

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 jeopardise

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.