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Building Bridges to the Future

Bonn – the capital of climate negotiations

Prof. Anna-Katharina Hornidge of the German Development Institute (DIE) draws on a systems-theory perspective to show how politicians, voters, companies and countries can be addressed to take climate change and environmental challenges of the future seriously.

Science has provided many practical solutions in human history – what role does it have to play in solving today's biggest challenges, e.g. climate change?

ANNA-KATHARINA HORNIDGE: If you look at the history of the Western concept of science – spreading from the Enlightenment period in Europe and North America and slowly all over the globe – we can see that science has acted, and still acts, as the engine of economic and social development. It facilitates technological development, which translates into economic growth. If we compare the GDP of countries with their investment in science, research and education, we see that the societies that have mature science systems are the ones that have grown economically the most rapidly and continuously. With a certain simplification, there is an overall correlation between the development of science systems, and the size of economies.

That means the science system so far acts as engine of linear growth. It has brought us prosperity, but unfortunately, it has driven us to the very limits of our planet, contributing to climate change. Therefore, if we want to get to the root of the problem, it is our science systems that must become engines of circular wealth creation and empowerment.

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How do we do that?

Change is not easy; however, the discussion is ongoing. At the moment, our science systems are calling for a great transition towards a circular economy, a transformation within society and a changing of behavioral patterns. But rather than pointing in a normative direction and urgently calling for societal transformation, it is the job of the science system to show *how* that can be done – *how* we can develop technologies that enable circular wealth creation, and shape institutions and governance systems that enable the redistribution of wealth.

The Sustainable Development Solutions Network (SDSN), Germany, drawing on the *Global Sustainable Development Report* of the UN, speaks of "transformation fields" and "transformational levers" – the latter being leverage points that can accelerate transformation towards sustainability. Energy production, nutrition, and transport are examples of fields where we can see that the technological development and expertise required exists and the sectors indeed can be transformed towards CO_2-neutral wealth creation.

So now the task is to implement these steps – to get the governmental systems and incentive mechanisms right, but also to create regulations that push our energy system away from fossil fuels and towards renewable energies, towards solar and wind (and, where appropriate, towards water).

We recognize that we will need some natural gas to offset certain fluctuations in the system as we transition to power generation through renewables. But, energy consumption is a field where our science systems have already generated enough technological advancements for us to implement. This has of course been underway for years, but it needs to be accelerated, as we have not yet reached the level where we can feed our economies and societies solely on renewable energy.

So, to get back to your question on the role of science, it is clear that science is the engine and accelerator of our economies and societies, as it has been for the past 200 years. The countries that are strong enablers, good at developing technologies but also institutional innovations that enable the use of these technologies, have experienced more dynamic economic and social developments than those that do not invest in their science system. Therefore, science is key for transforming our societies and economies towards circular wealth creation.

Science has been aligned with the paradigm of constant growth. What if this paradigm is no longer valid?

Indeed the linear growth paradigm is not valid anymore. We have hit the limits of our planet and climate, of biodiversity, of nature in general. We need to find ways of maintaining and redistributing wealth, across geographical regions but also across social groups, and ways of reusing resources. That is the challenge of the twenty-first century.

How could we define the main areas in which the world scientific community could support government authorities in the energy transition to a more sustainable model?

Early last year, we, within SDSN Germany, put together a paper for German governmental bodies (legislative and executive), drawing on the *Global Sustainable Development Report* of the UN, in which we strove to identify key areas of transformation and key leverage points in them, key tools for facilitating their transformation. The question is as follows: It is clear that we need to transform our society towards a circular economy, but where should we start? For instance, in fisheries, or perhaps in agriculture?

We identified several key sectors: energy, the building and construction sector, the transport sector, and the agricultural and food-producing sector. These are the four key economic powerhouses that need to find

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ways to continue wealth creation, albeit in a CO_2-neutral and resource-neutral manner. These sectors are key for the overall transformation towards sustainability.

Next, within these sectors, we ask what are the leverage points, what are the instruments that can act as levers to accelerate the transformation? Within this process, governments are of course always at the core. So the question arises, how do we create regulatory systems and incentive mechanisms that push for their CO_2-neutral and resource-neutral transformations?

In addition, finances also play a significant role, a good example right now being the anti-coronavirus stimulus packages. It is crucial for such packages to be used to help us to stabilize our economy in the current crisis, but in a way that modernizes the economies towards $CO2_2$-neutral and resource-neutral transformations. These packages must not now strengthen the coal industry and nuclear power, which would be backwards-looking, but instead these packages must be future-oriented. Consequently, R&D and innovation are relevant as these sectors contribute to the digitalization of our society. And following the sectors in general, societal acceptance within the transformation process is also very important – we certainly cannot transform society without mobilizing and bringing citizens onboard, and that entails a need for public discourse on CO_2-neutral and resource-neutral transformations.

