

# ENVIRONMENTAL REPORT 2016

**An integrated approach to environmental policy:  
the way forward**

## Summary

May 2016



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# INTRODUCTION

The ecological challenges in the EU and Germany are so large that they can no longer simply be addressed using the remedial and even the technically-oriented, preventive environmental protection measures of the past. In relation to climate protection and many other fields, impacts on natural ecosystems must be substantially reduced in order to ensure that key ecosystem services remain functional. Yet, environmental policies continue to encounter stiff opposition, which is targeted at supposedly unnecessary regulatory burdens and restrictions. Opponents of environmental protection claim that environmental policies jeopardize the competitiveness of the German industrial and agricultural sectors by imposing unduly high costs. Or they bring up social issues, such as the current housing crisis or energy poverty, as arguments against an effective environmental policy. Such arguments call for nuanced assessments – and in some cases should be clearly rejected.

Defusing such conflicts calls for approaches that promote compromise and that appeal to the general public. In the Environmental Report 2016, the German Advisory Council on the Environment (SRU) sets itself the task of addressing this challenge, by focusing on six key topics. What these topics all have in common is that they exhibit tensions between environmental and economic or social policy goals. The Environmental Report aims to stimulate ideas about environmental oriented reforms and approaches to managing these issues which cut across policy fields.

## 1. Pioneering an Ecological Transformation

There has been a wide-ranging academic debate regarding which factors are necessary to spur deep and ecologically oriented transformations of industrialized societies. Transformations are necessary to reduce resource use, emissions and waste to very low levels. Such transformations will require far reaching innovations extending over long periods of time in the technical, social and institutional spheres. Such transformations will place particular demands on state actors. Deep transformations are not conducive to central management and control across so many fields, but will nevertheless require very high levels of coordination. The most prominent example is Germany's Energiewende (energy transition), which aims to decarbonize all energy consuming sectors by the middle of the century. Similar

fundamental reforms are also needed for a circular economy, as well as for ecologically sustainable land use, agriculture and diets.

In the view of the SRU, there are various reasons why Germany should be a pioneer in the sustainable transformation of industrial society:

- Germany has a special responsibility which relates to its important role in international trade. New indicators show that Germany makes extensive use of the natural resources of other countries when trade is taken into account.
- Success as a pioneer will promote the development of new international markets. Such a pioneering policy would also be a driver of

economic modernization, as it would promote the widespread use of energy and resource efficient technologies and new system solutions.

- Germany is extremely well positioned to be a “transformation pioneer”, thanks to its strong innovation system, the strength of its economy, and the generally widespread public support for an active environmental politics.
- Global environmental policies require national pioneers. In the past, it was often a few countries whose roles as environmental leaders led to international agreement on the need for relatively high levels of environmental protection. To be credible internationally in calling for protection of the natural basis upon which life depends, a country’s domestic environmental policies must themselves be pioneering.
- Pioneering environmental policies result in many beneficial impacts not only globally, but at the national and local levels as well. For example,

climate protection measures can also lead to improvements in regional air quality and the quality of city life and reduce fuel costs.

Germany is already in the vanguard of reform in some of the domains that the SRU has studied, particularly when it comes to switching the electricity supply over to renewable energies. But in other domains, this is not the case at all, or to only a limited extent. In its agricultural politics, Germany has set negative examples by working to weaken the European Commission’s efforts to bring about ecological reform, and by failing to leverage the room for manoeuvre that was available domestically for a more ambitious implementation. A broad consensus for an environmentally just and sustainable agriculture is lacking.

Transformations are simply unachievable without state action, because no other actor has comparable resources for bringing about structural change. The types of state action needed differ in the various phases of an ideal transformation process (see Figure 1).

## Transformation phases: from niche to socio-technical system

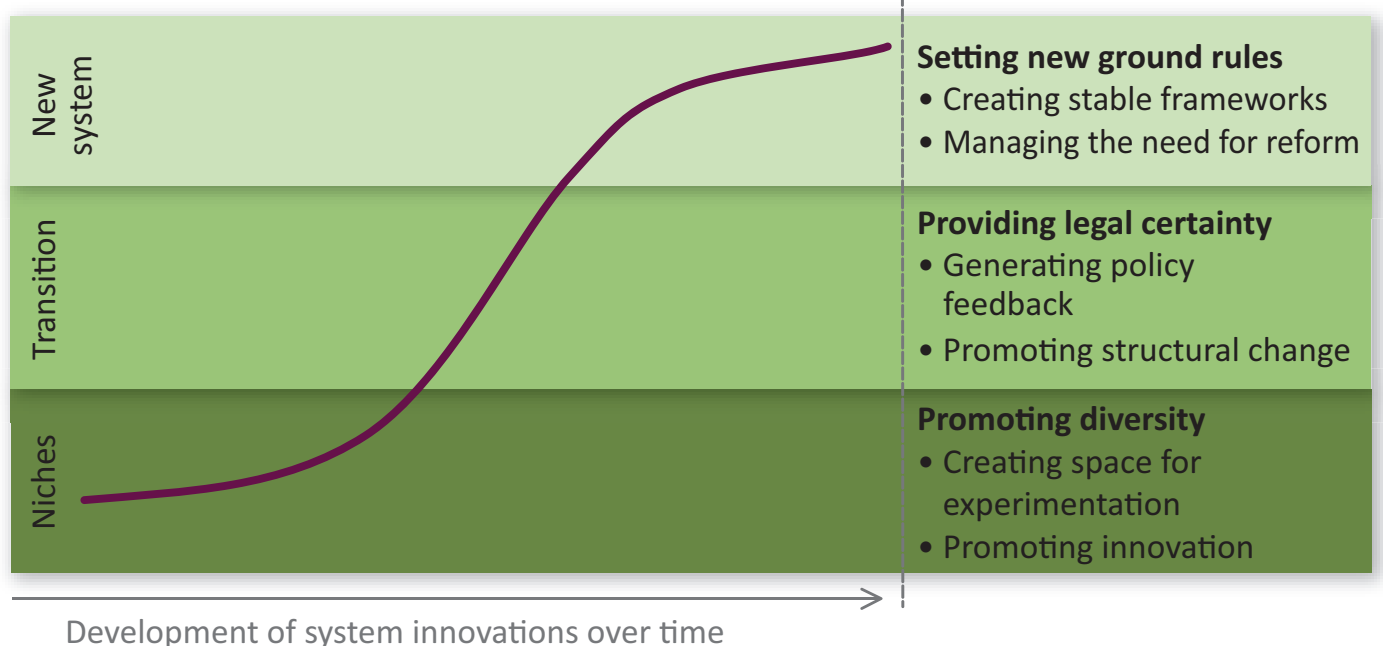


Figure 1: Ways in which the government can promote innovation (SRU/UG 2016/Figure 1)

