



German Advisory Council
on the Environment

Towards an ambitious environmental policy in Germany and Europe

SUMMARY | May 2020



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Summary

Introduction

Scientific appeals for better protection and preservation of the natural foundations of life are in danger of becoming an oppressive ritual. There is now no longer any lack of knowledge about the dramatic consequences of current and impending environmental changes. The technologies required for a transition to a sustainable economy, sustainable mobility and ecologically compatible energy production are available. However, since politics, business and the public are far too hesitant in facing up to the ecological challenges, the gap between what has been achieved and what is necessary is growing. National and international studies show

that innovation and efficiency gains are important, but no longer enough. Our economic and lifestyle patterns must also change if we are to remain within environmental limits.

With this Environmental Report, the SRU is addressing environmental policy topics which require urgent action but which at the same time offer promising opportunities for a change of direction: climate policy, the circular economy, water protection, sustainable neighbourhood development, noise regulation and urban mobility.

Using the CO₂ budget to meet the Paris climate targets

German climate policy is facing major challenges. Despite the progress that has been made, it is currently still deficient in three respects. Firstly, there is a lack of transparency with respect to the overall budget for greenhouse gas emissions underlying German climate policy. Second, there is a deficit of ambition, i.e. the national targets do not yet represent an adequate contribution to global climate protection. Thirdly, there is an implementation deficit, as there have been repeated failures to achieve the climate targets.

The Paris Agreement provides a binding international legal framework to ensure that global warming is limited to well below 2 °C compared to pre-industrial levels and that efforts are made to limit it to 1.5 °C. Only if this succeeds will it be possible to restrict or in the best case to entirely avert serious dangers to humans and the environment, to ecosystems, infrastructures and the economy. All signatory states have committed themselves to continuous reductions in their national greenhouse gas emissions in line with this goal and to becoming climate-neutral by the second half of this century at the latest. By ratifying the agreement, Germany too has made a binding commitment under international law to effective climate protection.

In order to comply with the Paris Agreement, it is especially important that Germany's climate protection targets are in line with a global budget for CO₂, the most important greenhouse gas. The concept of CO₂ budgeting is based on physical climatic relationships between greenhouse gas emissions and global warming: a global budget quantifies the total anthropogenic CO₂ emissions that can still be emitted from a given point in time while ensuring that the resulting global warming does not exceed a specified level.

The Intergovernmental Panel on Climate Change has calculated the following global CO₂ budget: to ensure (with a probability of 67 %) that the temperature increase does not exceed 1.75 °C and thus remains well below 2 °C, no more than 800 gigatons of CO₂ may be emitted worldwide from 2018 onwards. This figure represents an absolute upper limit, as the budget actually available might be even smaller due to uncertainties in the calculations. In addition, the 1.5-degree-target (which is also based on very sound considerations) corresponds to a significantly lower global CO₂ bud-

get. The size of the budget is also dependent on a number of methodological considerations, in particular the choice of reference period, the inclusion of other earth system feedbacks influencing temperature trends, and the calculation method employed.

There are various ways of apportioning the scientifically calculated global budget among individual countries. Individual national budgets will vary in size depending on whether factors such as economic strength, relative population size and historical emissions are taken into account. The Paris Agreement, as an international agreement, must be interpreted in a way that is agreed and accepted by all states if the global goals are to be achieved. A distribution based on population, but not taking historical emissions into account, seems to be most likely to achieve a consensus. This also means, however, that the per capita budget for states with high historical emissions should represent an absolute ceiling, and that the aim should be to come in as far as possible below it. Countries with relatively high technological and economic capacity, such as Germany, should commit themselves to efforts that go beyond this.

If the German share of the world's population is used as the base criterion and historical emissions are not taken into account, the CO₂ budget remaining for Germany from 2020 amounts to a maximum of 6.7 gigatonnes of CO₂. This is based on a maximum permissible global warming of 1.75 °C, with a 67 % probability of meeting the target. The proportional budget for Germany based on a 50 % probability of limiting global warming to 1.5 °C is 4.2 gigatonnes of CO₂ from 2020.

It is true that the Federal Climate Change Act for the first time introduces greenhouse gas budgets, for most sectors and until 2030. This will increase both transparency and sectoral accountability. However, the climate targets stipulated therein are not derived in a scientifically verifiable manner from the Paris Climate Agreement and are not based on a corresponding transformation path leading up to 2050. This makes it impossible to compare the political agreements with the emissions reductions actually required.

In light of this, the SRU recommends to the German government to set a German CO₂ budget that is compatible with the Paris Climate Agreement. Such a budget should replace neither the greenhouse gas budgets in the Federal Climate Change Act nor the emissions reduction targets for specific years. But a German CO₂ budget of this kind could be used to assess whether the

targets adopted and the measures planned will make the contributions needed to meet the Paris climate targets. The introduction of a CO₂ budget as a basis and metric for national climate policy would help to make such connections visible and to improve and make more transparent both the formulation of appropriate targets and the assessment of progress in emissions reduction.

Such a German budget would set tight boundaries: if CO₂ emissions in Germany were in future to remain as high as in 2019, the budget would already be exhausted by 2029. Assuming reductions progressed on a linear basis, Germany would have to be CO₂-neutral from 2038 onwards rather than by 2050.

