

Factsheet No. 4 / 2011

The Transformation towards Sustainability

In its flagship report 'World in Transition – A Social Contract for Sustainability', the German Advisory Council on Global Change (WBGU) spells out the urgent need for, and the benefits of, a transformation towards sustainability. With reference to the example of climate change, the WBGU demonstrates that this transformation is technically feasible and that sufficient financial resources can be mobilised. The prerequisite is a new social contract which combines responsibility towards future generations with a culture of democratic participation.

Transformation – what does it mean?

The WBGU defines this major transformation as the global remodelling of economy and society towards sustainability. In order to overcome the barriers which currently stand in the way of the transformation, the process depends on societal shaping and support.

In terms of its scale and impact, the transformation towards sustainability is comparable with the two great revolutions which have crucially shaped world history: the Neolithic Revolution (the diffusion of arable farming and animal husbandry) and the Industrial Revolution (the transition from an agrarian to an industrial society). In the context of climate change, it means that in order to avoid global warming above 2°C, greenhouse gas emissions must peak before the end of the present decade and decrease very rapidly thereafter. Energy systems, land use and urban areas in particular must be restructured in a manner which is conducive to the development of low-carbon societies with appropriately adapted production and consumption pat-

terns and lifestyles. The transformation of our energy systems needs to be based primarily on greatly improved energy efficiency and a technological switch to zero-carbon energy sources (WBGU Factsheet No. 2/2011).

This major transformation will require technological advances, new concepts of welfare, diverse social innovations, and an unprecedented level of international cooperation. It can only succeed if it is what people want. More and more people around the world are expressing a desire to live in a more sustainable and future-proof society. It is essential now to overcome the barriers and speed up the transition process. This will depend on societal shaping and support.

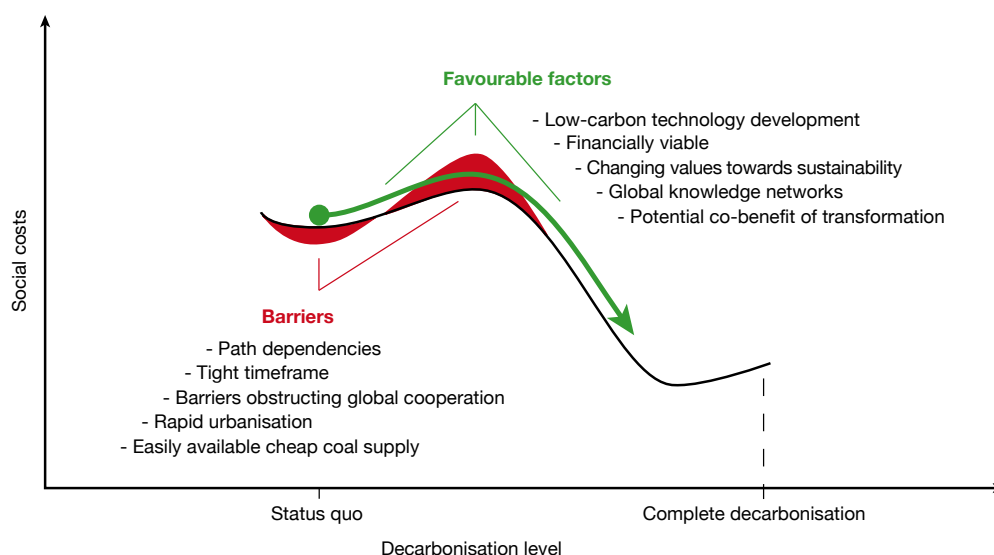


Figure 1

To facilitate the transformation to a low-carbon society, a number of obstacles must be overcome; this is made more difficult by the existence of additional barriers (red). On the other hand, there are various favourable factors (green), which can help to pave the way for the transformation. Once the key barriers have been overcome, the move towards a low-carbon society can be expected to develop its own dynamics. Source: WBGU, Flagship Report 2011

How will we benefit from the transformation?

The goal of the transformation towards sustainability is to safeguard humankind's natural life-support systems for the long term. Mitigating climate change plays a key role in this context. The transformation will not only avoid irreversible damage to the Earth System; it will also deliver valuable benefits for humankind.

The world economy needs to be remodelled in such a way that the limits of the Earth System (the 'planetary guard rails') are respected and irreversible damage is avoided. This applies particularly to climate change: global warming must not exceed a maximum of 2°C.

Energy system transformation will yield additional valuable benefits. It will reduce our dependence on fossil energy carriers, which are finite resources. The extraction and burning of coal, oil and gas also have numerous adverse consequences for human health and the environment (WBGU Factsheet No. 2/2011). Renewable energies have sufficient potential to provide the world with a sustainable energy supply for the long term. Ambitious global climate change mitigation is possible even without nuclear energy, so the substantial costs and risks associated with this form of energy can be avoided. Around three billion of the world's people

still have no access to essential modern energy services. Renewable energies are well suited to close this gap, also avoiding damage to health.