Early on, a broad range of technological and social innovations should be prioritized. At later stages, certainty in policy direction and a stable policy framework for investments should be priorities. Policy decisions about technologies should not be avoided with arguments for technological neutrality. Two important policy tasks have been neglected in the past:

- To help achieve innovation breakthroughs, it will be necessary in many fields to abandon incremental approaches and worn out technological development paths. The system change needs to be actively managed. Thus, technologies and production methods which are no longer ecologically sustainable, such as electricity generation from lignite and intensive farming that is a threat to biodiversity, should be incrementally phased out, including through use of administrative law.
- In order to expedite the process of making Germany's industrial sector more ecologically sustainable, greater consideration should be given to ways to promote public acceptance. Environmental policies should forge alliances for ecological transformation processes. Representatives of innovative sectors should participate in these processes on an equal footing with

representatives of the status quo. A publicly supported vision and visible co-benefits could support the formation of coalitions. Sectors and regions that are negatively impacted should be provided with support to make a transition.

Transformation processes play out at various political levels – from the local through the national to the global level. Positive interactions often can be observed in such settings. For instance, a pioneer state may promote European policy reform which in turn can create room for manoeuvre for ambitious policies in other EU member states. Hence it is vital to leverage and not to block the mechanisms that promote reinforcement between these various levels. The SRU is thus critical of the government for following a 'by the book' implementation of EU goals.

Transformations are knowledge intensive. Research policy is central to promoting ecological transformation. A goal-oriented and transformative research agenda should continue to be ambitiously implemented. Research policy should be formulated in a more transparent and participatory fashion; technology development should involve the social sciences more; line ministries should enhance their cooperation; and funding for research domains that are not ecologically sustainable should be terminated.

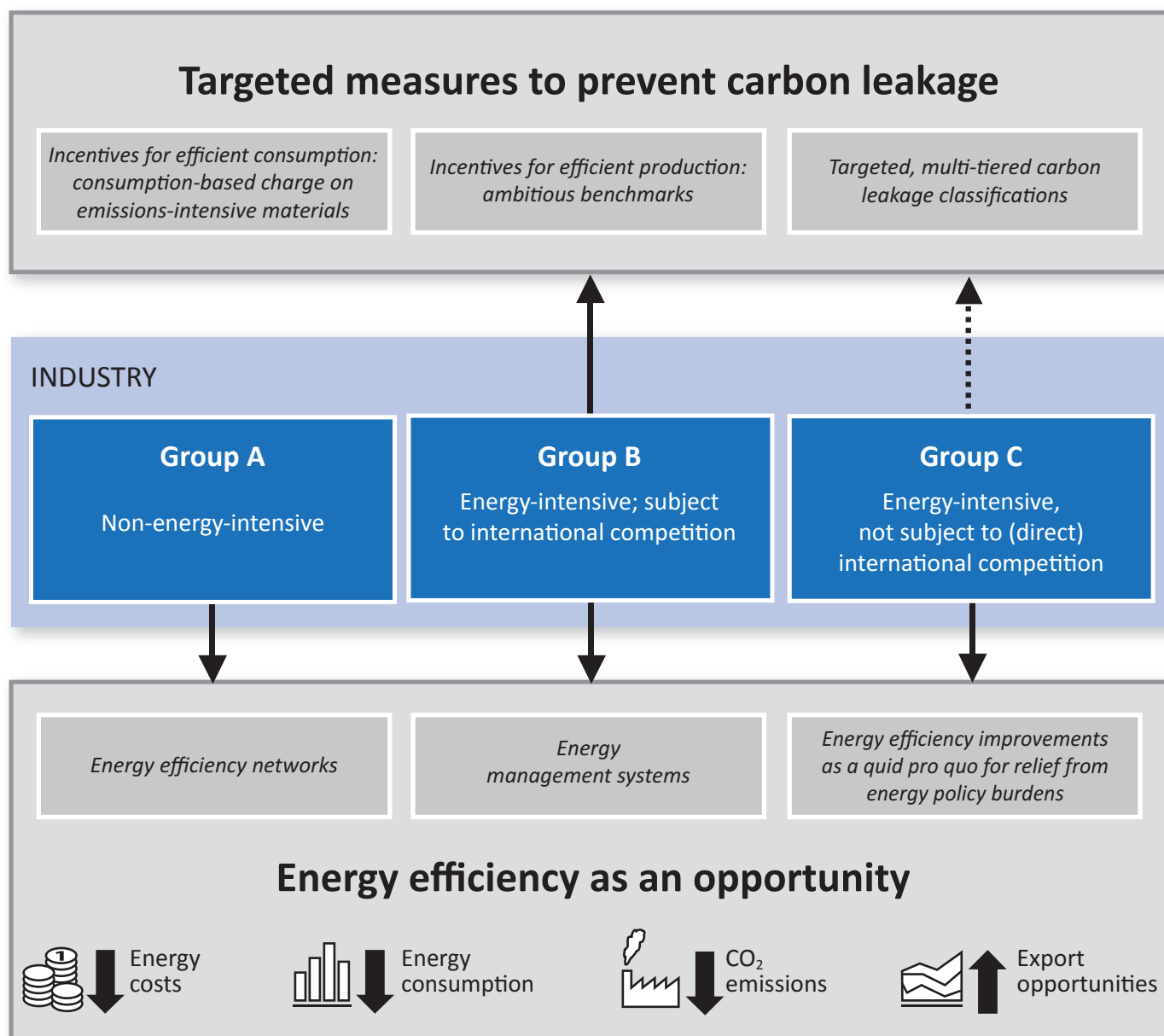
## 2. Ambitious climate protection and industrial competitiveness

In the debate over ambitious domestic climate policies, it is often argued that such policies jeopardize the competitiveness of German industry or even promote deindustrialisation. But upon closer scrutiny, such fears have proven to be widely unsubstantiated. Given the Paris Agreement, it is no longer possible to speak of Germany going it alone in its pursuit of ambitious climate policies. Still, about the international competitiveness of sectors need to be taken seriously. On the other hand, being a pioneer in climate protection offers numerous opportunities to modernize the German

economy, and for the German export sector. Hence, a fact-based and nuanced view of the relevant issues is needed (see Figure 2).