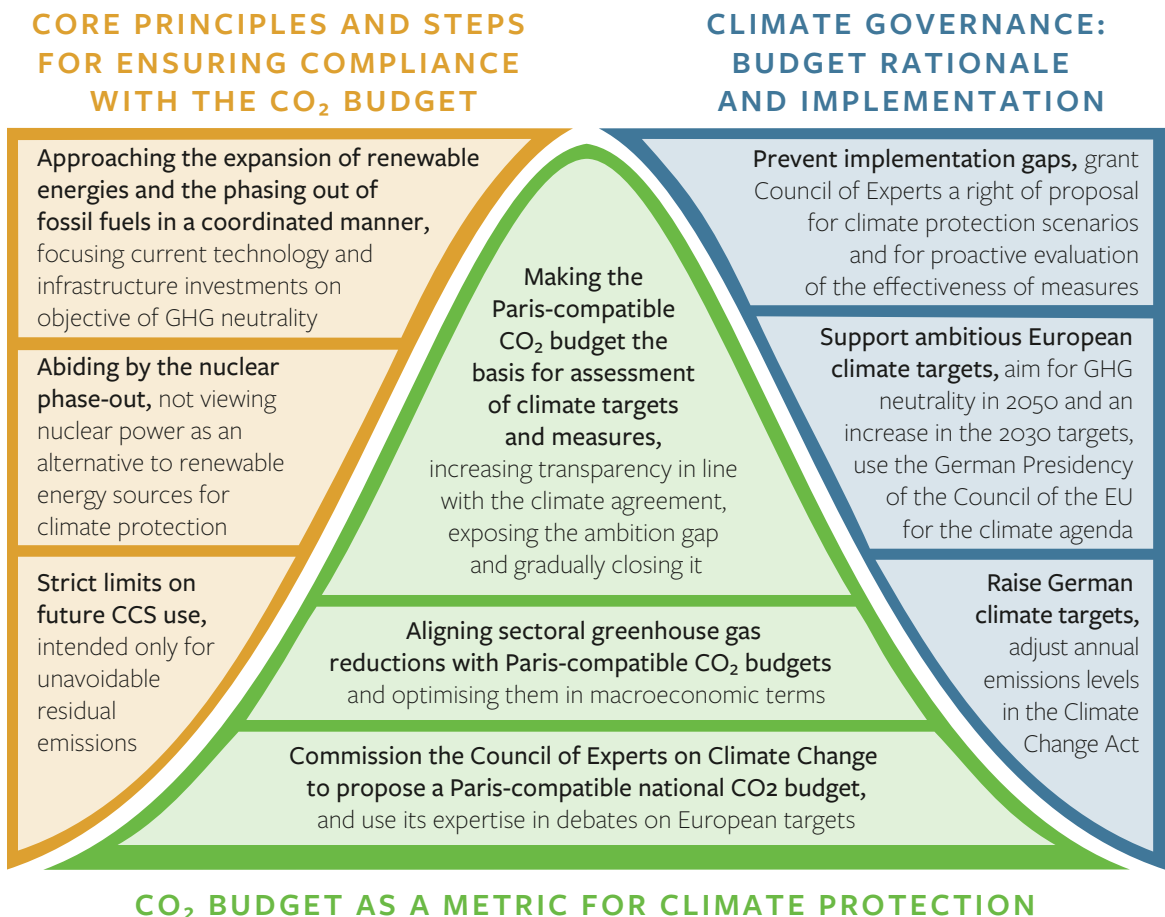
This CO₂ budget makes it clear that Germany's climate and sectoral targets to date are not sufficiently stringent to make the contribution needed to meet the Paris climate targets. The total volume of emissions that would result from the current climate protection targets is almost twice as large as the permissible budget as calculated by the SRU. The German climate protection targets should be set in line with this CO₂ budget and made correspondingly more stringent.

The SRU recommends the following core guiding principles for ensuring compliance with the CO₂ budget:

- o The expansion of renewable energy supply should be sufficiently rapid to enable a phase-out of all fossil energy sources in line with the budget. This must

o Figure 1

Recommendations for the introduction, implementation and observance of the CO₂ budget



be accompanied by measures to reduce energy consumption and increase energy efficiency. Wood biomass should only be used as an energy source if it can be demonstrated that its use has a positive climate balance and the production of the biomass is sustainable. This is often not the case, as wood is a land-intensive and inefficient energy source which emits CO₂ when burned.

- It remains the case that nuclear energy is not an alternative in climate protection terms. It is uneconomic and poses fundamental risks to the environment and health, and the issue of final disposal of the waste has not been clarified. Germany should adhere to the agreed nuclear phase-out by 2022.
- Processes for the direct capture or extraction of CO₂ from the atmosphere, which provide for a theoretical increase in the budget calculations and are therefore used to underpin some important scenarios, are currently unproven in technological terms for large-scale applications and also often tend to pollute the environment. Their potential application should therefore be limited to reducing or offsetting absolutely unavoidable residual emissions. The same applies to carbon capture in industrial processes. Carbon capture from fossil fuel power plants, however, should not be pursued at all.

In the short term, Germany should significantly reduce its emissions in order to gain time for more extensive climate protection measures and to achieve an overall CO₂ budget consistent with the Paris Agreement. Rapid reductions in the next few years will provide more leeway in the decade to follow.

An ambitious climate protection policy is an opportunity for Germany. It opens up paths for economic, technological and social renewal. As a leading industrialised country with a high gross domestic product, but also with high emissions in the past and the present, Germany should make an appropriate contribution. The proposed budget calculation sets the upper limit for a national budget that is justifiable in terms of science, international law and global distributional justice. There are numerous reasons why it would be appropriate for Germany to commit itself to an even more ambitious CO₂ budget. States with lower capacity for transformation would gain room for manoeuvre. Germany could regain a leading role and demonstrate the technological and economic possibilities that exist for

achieving the transition. If it proves impossible to implement a more ambitious climate protection policy, the financial risks for taxpayers and the federal budget will also increase: if Germany fails to meet its European climate targets, it will be forced to purchase emission allowances from other member states.

