Environmental policy and social transformation

We are currently facing major environmental challenges: climate change, biodiversity loss, environmental pollution – the global environmental problems are so extensive that we must move beyond individual causes and solutions and consider the bigger picture.

Comprehensive transformation processes are called for in various areas of society, including energy, transport and nutrition. We use the term “transformation” when changes in technology, infrastructure, consumption, culture and politics are interlinked and mutually reinforcing.

Transformation results in social needs, such as the need for mobility, being met in ways that differ fundamentally from those previously employed. For example, the motor car did not simply introduce us to a new technology. It gave rise to completely new branches of industry, from automobile production and maintenance and repair businesses to the fuel industry; it led to the creation of car-oriented infrastructure (motorways, car parks, traffic lights, fuel stations), to a host of new rules ranging from road traffic regulations to tax concessions for company cars, to changes in mobility behaviour and to new slogans such as Freie Fahrt für freie Bürger – a call for “freedom from speed limits for free citizens”.

Partial improvements are not enough

The causes of persistent environmental problems, such as climate change and biodiversity loss, are often rooted in a complex array of issues. For example, environmentally damaging behaviours and technologies are embedded in culturally determined, non-sustainable thought models that are not easy to change.

A systemic perspective can aid one’s understanding of problems and possible solutions. Transformation fields such as transport and nutrition can be viewed as sociotechnical systems involving a variety of elements including values, behaviours, products, infrastructure, social structures and policies. These are interlinked, as the example of automobility shows. In combination they determine the system’s environmental footprint.

When it comes to solving complex environmental problems, partial solutions are not enough. They may shift problems elsewhere or lead to rebound effects, such as when reduced burdens or efficiency gains actually lead to increased consumption of energy or resources. More comprehensive change processes – transformation, in other words – are therefore needed. In the past, examples of transformation (such as the industrial revolution or the rise of automobile transport) have usually

resulted in increased environmental impact and resource consumption. By contrast, what is needed now is “transformation towards sustainability” that greatly reduces the burden on the environment.

Transformative change and environmental policy

Transformative environmental policy seeks to initiate and promote transformations towards sustainability (such as the transition to sustainable energy) or, where change is already under way (as is the case with digitalisation), to make it more environmentally friendly.

In this process it is essential that environmental policy – at least initially – stops focusing on ways of tackling individual symptoms and causes and attempts to address systemic relationships. Transformative environmental policy utilises the dynamics of transformation processes and can draw on a tool box of various methods and approaches (see below). These do not replace classical policy instruments but complement them and can make them easier to implement and enforce.

Transformation processes are often beset by conflict and frequently resisted. Previously held convictions are questioned; doubt is cast on behaviours, institutions, investments and qualifications. New players emerge and there are power struggles and distributional conflicts. Transformative environmental policy is faced with the challenge of how to deal with such conflicts while at the same time being socially viable and acceptable.

Ways of promoting and shaping transformation

First and foremost, transformative environmental policy takes a systemic approach to the analysis of problems (“transformation fields”). It supports a visionary view of the future and promotes technical, social and institutional innovation. Experimental spaces enable innovative ideas to be tested for a limited period and in a limited area.

In addition, transformative environmental policy brings new players on board; it also attempts to identify societal trends promptly, assess them and channel them in environmentally friendly directions. Finally, it is important that transformation processes include the phasing out of non-sustainable structures.

The individual approaches can be combined but do not necessarily build on each other. They do not all need to be used.

Transformation dynamics and the role of environmental policy in different phases

Transformation processes involve dissolution of a previously stable system state; after a transition phase, the system then reconfigures. The change comprises several stages:

In the **“preliminary phase”**, technical or social change occurs in niches. Pioneers (change agents) develop visions and innovations – which may sometimes compete with each other. At this stage, environmental policy can deliberately create impetus, for example through broad promotion of innovation and by involving new players.

This is followed by an **“acceleration phase”**, in which the system changes quickly. Conflict often occurs at this stage, because new approaches are now competing with old ones. At the same time, different innovations start to link with each other and develop together. Thus the development of smartphones and their applications has impacted on user practices within the housing and mobility

systems, and vice versa. Environmental policy measures can support the transformation by providing certainty with regard to the direction of innovation.

In the **"stabilisation phase"**, the new state of the system becomes established. Environmental policy now helps to set new rules of play and adapts its instruments and objectives to the new system.