On average, energy costs in the German industrial sector account for only about 2 per cent of total costs – which means that the majority of German manufacturers would be able to absorb even substantial energy cost increases. Likewise, the unit cost of energy (energy costs' share in gross value added) for the German industrial sector as a whole is competitive internationally – and is, for example,





**Figure 2: Climate policies and the preservation of industrial competitiveness** (SRU/UG 2016/Figure 2)

lower than in China and most European countries. Furthermore, industrial competitiveness is affected by several other factors, the most important of which are: a stable regulatory framework; an efficient infrastructure; innovation potential; a good educational system; a motivating work environment; and security of supply in terms of both energy and raw materials.

Energy costs play a major role only for a few energy-intensive industries such as metal production, non-ferrous metals, paper, nonmetallic minerals,

and basic chemicals. For particularly energy-intensive products that are subject to international price competition, additional measures that help prevent industrial relocation are necessary.

The opportunities offered by an ambitious energy efficiency policy should be used more systematically. Many industrial companies can largely offset rising energy prices by improving their energy efficiency. Numerous studies have demonstrated the existence of extensive untapped energy efficiency potential in many industries. This potential

is not leveraged due to various barriers, the main one being the fact that in making strategic decisions, companies in non-energy-intensive industries fail to prioritize energy costs sufficiently. Another cause of the hitherto insufficient energy efficiency measures of the industrial sector is problems in the design of policy instruments promoting energy efficiency. These instruments should therefore be modified, augmented, and made more ambitious.

The SRU recommends implementation of integrated, long-term energy efficiency policies that are bolstered by mandatory energy efficiency targets. What is needed is a coherently configured mix of instruments comprised of regulatory standards, financial incentives, funding policies, and consulting and information programmes. This should lead to greater use of energy and environmental management systems. Energy efficiency networks in which companies exchange best-practice information should be widely established.

Special energy and climate policy regulations designed to prevent industries from relocating their production facilities and to avoid carbon leakage should only apply to industries which are at risk. Yet, the fact is that a substantially larger number of industries receive regulatory relief. The SRU recommends that a critical review be undertaken of the numerous energy policies giving preferential treatment to the industrial sector both in Germany and the EU. Exemptions providing relief that cannot be justified because of carbon leakage risks or severe competitive disadvantages should be rolled back. And in cases where such exemptions are justified, they should be limited in degree to what is necessary. Multi-tiered classification of carbon leakage risk could be used to better determine the appropriate level of regulatory relief for affected industries.

The European Emissions Trading System (EU ETS) will continue the current practice of allocating emission allowances free of charge to companies considered at risk of carbon leakage. The amount of freely allocated emission allowances should be subject to ambitious benchmarks, and should be tied more closely to the current production volumes

of the companies in question. An EU-wide consumption charge on particularly high-emissions materials can prevent this free allocation from undermining incentives for environmentally efficient material use. Such a charge would be imposed on both domestic and imported products, and its amount would be tied to the price of emission allowances. Payment of the charge would be due once the products in question were sold to European consumers. In the view of the SRU, introduction of such a charge should be given serious consideration.

At the national level, the SRU recommends that the diverse eligibility criteria for the numerous energy policy exemptions which exist be harmonized. These criteria should also be focused on the prevention of industrial relocation and carbon leakage. Where practicable, the amount of energy subject to preferential treatment should be limited by ambitious benchmarks in order to strengthen incentives for further energy efficiency improvements. Moreover, companies should be granted regulatory relief only insofar as they are able to prove that they have implemented ambitious energy efficiency measures as a *quid pro quo*.

## 3. Environmental and social policy in the context of Germany's Energiewende

Rising prices for ecologically harmful goods are a key element of effective environmental policy, but often have undesirable distributional effects, which can negatively affect the acceptance of environmental policies.

This tension between environmental and social policy can clearly be seen in the German Energiewende. Increasing prices are an important management tool for reducing overall energy consumption, but they have a disproportionately severe impact on low-income households. Such households spend a greater proportion of their consumption outlays on electricity and heating, despite the fact that they spend less than the average amount on energy in absolute terms (see Figure 3). Hence the impact of rising energy prices on low-income households is a problem that needs to be taken seriously.

Such direct distributive effects should not, however, be used as an argument against measures advancing implementation of the Energiewende. Rather, based on the principles of social welfare state and in the public interest as well as in order to gain societal acceptance, politics should take on the conflicts between environmental and social policy. Solutions aimed at compensating for or mitigating rising energy prices should primarily – but not solely – be pursued in the social policy sphere. Social policy should be understood in a broader sense and extended beyond the social transfer systems, in order to reach low-income households not benefitting from these systems. Social policy measures need to help low-income households to cope with rising prices and to support them in using energy more efficiently and reducing their energy consumption. Ideally, such measures will engender synergies between environmental and social policy goals.

Informational and behavioural measures can – often at low cost – put low-income households in a better position to react to rising energy prices. This in turn makes market based instruments more effective, while mitigating financial burdens. In

particular, measures that involve providing low-threshold energy advice free of charge should be further strengthened, and should be combined with programmes that financially assist the replacement of energy-inefficient household appliances. Such (combined) programmes should receive increased and continuing government funding, and should also increasingly include heating, as there is substantial energy saving potential in this field. Reducing transfer payment recipients' heating costs also cuts federal and municipal expenditures.