In the view of the SRU, effective climate governance is crucial for the implementation of the Federal Climate Change Act. This requires scientific expertise, which is available from the Council of Experts on Climate Change established by the Federal Climate Change Act. This expert council should be strengthened and its competencies enhanced. So far, the intention has essentially been for the Council to review the emissions data and the assumptions on which greenhouse gas reduction measures are based. The SRU believes that it should also be allowed to propose emission reduction measures, to prepare independent expert reports and to develop decarbonisation scenarios. In this way, it could contribute to the systematic examination and revision of the German climate targets to ensure their compatibility with the Paris Agreement.

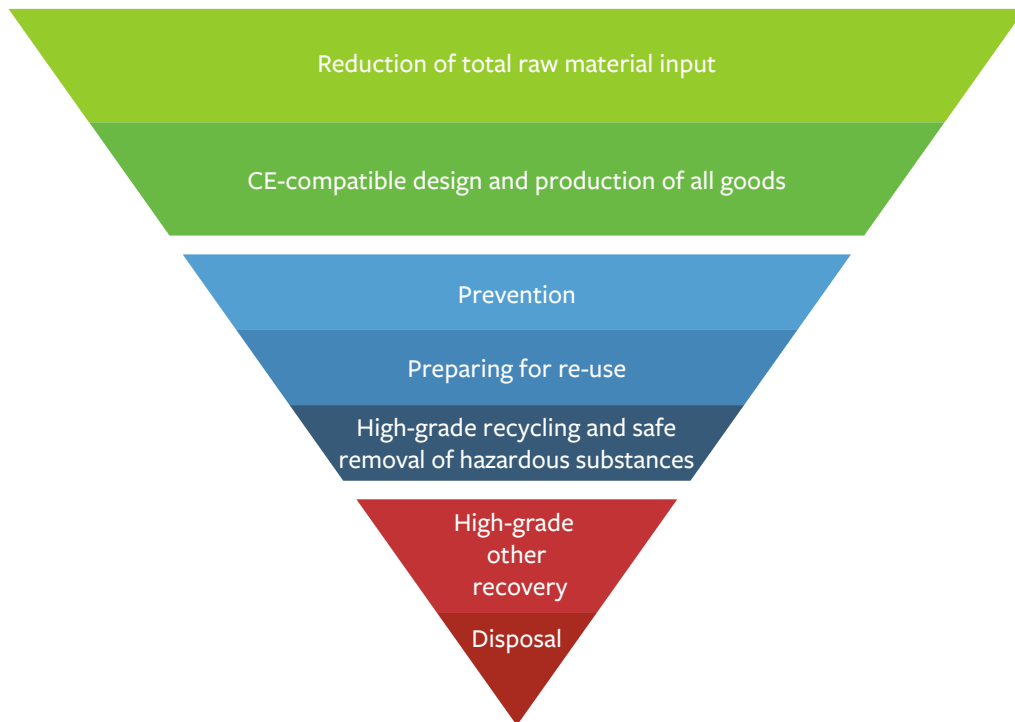
As part of the European Green Deal, the European Commission recently proposed that the EU should aim for greenhouse gas neutrality by 2050 and should revise the climate target for 2030. It thus recognises that the European programmes to date are not ambitious enough. 2020 will be an important year for European climate protection because the EU needs to flesh out and begin to implement its new strategy. The German government should campaign at European level for more climate protection. During Germany's presidency of the Council of the EU in the second half of 2020, it has the opportunity to promote climate targets that are demonstrably compatible with the Paris Agreement and to firmly embed the budget concept in the long-term strategy up to 2050 at European level as well.

Circular economy: from rhetoric to practice

Germany continues to consume too many raw materials and fails to retain them in the economic cycle sufficiently. In 2015, the country's „material footprint“, i.e. the sum of all raw materials required to manufacture the products and goods used domestically, was 22.6 tonnes per inhabitant. This was almost twice as high as the global average of around 12 tonnes. High

◦ Figure 2

Extending the waste hierarchy to a circular economy hierarchy



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consumption of materials has negative environmental impacts throughout the entire life cycle of the products and goods manufactured from them: the extraction of raw materials already generates social, environmental and health problems, as many of the countries where they are produced do not have stringent environmental or social standards. The processing of raw materials is responsible for up to 30 % of global greenhouse gas emissions. The use of the products manufactured also frequently consumes energy and can lead to the release of harmful substances into the environment. After their use, products have to be recycled or disposed of as waste. This again generates emissions, consumes energy and requires landfill space and sometimes additional raw materials.

„Business as usual“ is not an acceptable option from the SRU’s point of view. The only viable way forward is a genuine circular economy that reduces the overall use of raw materials and retains materials in the economic cycle as long as possible. To achieve this, politics and society must pay much more attention to the circular economy and give much more weight to the

high potential for reduction of material use and re-use and recycling.

At first glance, the circular economy is nothing new for Germany. The Circular Economy Act of 2012 defines the term as „the prevention and recycling of waste“. In practice, a „waste management system oriented towards circular material flows“ has been established with a strong focus on cost-effective recycling and safe forms of other recovery (e.g. energy recovery) and disposal. This pays particular attention to the last phase of a product’s life, but not to the entire life cycle of a product or to the reduction of material flows in general. However, this is too short-term an approach, because waste recycling and the subsequent substitution of primary raw materials by secondary raw materials contribute comparatively little to reducing the overall use of raw materials and the resulting environmental impacts.