Exnovation – abolishing non-sustainable structures

Transformation research and policy has in the past focused mainly on innovation and the promotion of innovation. However, technological innovation is not in itself enough to transform environmentally damaging systems. It must be accompanied by a deliberate phasing out of the previously predominant environmentally damaging technology – a process known as exnovation. Thus it is not sufficient to install wind turbines and solar panels – fossil and nuclear energy production must be wound down at the same time.

This may be accompanied by comprehensive structural change in the economy – which must, however, be managed in a socially responsible way. Social responsibility is particularly important if structural change affects entire sectors, such as the coal industry or the automotive industry, and is all the more crucial if the affected industries are concentrated in particular regions. The regions and the people employed in the old industries need prospects for the future. Policy-makers must provide support and cushion the effects of social upheaval.

At the Oeko-Institut, specialists in the political and social sciences conduct interdisciplinary research into transformation processes and produce options for action that can be put to policy-makers. The projects that they are working on include the following:

Research projects: Understanding and promoting transformation processes

Before transformation processes can be promoted, they must first be understood. Studies in this field that the Oeko-Institut's researchers have conducted in collaboration with various partners include the project "Transformative environmental policy" for the German Federal Environment Agency (UBA) and the "Trafo 3.0" project for the Federal Ministry of Education and Research (BMBF).

The UBA project developed a concept for a transformative environmental policy with concrete proposals for action. The project drew on the findings of international transformation research, research into the impacts of environmental policy and lessons learned from strategic environmental policy. Workshops enabled administrative and social experts to be involved. Concept papers, a guide for BMU and its subordinate authorities and a closing conference conveyed the findings back to the policy-makers.

As well as providing advice to those responsible for state environmental policy, the BMBF "Trafo 3.0" project produced and tested a model of socioecological transformation processes. The researchers produced analyses and action options in three specific areas of application: paperless publishing and reading, the use of e-bikes in urban and regional transport, and sustainable production and consumption of meat.

The guide "Transformative environmental policy: Consistently promote and shape sustainable development" produced by the Oeko-Institut and the Environmental Policy Research Center at the Free University of Berlin on behalf of the German Federal Environment Agency

Trafo 3.0 project website

Research projects: Making transformation processes socially fair ("just transition")

In transformation processes there are usually some actors who gain from the change and others who may lose out: environmentally damaging technologies and business activities are replaced by "greener" ones, jobs are lost in one place and created in another. For reasons of fairness and acceptance, it is important to ensure that the transition is made in a socially responsible way. Researchers at the Oeko-Institut are exploring these issues in various projects.

The project "Ecological structural change", commissioned by the German Federal Environment Agency (UBA), produced analyses and recommendations on the proactive design and support of ecologically driven structural change. Cases studies, including studies of the automobile and chemical industries, involved intensive discussion with companies and employees.

For the European Commission's Directorate-General for Environment, Oeko-Institut researchers analysed the social effects of environmental policy and systematised the possible positive and negative impacts of environmental policy on jobs and consumers. The team then produced recommendations on preventing negative effects and ensuring a just transition to greater sustainability. The background to the task was provided by the European Commission's studies of the European Green Deal and the 8th Environment Action Programme.

The project "Strategies for ecologically driven structural change towards a Green Economy" by the Oeko-Institut on behalf of the German Federal Environment Agency

Further information

On transformation processes in general:

The brochure "Wie Transformationen und gesellschaftliche Innovationen gelingen können" [How transformations and social innovations can succeed] by the Oeko-Institut on behalf of the German Environment Agency UBA (2015)

The study "Transformative Umweltpolitik: Ansätze zur Förderung gesellschaftlichen Wandels" [Transformative environmental policy: Approaches to the promotion of societal change] on behalf of the German Environment Agency UBA (2020)

The paper "Drivers and barriers of sustainability transformations: A comparison of the 'Energiewende' and the attempted transformation to organic agriculture in Germany" (2019)

On exnovation and structural change:

The Legacy for the Future Foundation (Stiftung Zukunftserbe) project "Exnovation governance" (2016)

The working paper "Exnovation: Herausforderungen und politische Gestaltungsansätze für den Ausstieg aus nicht-nachhaltigen Strukturen" [Exnovation: Challenges and political design approaches for the phase-out of non-sustainable structures] by the Oeko-Institut as part of the project for the Legacy for the Future Foundation (2016)

The paper "Out of the Comfort Zone! Governing the Exnovation of Unsustainable Technologies and Practices" (2017)

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