The energy-efficiency of buildings and heating systems is of great importance for climate protection. Rising prices for heating energy are to be welcomed from an ecological standpoint, in that they render economically sensible measures also commercially viable. The fact that under German tenancy law, landlords are permitted to pass on to tenants the cost of energy efficiency improvements (as well as other investments in building modernization) makes such measures more appealing for landlords. However, such stipulations can result in increases in the basic rent (exclusive of utilities) which low-income households can not afford, since oftentimes such increases cannot be offset by lower heating costs.

Thus, the cost-sharing stipulations in the law should therefore be more targeted than is now the case. The tenancy law should distinguish more clearly than it does now between measures aimed solely at improving a building's energy efficiency and those aimed at improving housing quality per se. The permitted passing on of costs (i. e., the increase in annual rent as percentage of investment costs) for the general modernization of dwellings should be reduced. In the future, consideration should be given to how the energy savings resulting from building improvements can be factored into the building-improvement costs that landlords pass on to tenants. Also, it should be considered to what extent public subsidy programmes for energy efficiency improvements can be tied to the effectiveness of the measures



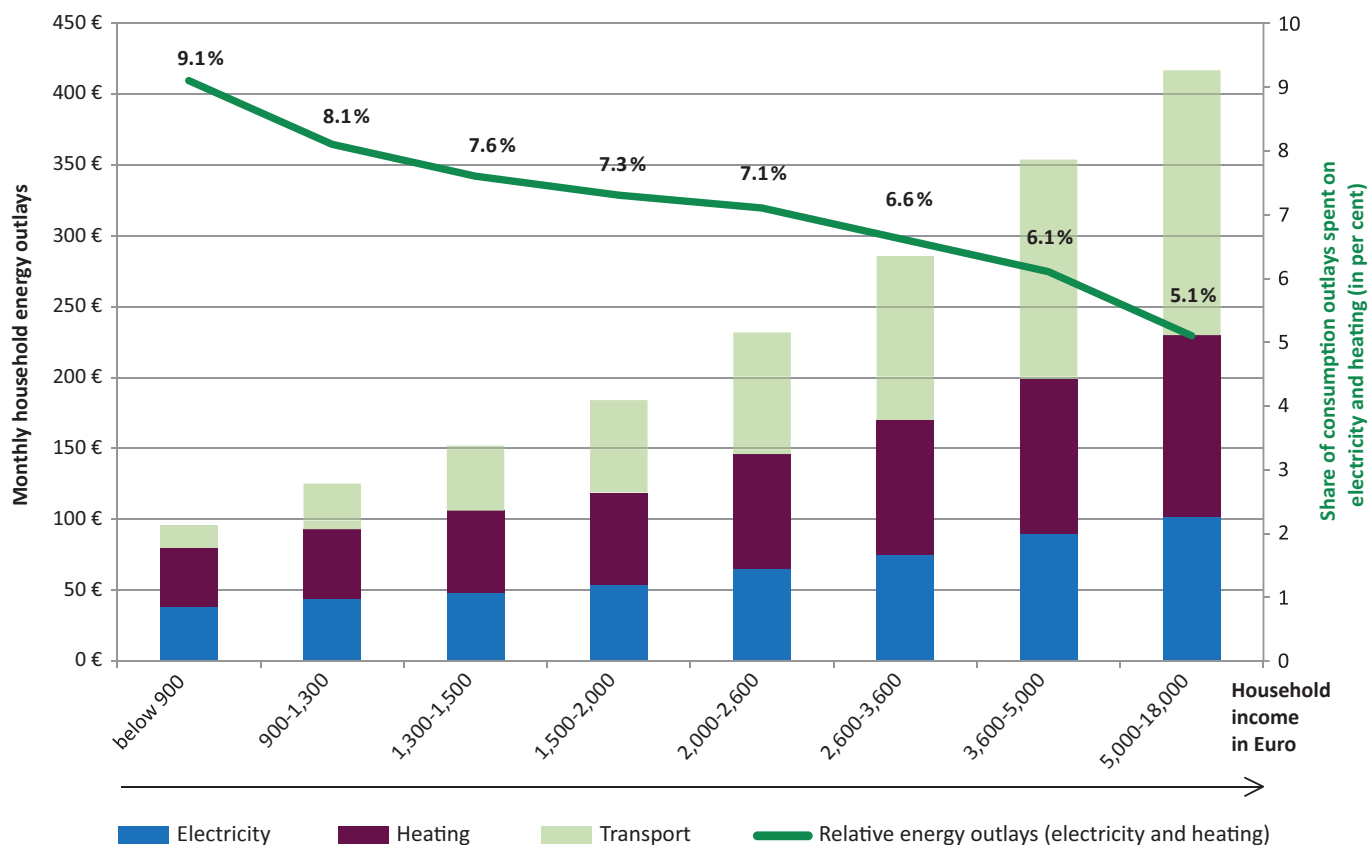


Figure 3: Energy expenses and household income (SRU/UG 2016/Figure 3)

that are carried out, i. e. the extent to which energy consumption is reduced. This could be accomplished by factoring the building's condition prior to energy modernization into the current approach that focuses on a target energy consumption level after modernization. As public subsidies cannot be included in the building-improvement costs which are passed on to tenants, this means the greater the savings, the lower the burden on tenants. Making public subsidy programmes for energy modernization contingent upon achieved energy efficiency improvements could make climate policies more effective, while at the same time improving the social compatibility of such measures.

The government has only limited influence on electricity tariffs. However, in the view of the SRU it would be possible to directly link payment of the basic electricity tariff to the provision of a certain limited quantity of electricity, a "basic allotment". This basic allotment should be provided under identical conditions to all of a utility's customers without discrimination. This would improve the

situation of low-income households, without undermining the incentive effect of electricity prices. Combining the "basic allotment" with pre-payment meters could make an important contribution toward ensuring provision of a decent subsistence level.

Additionally, changes in the calculation system for social transfer payments are needed. Basic income support, as well as housing benefits, should be based on realistic energy costs, in order to avoid social hardships. Moreover, upper limits for housing costs and housing benefits, in addition to basic rent, should factor in the energy efficiency of the building in question. This would also provide a greater incentive to improve energy efficiency in low-income neighbourhoods. Low-income households would be able to occupy energetically renovated apartments without any substantial increase in public spending. Although eligible housing costs are determined at the municipal level, the federal government should establish a framework for these costs that applies nationwide.