This can be seen, for example, in the material flow of plastics. The use of plastics is continuously increasing in Germany. In packaging, it almost doubled between

1991 and 2017. In 2017, 6.2 million tonnes of plastics were collected as waste. Only a small percentage of this amount is actually used again as secondary raw material in the manufacture of high-quality plastic products.

The SRU believes that the existing instruments for waste and recycling management in Germany have not succeeded so far in establishing a genuine circular economy. The quality and quantity of secondary raw materials would have to be significantly increased for primary raw materials to be substituted to any meaningful extent. In addition, there is a lack of clear incentives towards waste prevention. Although waste prevention is the highest priority goal in the European waste hierarchy, in Germany it is happening only marginally if at all. Moreover, producer responsibility has not yet been embedded in such a way as to make a sufficient contribution to a circular economy.

In its „Circular Economy Action Plan“ of 2015, the EU goes much further than German legislation: it calls for „a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised“. The EU explicitly includes the production and consumption phase in its programme. In the view of the SRU, this is the right approach. However, at European level, too, a consistent product policy, with corresponding instruments to control material flows and influence product design, is still lacking. Neither at European nor at national level is the goal of using fewer raw materials overall firmly embedded.

The SRU therefore believes that the existing waste hierarchy needs to be extended by two additional steps: firstly, a general reduction of material flows, and secondly, integrating circularity into product design. The targeted reduction of relevant material flows would reduce environmental impacts along the entire raw materials and product chains. Durable, easily repairable, recyclable and pollutant-free design is a prerequisite for waste prevention and high-grade recycling.

The following strategic approaches are key to ensuring that policy for a circular economy becomes part of a precautionary environmental policy:

- The input of raw materials into products, infrastructure and services must be reduced. The SRU recommends the establishment of a national raw materials inventory, on the basis of which it will be possible to identify those material flows that most urgently

need to be reduced from an environmental perspective. In addition, the total raw material productivity indicator as set out in the sustainability strategy should be supplemented by a consumption indicator (RMC) and broken down by type of raw material.

- Primary raw materials must be given an „ecological true-cost pricing“, meaning one that internalises external environmental costs. The German government should make efforts to ensure that social and environmental standards are applied in countries producing raw materials, and that these are reflected in prices. Economic instruments such as CO₂ pricing or a raw materials tax represent additional possible steps.
- Measures to promote the circular economy should have a stronger ecological focus rather than a primarily economic one. This orientation should be systematically embedded within programmes and supported by instruments for evaluating the ecological effectiveness of measures.
- Waste prevention must be strengthened, and the service life of products extended. The Federal Government should work at EU level to ensure that the Ecodesign Directive is extended and specified to cover additional product groups. Requirements regarding durability, reparability and recyclability should be developed quickly and made mandatory.
- Existing producer responsibility must be advanced for the management of electronic waste, waste batteries, end-of-life vehicles and packaging waste. There must be clear rules to ensure that the costs of a circular economy are borne by those responsible for production and are transparently reflected in the price of the product. Additionally, Germany should advocate the principle of producer responsibility at EU level, to ensure compliance with the European internal market and to achieve ecological true-cost pricing. At national level, the Federal Government should look into introducing producer responsibility for furniture and textiles, because both are produced in large quantities, often contain high levels of pollutants and increasingly have only short service lives. As far as possible, products should be free of pollutants in order to simplify materials recycling and to enable the extraction of high-grade, uncontaminated secondary raw materials. Within the framework of future EU product and chemicals policy, lists of approved ingredients should be devel-

oped to provide manufacturers with information on ingredients suitable for high-grade recycling.

- Recycling must be rated not only on the basis of quotas and quantities, but also in terms of its quality. The recycling of products into secondary raw materials must be designed in such a way that it can compete in cost terms with the primary production of raw materials. The SRU recommends the introduction of transparent, advanced recycling fees, especially for end-of-life vehicles and waste electrical and electronic equipment, to enable high levels of dismantling and recycling to be achieved. To facilitate high-grade recycling, recycling quotas should be supplemented by a number of additional requirements. These include, for example, treatment requirements, specified output qualities, and monitoring requirements.

A circular economy places obligations on everyone: raw material producers, importers, manufacturers, retailers, the waste management and recycling industry, and consumers. As substantial consumers, public institutions at federal, state and local level are not only an important factor in the overall throughput of materials in the economy, they also serve as role models. The public sector should be a driving force for the transition to an ecologically oriented circular economy. The planned amendments to the national Circular Economy Act offer an opportunity for this. They currently envisage an obligation to give preference to eco-friendly products in public procurement processes. The SRU urgently recommends that this obligation be maintained. In addition, public institutions - above all federal ones - should enter into voluntary commitments which, among other things, give priority to recycled products and waste prevention.

A circular economy is not an end in itself, but an indispensable instrument for environmental and resource protection. There is an urgent need to reduce the overall demand for raw materials. Both at European and national level, the goal of reducing society's material flows should be anchored in political strategies and programmes. The German government should develop firm quantitative targets for specific raw materials. It could, for example, incorporate these into the German Resource Efficiency Programme (ProgRess) or the National Programme for Sustainable Consumption. The SRU also believes it is necessary to specify which material flows should be managed as a priority and which

approaches have the greatest ecological impact over the life cycle. So far, this has not been properly addressed either in the EU's programme on the circular economy or in the German programmes on sustainable consumption, waste prevention and resource efficiency.

A comprehensive and ambitious implementation of the concept of a circular economy is a great challenge – but one that politicians must face. In the 1990s already, the Enquete Commission on „The Protection of Man and the Environment“ of the German Bundestag published a report on „Prospects for a sustainable approach to material flows“. With the tailwind provided by the European Green Deal and the New Circular Economy Action Plan, Germany now has the opportunity to initiate important strategic changes and thus to transform the circular economy from rhetoric into practice.

