informed learning processes about the implications of alternative policy pathways and options?

Agatare – a densely populated district of Kigali
© A. Koch-Kraft

For more information please contact:

Dr Mariam Akhtar-Schuster
Mariam.Akhtar-Schuster@dlr.de

Dr Christiane Textor
Christiane.Textor@dlr.de

DLR Project Management Agency
Heinrich-Konen-Str. 1
53227 Bonn, Germany
www.dlr-pt.de

DLR Projektträger

---

[3] https://www.dknsummit18.org/