## 4. Land consumption and demographic change

Excessive land use remains one of Germany's severe environmental problems. Soil sealing and land fragmentation inflict serious damage on nature and the environment that is for the most part irreversible. Roads and settlements are not only at the expense of habitats, they also interfere with the migration of plant seeds and animals, alter the soil and water balances, and impair biodiversity in a number of different ways. Hence, already as early as 2002, the German National Sustainability Strategy set a goal of reducing the increase in land use to 30 hectares per day by the year 2020. But despite the numerous measures that have been implemented in Germany's federal states (*Bundesländer*) and municipalities, this goal will not be reached. Currently, the use of new land amounts to an average of 69 hectares per day, despite the fact that the EU and the *Bundesrat* are striving to obtain a goal of net-zero land use by 2050 and 2030, respectively.

Long-term societal trends, such as demographic changes, make it possible to reduce land use. Despite more immigration, Germany's population is expected to decline substantially over the medium and long term. But population development differs considerably from one region to another. In some conurbations and urban-growth regions, the influx of new residents is the dominant development, whereas in other regions the population is steadily shrinking.

One of the main drivers of land consumption is the continuing high demand for housing space. Among the various reasons for this is the wish for large homes and the growing number of households comprising only one or two persons. Paradoxically, land use in regions whose population is growing is relatively low, owing to high rents and land prices. Conversely, in regions whose populations are

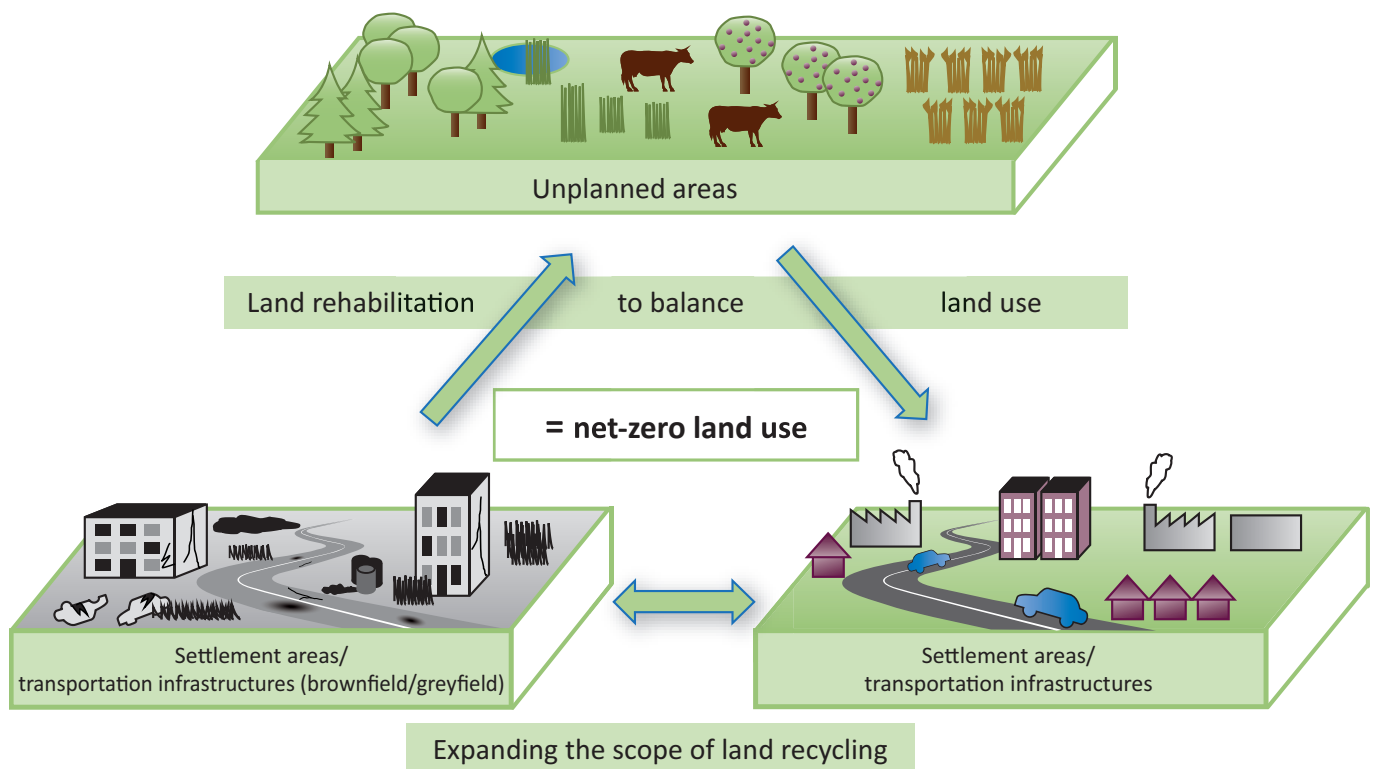


Figure 4: Reducing land use to net-zero (SRU/UG 2016/Figure 4)

shrinking the level of land use is relatively high, in part also due to low land prices. Moreover, some municipalities still zone areas for housing construction, in the hope that their population will grow – despite the absence of any actual demand.

Housing space is in great demand in large urban areas, where the most pressing near-term need is for affordable apartments – which can only be constructed in multi-story residential buildings. In cities, housing should be constructed preferably in inner-city areas – on, for example, empty lots, inefficiently used land, or on rehabilitated brownfield land or commercial space. The challenge here is to reconcile this type of housing density with the goal of improving the quality of urban life, thus obviating the need to build housing on greenfield land.

In order to substantially reduce land consumption, the federal government must set the course for an effective land use policy:

- The goal should be to reduce land consumption to net-zero by 2030. The land consumption target of the National Sustainability Strategy should be updated accordingly.
- The government should set mandatory limits on land use for the Federal Transport Infrastructure Plan.