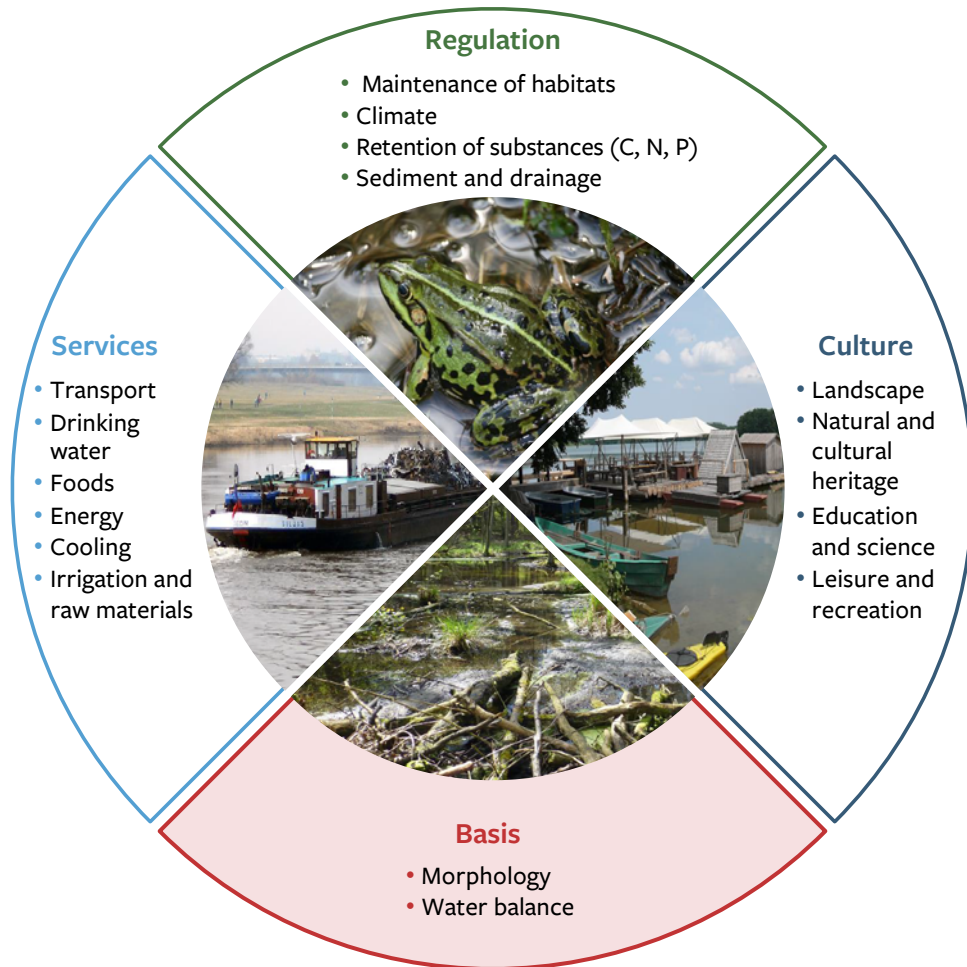
Using the Water Framework Directive for ecological water management

Intact water systems are a prerequisite for functioning ecosystems, biodiversity and living landscapes, but also for sustainable human water use and consumption. They provide numerous ecosystem services (Fig. 3). Surface waters are also influenced by climatic events: climate change has a direct impact on water temperature. In addition, it also affects the water supply via the increase in extreme weather events such as torrential rainfall. Conversely, the effects of climate change can be mitigated or slowed down by intact water bodies and their floodplains.

Lakes, streams and rivers in Europe have served humankind for centuries as transport routes, for drinking water and energy, and for recreation. As a result, surface waters in the EU are widely overused. Inputs of harmful substances and human structural interventions have affected and damaged rivers, floodplains and lakes. The Water Framework Directive of 2000 therefore requires the member states to achieve a defined „good status“ for all European waters by 2027 at the latest. This good status includes not only chemical quality standards, applying to factors such as the pollution of the water by specific pollutants, but also ecological parameters such as the longitudinal continuity of

◦ **Figure 3**

Ecosystem services provided by rivers and floodplains



SRU 2020; source: PODSCHUN et al. 2018

ivers or the structural integrity of their banks and riverbeds. Both aspects are essential for the life of plants and animals.

However, Germany is well short of achieving the targets set in the Water Framework Directive: in 2015, at the end of the first management cycle, 92 % of the assessed surface waters were not in a „good ecological status“. This means that only a few rivers and lakes offered near-natural conditions for plants and animals and had sufficiently good water quality. Not a single surface water body in Germany is currently in „good chemical status“. Many of the waters studied are ex-

cessively polluted with nutrients, pesticides and other pollutants from agriculture and industry, and also from transport and settlements. In addition, there are only a few rivers without hydromorphological modifications, i.e. which have not undergone changes to their structure and water balance. Most rivers have been modified by humans over time: they have been deepened, straightened, dyked and cut off from flood plains, and their passability for fish and other creatures has been impaired. In the view of the SRU, these hydromorphological interventions warrant much greater attention, and they therefore form the focus of this chapter of the environmental report.

There is no sign of a turnaround in the status of waters by the deadline of 2027 (which has already been extended). One reason for this is that the achievement of the objectives of the Water Framework Directive in Germany primarily relies on the volunteer principle and cooperation. Water conservation and water development policy lack the binding force needed. Secondly, there is a lack of the strong political commitment required to give the issue the necessary weight.