Low-carbon cities also offer significant benefits in terms of quality of life. Noise and air pollution, which claim millions of lives every year, are avoided. Low-carbon land use similarly yields multiple benefits. Halting deforestation is not only essential to protect the climate; it also plays a vital role in safeguarding the natural heritage and ecosystem services for the long term. In the agricultural sector, food security, health and the conservation of biological diversity can be reconciled. Overall, then, the transformation establishes patterns of production and consumption which maintain the freedoms, scope and opportunities of present and future generations.

The transformation has already started!

Many factors are speeding up the transformation process. The technology is mature, the financing is viable, and the policy instruments are available. Not least, there are positive attitudes towards sustainability.

Over recent decades, key factors have developed which are conducive to the transformation (Figure 1). With economic globalisation and more rapid exchange of knowledge worldwide, important prerequisites for the development and global diffusion of new technologies have been fulfilled. A sustainable world is no longer a utopian vision: technological solutions are available or are being developed. A global energy supply based on renewables will be technically feasible within the next few decades, along with the remodelling of existing urban structures and low-carbon urban development. The know-how that is required to restructure agriculture and forestry, such as a stop to deforestation and the introduction of sustainable agriculture, is also available.

The financial challenges are considerable, but these too can be mastered. The transformation will require investment amounting to several hundred billion US\$ annually, but this will generate long-term savings of a similar magnitude, particularly by avoiding the massive

costs of dangerous climate change. The political instruments are also available and can – if there is sufficient public commitment to establishing the necessary framework conditions – quickly be tailored to decarbonisation.

An ever-growing proportion of the world's population is developing value systems which attach central importance to the protection of the natural environment. Change agents pioneering the transition to a low-carbon society are now embedded in all sectors of society. They are developing and testing practical options for a sustainable society and are thus helping to make new visions a reality. Initially operating as niche players, change agents can gradually increase their impact and in many countries, their positions even have secured majority support (Figure 2). Policy-makers should acknowledge this trend, and show much more courage when it comes to making decisions in favour of climate protection.

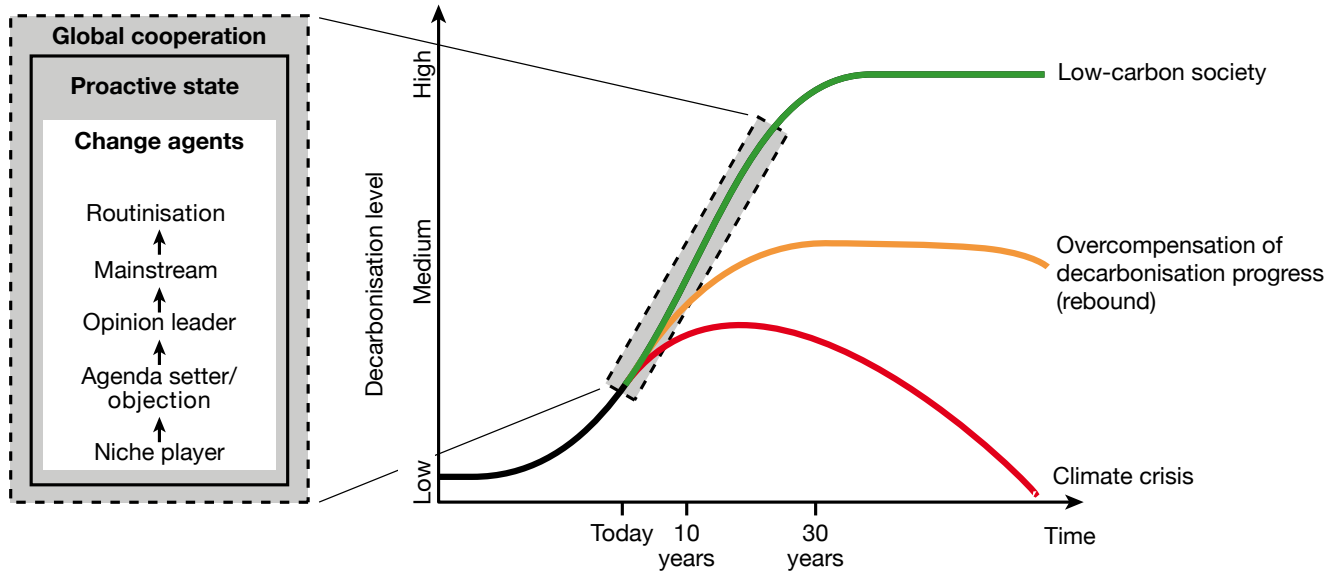


Figure 2

The transformation's temporal dynamics and action levels. Left: The proactive state and the change agents are the key players. Change agents must move away from the margins and increase their impact through widespread inclusion in social routines. Right: Decisive action for a change of course towards transformation must be taken within the next decade. The sustainable path (green) manages the transition from high-carbon to low-carbon society in time. However, overcompensation for decarbonisation advances could make climate protection measures ineffective, so that the transformation fails (yellow). If only moderate efforts are made, a global climate crisis looms (red).