Statutory planning and building law instruments should be optimized:

- Caps for land-use planning should be introduced in designating uses, as this is the only way to effectively limit the designation of areas for housing and commercial construction.
- Determining the potential for development within communities should be mandatory. Municipalities should be allowed to designate further areas for construction only in cases where they can demonstrate there is insufficient development space within the community.
- Whenever soil is sealed in one area, the authorities should examine whether removal of soil seals is possible elsewhere.

The SRU also recommends that the following economic measures be implemented:

- The federal government should review existing subsidies, with a view to ending the subsidizing of land use. Currently, land consumption is indirectly supported by commuter tax breaks, among other programmes.
- Current property tax provisions translate into the wrong kinds of incentives. The fact that developed land is subject to higher property taxes than undeveloped land fuels real estate speculation; whereas there are not enough incentives to build on undeveloped parcels located in inner-city areas. An assessment should be made of the possibilities of taxing developed and undeveloped land at the same rate and taking parcel size into account.
- Municipalities can already today estimate the infrastructure costs of planned new construction zones, using lifecycle cost calculators. Such calculators should be optimized in such a way that they can also factor in future costs for existing settlement areas, in the context of a declining population.
- Senior citizens who live alone often have considerable living space at their disposal, whereas many families are unable to find apartments that are large enough. Hence incentives for a generational shift in existing residential space should be created, as well as opportunities for cross-generational living.
- Tradable land planning permits, a promising instrument, should be further assessed in terms of their practicality and impact, and be advanced.

It is crucial that land use is reduced. Solutions conforming to regional conditions afford the opportunity to promote a range of societal goals: reducing land use, reducing the infrastructure costs associated with demographic change and making affordable as well as elderly-friendly residential space available.

## 5. More space for wilderness in Germany

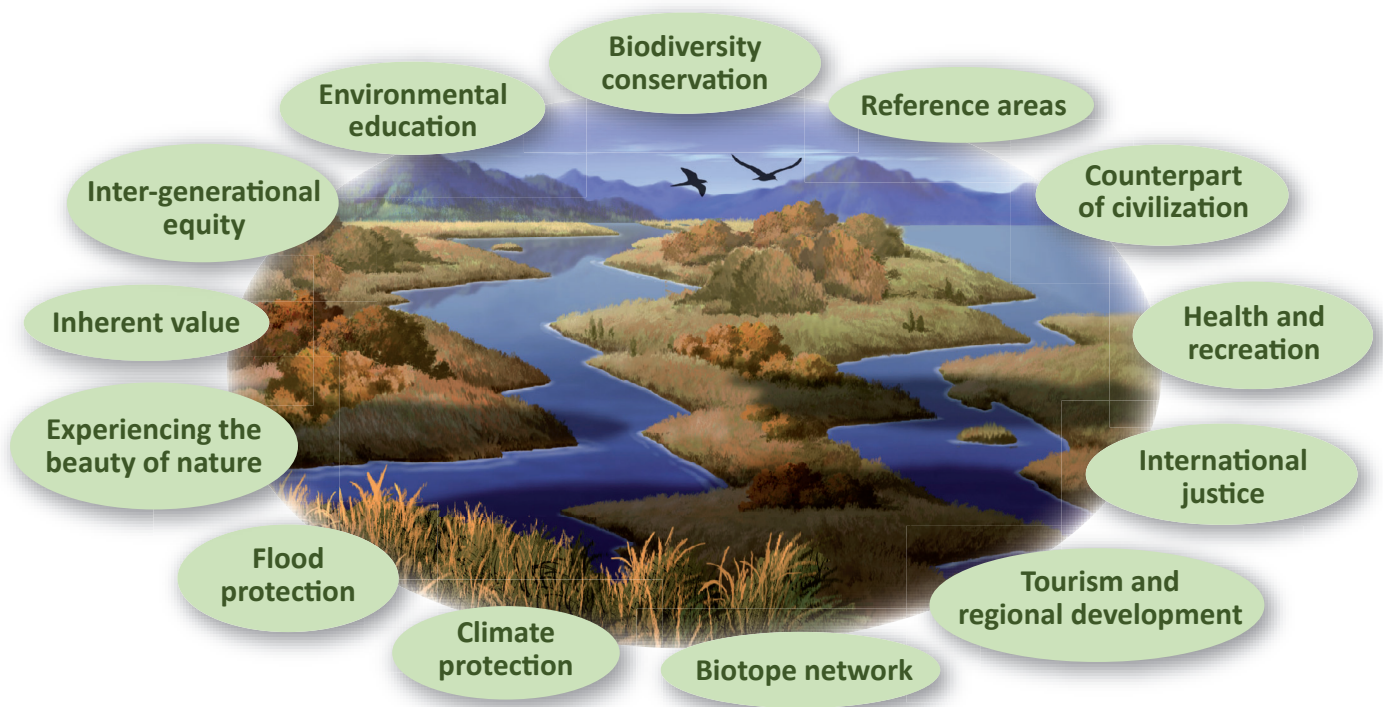
Wilderness areas, where nature has developed without human intervention, have almost disappeared from densely populated Germany. Nonetheless, increasingly efforts are afoot to let nature take its course in certain places. In this approach, known as process protection, nature is conceived as a dynamic phenomenon; natural processes are left space to unfold without an expected outcome. The national biodiversity strategy sets a goal of enabling at least 2 per cent of German land to become wilderness areas by 2020 (currently: 0.6 per cent).

Process protection is a relatively new approach in Germany. For many years now, nature conservation has centred around concepts that endeavour to actively preserve a particular state. Process protection, on the other hand, can result in the loss of specific species and habitats. However, particular structures develop that create habitats for threatened species (see Figure 5).

Unlike other nature conservation strategies, wilderness protection allows us to learn how nature evolves in accordance with its own dynamics and in the absence of human intervention. Moreover, pristine natural areas afford a particular type of human experience that stands in contrast to our technology-oriented society. They are appreciated by many people for just this reason. Wilderness areas also provide numerous synergies, in that they are a key component of Germany's biotope network, are of great importance for climate and flood protection, and can promote both tourism and regional development. Case by case assessments need to be made in order to select areas which are suited for process protection.