The SRU has identified three main hurdles to the successful implementation of the Water Framework Directive:

- Lack of land availability: In order for water bodies to recover and be restored, they need space. This space must be accessible to or in the possession of the authorities and those responsible for taking measures, which is often not the case.
- Insufficient financial and human resources: ecological development of watercourses is often underfinanced. In addition, there is a lack of qualified personnel for the implementation of the Water Framework Directive, especially in small associations and municipalities.
- Lack of acceptance for measures: Many actors and people affected are not sufficiently aware of the objectives of the Water Framework Directive and the great importance of water conservation for the environment and climate. Since those using waters are often pursuing different interests, this leads to resistance and delays in implementation.

Water conservation and restoration are complex tasks – all the more so since the Water Framework Directive is concerned with improving transnational and cross-border river basins. The planning and coordination needs of authorities, associations and individual actors are therefore enormous. In the past, it has been possible to improve the hydromorphology of water bodies or sections of water bodies on a selective basis. For the reasons mentioned above, however, it has not been possible to take the requirements of ecological development of watercourses into account everywhere and to systematically restore German waters to their natural state.

The SRU considers it urgently necessary to make more land available for ecological water management. An es-

sential instrument for this is a sectoral planning system that specifies the land requirements and ways of securing land in a precise and transparent way. If it is not possible to acquire the land under private law, land consolidation measures may be considered. Water management plans include the necessary measures for protection and restoration and explain why they are necessary. A two-stage system would make sense: at the regional level, the overall plans would be drawn up; at the municipal level, the measures would be specified in detail, and the necessary participation and communication would take place – whereby the communication of successful local water conservation measures would also be an important aspect.

In addition, in order to ensure an ecological watercourse management system, the Federal Water Act must be improved. In particular, this requires that the federal states (Länder) designate the area required for the near-natural development of their waters as water development areas. Within these areas they should be able to designate priority areas on which they can, for example, impose bans or restrictions on use. The SRU also recommends that the federal government extend the compulsory purchase options of the Länder to include land on which water development areas are situated. In addition, maintenance companies should be obliged to implement measures for the development of near-natural watercourses – combined with an obligation for the Länder to support them by providing resources (funds and personnel).

In order to improve the effectiveness of water conservation policy, the SRU proposes a joint initiative of the Federal and Länder governments. This could raise awareness of the importance of water conservation among municipalities and associations, water users and the general public. At the same time, it could promote training in relevant occupational fields and draw attention to the need to set up the necessary bodies and ensure their long-term viability. Such a Länder initiative should tie in strategically with the „National Water Dialogue“ established during the UN Water Decade (2018–2028).

Without sufficient financial resources, ecological watercourse management is not possible. There is certainly scope for improving financing. It is incumbent on the federal government to provide funds and expert personnel for an ecological upgrading of federal waterways in line with the objectives of the Water Framework Directive. Funding instruments can be adapted

so that they take better account of the objectives of the Directive. For example, the joint task „improvement of the agrarian structure and the coastal protection“ should make it possible to finance the acquisition of land. The SRU also recommends that the federal and state governments introduce a new joint task on „the protection of nature and water bodies and flood defences“ in the medium term. Last but not least, the Länder should contribute to the better use of national and European financing instruments. For example, they can make better use of water abstraction charges to support ecological restoration of water bodies.

What is undisputed is that near-natural water bodies are of fundamental importance for people, nature and sustainable development. They are indispensable for adapting to climate change and protecting biodiversity. Climate change in particular will play an increasingly important role in the coming years. Water conservation is a generational task and it can take years or even decades before measures are fully implemented and able to achieve a positive impact. The Water Framework Directive, as complex as it is, draws attention to the transnational importance of intact water bodies and links water conservation with other nature conservation objectives and the interests of the common good. This fact must be better communicated and exploited as an opportunity.

Because of its outstanding importance, water conservation needs to be given more attention not only in environmental policy but also in other policy areas. For example, the EU's Common Agricultural Policy should be considerably stronger in addressing water conservation and ecological water management.

It is highly unlikely that it will prove possible to achieve good status for all waters in Germany by 2027. Nevertheless, every effort must be made in the time remaining to come as close as possible to the target. Even after 2027, the implementation of the Water Framework Directive should continue to be pursued with a high level of ambition. If measures are well planned and all stakeholders are involved at an early stage, conflicts over use can be avoided and public acceptance increased. An ecologically and chemically good status for inland waters, including their floodplains, is undoubtedly a challenging target for everyone, but it is the only way to reactivate and maintain them as the living arteries of the landscape and as biodiversity hotspots.

Reducing traffic noise to improve health and quality of life¹

Intrusive environmental noise is part of everyday life for many people in Germany. According to a representative survey from 2016, 80 % of people in Germany are affected by traffic, industrial and neighbourhood noise. Traffic noise in particular is a significant health risk: one in ten people in Germany is affected by road traffic at a noise level that the World Health Organization (WHO) believes can make them ill. Among other things, chronic noise pollution contributes to the incidence of cardiovascular diseases. If the continuous sound level of road traffic noise increases by 10 dB(A), the relative risk of coronary heart disease increases by 8 %. Children are especially in need of protection because their health and development in this sensitive phase of life can be negatively influenced by noise immissions.

Moreover, socially disadvantaged people often suffer greater exposure to these risks, as they are more likely to live in areas with high levels of traffic noise pollution. However, even if the spatial distribution of environmental noise pollution is the same, socially unequal health effects can occur due to differing vulnerabilities among the respective population groups.