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Lastly, international cooperation is crucial, in that such transformations are not a national mandate but rather a purpose that we have to do as a world society. This will take place at different speeds across the globe, but we need to work on meeting climate targets together. The Glasgow climate negotiations later this year will play a crucial role in ensuring that the coronavirus recovery funds are created and applied in a way that stabilizes our economies, but at the same time contribute to the climate targets. Jointly, as a world society, we need strong players onboard.

China has pledged to be $CO2_2$-neutral in 2063, which is a positive example. We are fortunate that the Biden administration in the United States is clearly oriented towards international cooperation. However, Europe has to step up and play a prominent role as well. That of course requires a strong voice from Europe, from all its different regions. It is not enough for Brussels to say something, or certain players within the EU. We need all of Europe onboard.

That is why we say that international dialogue is another "lever." Germany or a different country might come up with all kinds of aims and goals, but it is irrelevant if there is not enough support within the European context, without strong allies such as the United States or, within the climate context, China onboard.

It appears that cooperation between government and science with respect to the climate is going very well in Germany, under the pro-active Federal Minister for the Environment, Ms. Schultze. However, my own experience working for a Polish ministry for two years opened my eyes to the gulf between the climate scientists and the whole complex political situation. How can we do a better job at building bridges between theory and practice?

We do indeed feel very fortunate with our environmental ministry, which is very active in Germany, open for exchange, and reaching out to society. At the same time, however, we must recognize that this does not resolve some of the more fundamental contradictions between the logic of science, as we might call it, and the logic of politics. When things come down to this underlying difference, it is no longer down to any particular individual. There are differences that cannot easily be bridged without a number of coincidences coming together.

Politics is concerned with situations that require majorities; it is about having a majority of voters behind you. That is a very different logic than in science, the logic of listening to the data analyzed in research. To put it bluntly, what is right from a scientific point of view is not necessarily what will win votes. This especially comes into play during certain times of the electoral process. As elections draw closer, scientific advice is increasingly perceived only in terms of whether it can generate votes.

The Fridays for Future movement was still very strong early last year, but since the start of the coronavirus pandemic, the media presence of the movement decreased. That is problematic because what we see at the moment is that the pandemic dominates a lot of the political discussions. The demographic setup of German society is such that corona is the key topic for a large share of voters, because we quite simply have an older society.

Climate is a topic for younger generations.

Well yes, climate change is a topic of the future, whereas the coronavirus is a problem for a large share of the voters right now – at least within the German context. So, at the moment we have the difficulty of how

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A demonstration of the "Fridays for Future" (School Strike for Climate) movement in Germany

to position the topics of the future – climate change, biodiversity loss, a whole range of resource-degradation related topics, as well as research and education. They stand in a certain competition to the coronavirus issue, which is now heavily focused on. Here we see different logics of time across the demographic setup of voters, creating a challenge.

It's important to show the connections between the two issues, to show how epidemics are not random but rather are connected to climate change in a certain way, or that the coronavirus crises is parallel to the climate one.

That is precisely why the "recover forward" discussions, which now gained traction within the German governmental context and also at the European level with the Green Deal discussions, are so important. If we start separating the coronavirus recovery from the climate crisis, we will definitely lose, because the larger voter group is focused on the corona topic. We have to bring climate change topics and environmental degradation issues into the corona restoration and recovery. We have to strengthen the concept that recovering from the coronavirus has to modernize our economies, making CO_2-neutrality possible to achieve – say, by 2030.

In what ways can cooperation between science, business, and government be improved?

To the logic of truth in science, and the logic of majorities in politics, we have to add the logic of making a profit in the private sector. The private sector is not bound to the idea of generating majorities, but of generating demand. As far as climate-change related advice is concerned, the economics of it all are becoming more important than whether it is politically relevant and resonates with voters.

At this point it becomes relevant within politics and policy-making to create regulatory frameworks and incentive mechanisms that make the transformation of our economic sectors financially viable. The Race to Zero Campaign, for instance, is a significant initiative. It calls for self-formulated pledges from companies, but also from countries and regional organizations such as the European Union, stating, "we want to be CO_2-neutral" by 2040 or so. I want to see more automotive industries signing up to these kinds of initiatives – Porsche has formulated its pledge, so has Mercedes, so has Volkswagen, so slowly there is a kind of competition emerging. Others are realizing that if they do not go with the flow they might lose out.

So getting back to the main idea of how to build bridges between science and politics or the private sector, we have to very carefully reflect on what are the operating logics of these very different sectors. From a systems-theory perspective – whereby science is about truth, politics about majorities, the private sector about profits – the question is how do we build bridges, how can we contribute to overlapping logics. If the goal is CO_2 neutrality, it has to be achieved in a way that gains traction with voters and is also profitable. Here science has a key role to play. Our job is not just to say, "we need to be CO_2-neutral" – that is an important normative statement, but by now this is clear. Now it is much more about showing how this is possible. That is the challenge of today. Quite a number of answers develop over time, so I think we are taking the right steps. But, we are taking them too slowly, and Glasgow will be very important for reaffirming the climate goals, generating political will and mobilizing societies and economies.

Interview by **Justyna Orłowska, PhD**