In the SRU's view, process protection is an important nature conservation instrument of equal significance to other nature conservation approaches. The SRU expressly supports the 2 per cent wilderness goal. However, it can only be reached if in particular Germany's federal states are committed to it, and expeditiously make available and secure the necessary land. The SRU recommends the following measures:

- The conditions under which particular areas contribute to reaching the 2 per cent wilderness goal set by the national biodiversity strategy need to be clearly defined. These requirements need to incorporate binding criteria concerning minimum size and absence of fragmentation, and provide for process protection, which is open as to its outcome.
- There is a need for an inventory of existing wilderness areas in Germany for which long-term protection has already been ensured.
- Potentially suitable wilderness areas have already been identified within the framework of a research project funded by the Federal Agency for Nature Conservation. The next step is to identify areas which are suitable for process protection both from a nature conservation and from a practical standpoint (e.g. property-ownership status, surrounding landscape, initial state).
- Human intervention – including wildlife management and targeted control of alien species – should be avoided in these areas as far as possible. Only during a transitional phase following the establishment of a wilderness area may specific human interventions be appropriate.
- As the owner of large areas of land, the government has a special responsibility. The 2 per cent wilderness goal can only be reached if the federal government and federal state governments make available sufficiently large areas. Beyond this, nature conservation organizations and foundations should receive support for land purchases and follow-up costs.
- Wherever possible, wilderness areas should be designated as a protected element of nature and the countryside, in accordance with the Federal Nature Conservation Act (*Bundesnaturschutzgesetz*), ensuring their permanent protection.



Picture: © fotolia (wizdata)

**Figure 5: Wilderness protection: reasons and synergies** (SRU/UG 2016/Figure 5)

- Administration and management of wilderness areas should be better equipped in terms of finance and human resources, particularly for public relations, environmental education, research, and monitoring.
  - The search for suitable wilderness areas should, from the outset, be a participatory process involving all key stakeholders which is open as to its outcome.
  - Intensive public-relations efforts should be undertaken with a view to improving public acceptance of wilderness and making the public more aware of the issue. Such a campaign should be fact-based, and evoke positive feelings in its target audience as well.
  - The federal government and federal state governments should jointly launch a national wilderness initiative, supported by nature conservation organizations and foundations, in which they coordinate their efforts.
- While it is true that process protection has increasingly gained political acceptance over the past 15 to 20 years, wilderness development in Germany is still in its infancy; for nature evolves over long periods of time.



## 6. Improved biodiversity protection from pesticides

Pesticides (plant protection products and biocides) are used to harm, exterminate or reduce the spread of particular organisms such as microbes, insects and plants. When used in outdoor environments, the toxic properties of these substances pose risks to biodiversity.

Plant protection products are used in agriculture to protect crops and plant products, and to improve agricultural production. Agricultural use of plant protection products such as insecticides, herbicides and fungicides is one of the main reasons why biodiversity loss is continuing apace in agricultural landscapes. Severely impacted are, for example, farmland birds, bees, bumblebees, amphibians, and wild herbs. Flora and fauna can be directly harmed, for example through poisoning. But indirect effects also occur, in that, for example, the habitats of certain species or their food sources may be compromised (see Figure 6).

Plant protection products also cause harm in both surface water bodies and groundwater bodies.

Particularly in small watercourses in farming areas, plant protection products can be harmful to vulnerable species such as caddisfly larvae and fungi that are a vital source of food for other species.

The main household and workplace uses of biocides are as disinfectants, for product protection and for pest control. Owing to the poor data availability, the environmental impact of biocide use is currently difficult to assess.

Although the authorisation for both plant production products and biocides already entails an extensive environmental risk assessment, such assessments have shortcomings. Hence in the future, the environmental impact of these substances on particularly vulnerable species, for instance, should be given greater weight. However, environmental risk assessments for authorisation procedures cannot possibly factor in all deleterious effects on biodiversity with reasonable effort. It is also difficult to assess the additive and cumulative effects of