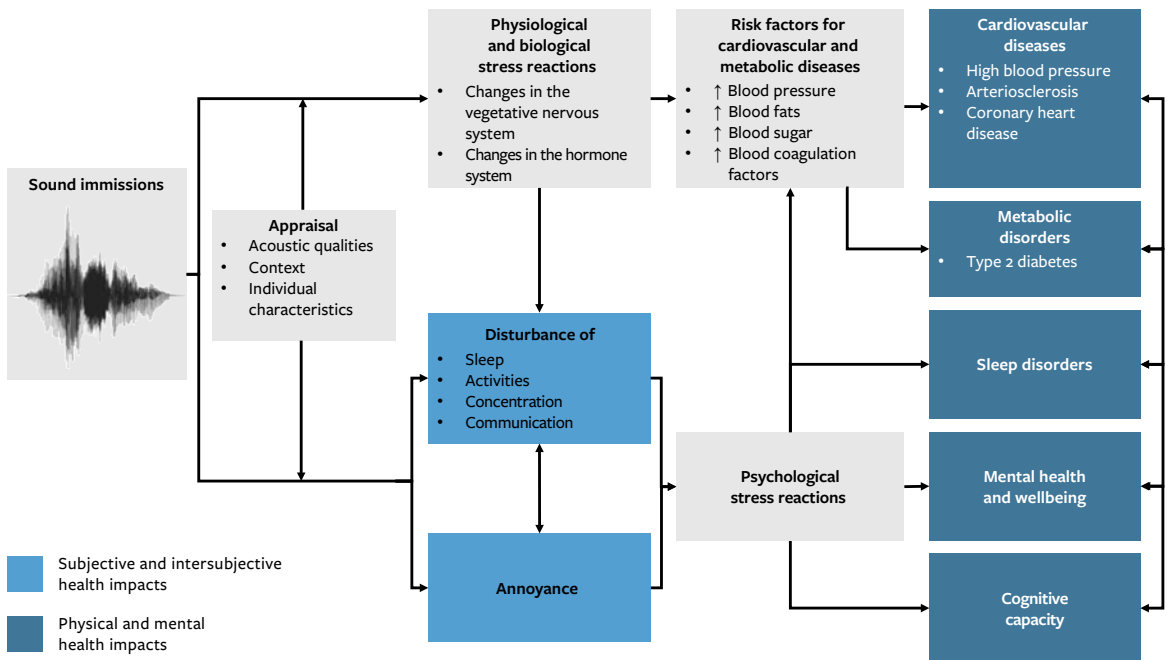
Protection against noise pollution must therefore be urgently improved in Germany. The European Environmental Noise Directive is the key political instrument setting guidelines for the management of environmental noise. However, the implementation and enforcement of this directive have not yet had sufficient effect in Germany. The directive stipulates how noise mapping is to be carried out in the member states and provides guidelines for drawing up noise action plans. In addition, it requires the designation of quiet areas within agglomerations. Demonstrating the extent of the problem by means of noise mapping is an important contribution to protection against noise pollution. However, the mapping mainly applies around major airports, major roads and major railway lines and therefore does not include all those affected.

Noise mapping and noise action planning are primarily the responsibility of local authorities. They can do a lot to reduce noise pollution, but they lack the compe-

¹ Prof. Dr.-Ing. Messari-Becker has a dissenting view on this chapter; see Appendix to the long version.

o Figure 4

The potential health impacts of noise pollution



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tence to introduce certain measures. Only about a third of the municipalities that have carried out noise mapping have so far drawn up noise action plans. The municipalities have also so far failed to designate enough quiet areas and to improve their protection against noise. The SRU believes that the implementation and enforcement of the Environmental Noise Directive in Germany must be improved. An important step in this direction would be the introduction of a regulation with uniform nationwide trigger values above which local authorities are obliged to draw up noise action plans. These thresholds should be set at 65 dB(A) during the day and 55 dB(A) at night. The regulation should also stipulate that agglomerations must designate quiet areas in sufficient numbers, distributed over the entire agglomeration. In addition, the binding nature of municipal noise action plans should be enshrined in federal law, so that they have an external impact on other sectoral planning regulations.

In Germany, binding precautionary values for noise control only apply to the construction of new roads and railways and to significant changes to existing ones. For existing roads and railways higher noise level values are

used, which are also well above the current WHO guideline values. Experts recommend using 65 dB(A) during the day and 55 dB(A) at night as the upper limit for permissible noise exposure in order to protect human health. The SRU proposes that these upper limits be laid down by law throughout Germany for existing roads and railways in residential areas. In the long term, they should be lowered to 55 dB(A) during the day and 45 dB(A) at night.

Local authorities often lack the financial means to reduce road traffic noise. However, noise control can only be achieved on the basis of secure and predictable financing. A sensible form of support for local authorities would be a federal financing programme, but the federal and state governments have not yet been able to agree on this. In the view of the SRU, the federal and state governments have a shared responsibility to support municipalities in financing noise control on roads for which those municipalities are responsible. This could be done, for example, by launching a new joint long-term investment programme and by better integrating noise control into urban development funding.

Protection against traffic noise must also start at the source. Measures that directly reduce vehicle noise have the great advantage that the noise reduction occurs everywhere and thus benefits everyone. However, the currently applicable sound level limits for road and rail vehicles as well as for aircraft do not exhaust the technical potential for noise reduction. The Federal Government must therefore lobby for ambitious sound level limits for vehicles, at EU level for road and rail vehicles and at international level for aircraft. For freight trains, which mostly run at night, the noise-based train-path pricing system should be further developed in such a way that it provides an economic incentive to use trains that are as quiet as possible. Further noise reduction measures are also needed for air traffic. For example, more attention should be paid to noise protection considerations when determining flight routes and in the national air traffic strategy. In addition, the SRU agrees with the recommendation of the Federal Environment Agency that a ban on night flights at airports close to urban areas should be introduced in future.