Source: WBGU, Flagship Report 2011, modified after Grin et al., 2010: Transitions to Sustainable Development

Shaping the transformation together!

There are, however, major obstacles and barriers which must be overcome. The present economic model, which is based on fossil energy carriers, is characterised by entrenched interest-based structures which resist change. These can only be overcome with a broad consensus in society.

Despite the positive factors identified, the transformation still poses a major challenge. There are numerous inhibiting factors: political, institutional and economic path dependencies, vested interests and veto players all obstruct the transition to a sustainable society. Since the Industrial Revolution, our economic and political system, with its rules and social norms, has been based on the consumption of fossil fuels; this is evident from the level of harmful subsidies for fossil energy carriers (currently US\$ 300–500 billion p.a. worldwide), for example. With such vast sums of money at stake, combined with the vested interests of the established emissions-intensive sectors, major path dependencies are created.

This challenge can only be mastered through a broad social dialogue and a consensus on the core issues relating to sustainability: in other words, through a new social contract (WBGU Factsheet No. 1/2011). This requires a proactive state, balanced out by enhanced participation by citizens. The proactive state, as defined

by the WBGU, actively sets priorities for sustainability and flags them up by appropriate incentives. It sets clear goals, creates an appropriate macro-system and establishes effective legal mechanisms. By doing so, the state safeguards long-term stability as the prerequisite for planning and investment, offers citizens and the business community options for sustainable action, and creates space for appropriate experiments by change agents. The proactive state sets itself the explicit aim of protecting – and if possible expanding – the freedoms, scope and opportunities of present and future generations. The social contract links the proactive state to enhanced opportunities for civil society participation. The transformation to a sustainable society is a process of 'trial and error' – of searching and learning – for society and requires far more democracy. Only a democracy can facilitate the debates that are the essential prerequisite for legitimate policy decisions.

A social contract for sustainability

The aim of the new social contract proposed by the WBGU is to preserve natural life-support systems for present and future generations (WBGU Factsheet No. 1/2011). It combines responsibility towards future generations with a culture of democratic participation. In this consensus of global reach, individuals and civil society groups, governments and the international community, businesses and science pledge to take on shared responsibility for maintaining natural life-support systems. This challenge is not limited to climate change mitigation, but is rather a matter of legitimate,

equitable and durable solutions as the basis for sustainable development. In light of the inequalities in resource consumption, levels of development and development capacities within world society, the social contract must show due consideration for fairness, justice and equity. A key element of this social contract is the *proactive state* whose actions are geared towards sustainability and greatly enhanced participation by citizens in decision-making (Figure 2). The social contract combines the proactive state *with improved opportunities for civil society participation* in a framework of local, national and global cooperation.

Policies for a low-carbon society

The transformation to a low-carbon society means nothing less than a paradigm shift from a fossil to a post-fossil society, which should take the form of an open-ended search process. Although specific sustainability objectives can be defined (such as limiting anthropogenic global warming to 2°C, or halting deforestation worldwide), it is not possible to precisely define the ultimate desired state of economy and society. However, the objectives and direction of global economic development can take their lead from globally established and, for the most part, universally accepted standards. The global perspective also dictates that despite all our differences and unique cultural characteristics, development opportunities within world society should not diverge too widely.

The WBGU makes specific recommendations to intensify climate protection efforts in three transformation fields: energy, urbanisation and land use. As small-scale measures increasingly show results, and change agents become actively involved, engage in networking and begin to initiate changes at different levels, all working towards a transformation, decision-makers will be encouraged to tackle the major, supposedly unpopular policy changes. In this dynamic social environment, measures which are still viewed as unrealistic today could well be feasible tomorrow.

The WBGU has defined the following 10 thematic fields of action for the transformation to a low-carbon

society:

1. Improve the Proactive State with Extended Participation Opportunities,
2. Advance Carbon Pricing Globally,
3. Promote a Common European Energy Policy,
4. Accelerate Expansion of Renewable Energies on a Global Level through Feed-In Tariffs,
5. Promote Sustainable Energy Supply Services in Developing and Newly Industrialising Countries,
6. Steering the World's Rapid Urbanisation Towards Sustainability,
7. Advance Climate-Friendly Land Use,
8. Encourage and Accelerate Investments in a Low-Carbon Future,
9. Reinforce International Climate and Energy Policy,
10. Pursue a Revolution in International Cooperation.

In response to the challenges facing the knowledge-based society in the transformation process, the WBGU provides recommendations for research and education. More intensive efforts should be made in both these areas to address the challenges associated with a transition to a sustainable society. In the field of research, this means improving the understanding of transformation processes and developing appropriate inter- and transdisciplinary solutions. Education, for its part, should create the prerequisites for this process.

German Advisory Council on Global Change (WBGU)

The German Advisory Council on Global Change (WBGU) is an independent scientific advisory body set up by the German government. The WBGU provides policy-makers with recommendations for action and research. Its flagship report 'World in Transition – A Social Contract for Sustainability' can be downloaded from the WBGU website.

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