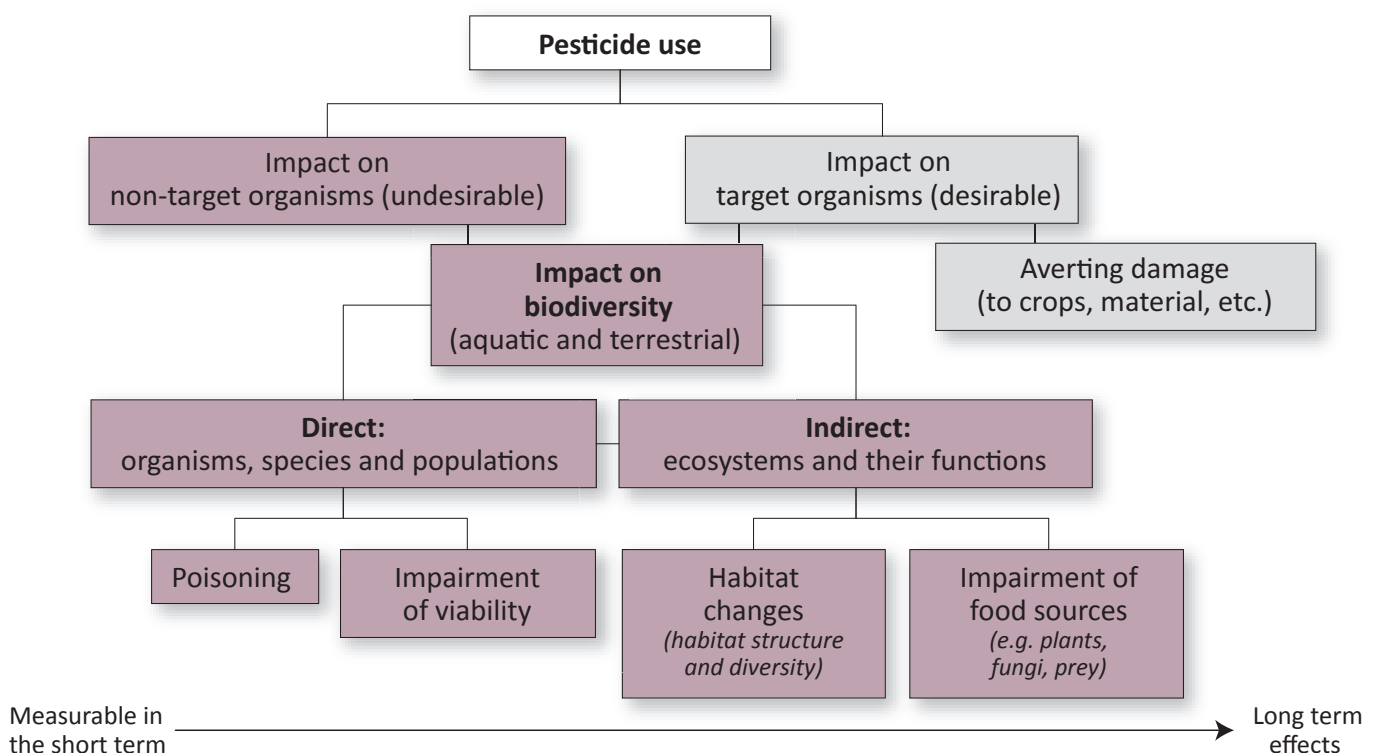


Figure 6: Impacts of pesticides on biodiversity (SRU/UG 2016/Figure 6)

various pesticide products, as marketing approval is granted for only one single product. Hence measures that go beyond the current approval procedures need to be instituted.

The prerequisites for precise, risk-minimizing measures are knowledge about the application and input into the environment, as well as adequate monitoring and indicators that make it possible to assess the environmental impact of pesticides. Action is urgently needed in this domain. In terms of plant protection products, the SRU recommends the following, with a view to making as much relevant information available as possible:

- Both the application data that professional users are required by the German Plant Protection Act to retain, as well as data that are required by law to be compiled for statistics, should regularly be made available to the competent authorities – the goal being to achieve methodical and spatially differentiated collection of application data.
- A monitoring programme for pollution with plant protection products of small water bodies should be established. Likewise, an across-the-board biodiversity monitoring programme should be implemented, to allow for earlier detection of environmental changes.

In addition, the following measures can help to improve urgently needed protection of water bodies and biodiversity:

- The SRU recommends that a tax on plant protection products be instituted, as it would generate revenue that could be used to expand monitoring and consulting programmes, and

to implement further measures. Such a tax can also lead to an overall reduction of the use of plant protection products. In addition, imposing such a tax on the basis of suitably differentiated rates can contribute to high-risk products being replaced by safer ones.

- Pesticide-free refuges and buffer zones should be established that could take the form of, for example, riparian buffer strips or flower strips on field margins. It urgently needs to be examined whether it would be possible to make the provision of such compensatory ecological areas a requirement in the context of the application of plant protection products. Such areas can also be established via agri-environmental and climate protection measures, and environmental protection requirements in connection with direct payments for agricultural land (i. e., the EU greening programmes). But in order to achieve this, agri-environmental and greening programmes need to be optimized so as to strengthen their impact. Expanding the scope of organic farming would also have a positive environmental impact.

The aforesaid measures should also be used for upgrading the existing National Action Plan on the Sustainable use of Plant Protection Products.

In terms of biocides, it is necessary to begin by obtaining better environmental impact data, as a basis for the development of future measures. The first step toward achieving this should be compiling the sales data for relevant priority biocidal products, so as to gain better insight into the relevant environmental input data. In addition, a systematic biocide monitoring programme should be established.

## THE WAY FORWARD

This SRU Environmental Report 2016 aims to provide an impetus for an integrated environmental policy. Through selected examples, it can be shown that options are available to defuse conflicts between ecological, economic and social objectives, and that at the same time give greater priority to ecological concerns. What is mainly needed are precise and nuanced analyses of relevant problems, a long-term vision, and integrated approaches developed jointly in environmental and other policy fields. The concept of ecological transformation has become part of the domestic and international agenda. In the fall of 2015 the United Nations adopted the plan of action, *Transforming our World: the 2030 Agenda for Sustainable Development*. The 17 Sustainable Development Goals set forth in the document constitute an integrated approach. They show that social and economic development, as well as securing peace, can only be achieved if we preserve our natural resources and use them sustainably. Failure to do this, the action plan states, will put “the survival of many societies” at risk. This kind of systematic and transformative approach extends far beyond

innovation strategies based on environmental technologies, and is also predicated on a change in social values and on new, sustainable consumption patterns.

Challenges of this nature are also addressed by the Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) with the “Integrated Environmental Programme” (*Integriertes Umweltprogramm*), which was developed concurrently with this Environmental Report 2016. The goal of this programme is to “pursue a transformative approach that regards environmental policy as a driver of a sustainable society.” The present report cannot yet evaluate to what extent this objective is being met.

However, one thing is clear: transformations can neither be planned in detail nor implemented in the short term. What is needed instead is for all stakeholders to adopt a long-term vision, supported by far-reaching and concrete environmental policy goals that should always be kept in view despite all of the day-to-day political problems with implementation.

### Published by:

#### German Advisory Council on the Environment (SRU)

Luisenstraße 46  
10117 Berlin

Phone: +49 030 26 36 96-104

Email: [info@umweltrat.de](mailto:info@umweltrat.de)

Internet: [www.umweltrat.de](http://www.umweltrat.de)

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The German Advisory Council on the Environment (SRU) has been advising the German Federal Government on environmental policy issues since 1972. The Council is made up of seven university professors from a range of different environment-related disciplines. This ensures an encompassing and independent evaluation from a natural scientific and technical as well as from an economic, legal, and political science perspective. The Council is a member of the network of European Environmental and Sustainable Development Advisory Councils (EEAC).

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**Prof. Dr. Harald Bradke**, Fraunhofer Institute for Systems and Innovations Research ISI, Karlsruhe

**Prof. Dr. Christian Calliess**, Freie Universität Berlin

**Prof. Dr. Heidi Foth**, Martin Luther University Halle-Wittenberg

**Prof. Dr. Manfred Niekisch**, Goethe University of Frankfurt, Frankfurt Zoo

**Prof. Dr. Miranda Schreurs**, Freie Universität Berlin