To reduce road traffic noise in urban areas, car traffic must be reduced, slowed down and shifted to quieter means of transport. This could be achieved by reducing the general speed limit in built-up areas to 30 km/h, by strategic parking management in cities and by introducing a distance-based car toll. Attractive alternatives are needed for those who want car-free mobility. Municipalities and regions must therefore strengthen, expand and modernise public transport, walking and cycling. This also includes simplifying the creation of lanes for buses and bikes.

Two significant aspects have been relatively neglected in the debate on noise control to date:

- Noise pollution causes illness. Traffic noise is often referred to as nothing more than an annoyance. The fact that chronic noise pollution also contributes to the overall burden of disease through other health-related effects and thus results in high consequential costs is still not sufficiently recognised. The Federal Environment Agency has calculated that road traffic noise alone resulted in a total cost of illness of 1.68 billion euros in Germany in 2016. The negative health effects of noise and the associated high sickness-related costs have not yet been adequately communicated. This information is key to increasing public acceptance of noise reduction measures and politicians' willingness to finance such measures. An inter-ministerial committee on traffic

noise and health should therefore be set up to work towards developing a cross-departmental understanding of the impact of traffic noise on public health.

- Noise pollution is not distributed equally. The socially disadvantaged in particular are disproportionately affected by high levels of traffic noise. They are therefore exposed to higher noise-related health risks than high-income households. Neither noise abatement policy nor clean air policy take environmental inequality sufficiently into account. The SRU therefore recommends that environmental justice should be a guiding principle both in noise action planning and as a cross-cutting objective in municipal development strategies.

Noise pollution is not an isolated environmental problem. The WHO recommends that approaches to tackle environmental noise and other environmental risks should be coordinated. In the view of the SRU, the federal states (Länder) should in future be subject to regulations obliging them to draw up sustainable urban mobility plans for cities with 50,000 inhabitants or more. The great advantage of such plans is that integrated transport development plans link urban development concerns with noise prevention and with environmental and climate protection. In this way, they not only reduce everyday noise pollution but also air pollution, and at the same time they promote green spaces and the development of quiet areas. Better health and a better quality of life for all – these objectives also constitute powerful arguments for increasing acceptance for the transport transition we need.

Active and environmentally friendly urban mobility: enabling change²

How should we move around our cities in the future? The most attractive cities are those where people like to walk and cycle: compact cities with good public transport systems. Once private cars dominate urban traffic less and require less parking space, compact settlement structures can be combined with a high proportion

2 Prof. Dr.-Ing. Messari-Becker has a dissenting view on this chapter; see Appendix to the long version.

of green space. The aim is a change in everyday traffic that ensures the mobility of individuals in a sustainable way. Such a change should meet the needs of environmental and climate protection, offer alternatives to the car, be safe and accessible, and in principle should benefit everyone regardless of age or social status. An urban mobility transition of this kind, understood as a sustainable change in mobility behaviour, can thus make a decisive contribution to the overall transport transition.

However, city traffic has been dominated by the car for decades. The consequences are noise and air pollution, increasing land and energy consumption, and high health and environmental costs.

Everyday mobility, especially in cities, can be transformed in such a way that quality of life takes centre stage. Short distances, well-developed cycling and walking routes, frequent regular trains and electric buses enable a new kind of transport system that is environmentally friendly, fast, healthy and stress-free. The majority of the population would benefit from an attractive urban transport system that combines public transport, walking and cycling. This is because almost 80% of the people in Germany live in large and medium-sized cities, i.e. cities with at least 15,000 inhabitants. A trend towards the use of less motorised private transport can be observed in cities, even if this change is progressing only slowly. It can be seen not only in the many referendums on the subject of cycling, but also in the fact that younger people in large cities are more likely to use public transport, cycling and walking and to acquire a driving licence later in life. For many, the car is no longer such a prestige object.

Public transport will form the backbone of everyday mobility in the future. It is a key building block of public services. It should enable people to cover the distances required for everyday life at affordable cost and with manageable effort - and this applies no less to the elderly, to children and to people with restricted mobility. To achieve this, local public transport systems will need to be considerably expanded and improved. Their capacity must be significantly increased, and door-to-door journeys made possible. In future, federal funds should be made available not only for new investments, but also for maintenance and operation of the public transport system. The principle of priority for public transport should be enshrined in the Road Traffic Act.

Mobility is movement. In the urban traffic systems of the future, walking and cycling should therefore both play an important role. Walking and cycling promote health and cognitive abilities and prevent illnesses. According to the World Health Organisation, 42% of adults in Germany do not get enough exercise. This makes Germany one of the countries in Europe with the lowest levels of physical activity. Pedestrian and bicycle traffic also enliven public spaces, promote the local economy and facilitate social encounters and communication. The National Cycling Plan should therefore be updated with ambitious goals and a national pedestrian strategy introduced.

New modes of shared mobility, from stationless car sharing to e-scooter rental, are currently attracting a great deal of attention. However, the environmental impact of each of these schemes must be individually evaluated, and can sometimes turn out to be negative, especially when they replace public transport, cycling and walking. From an ecological point of view, the aim should therefore be that such sharing schemes complement public transport where there are gaps in provision and facilitate intermodal transport in the city other than by car. This requires greater spatial control over the schemes.

A transition in the way people move around (hereinafter: mobility transition) requires coupling measures to improve the supporting framework for public transport, cycling and walking (pull instruments) with measures to reduce motorised private transport in cities (push instruments). In addition to expanding and strengthening public transport, and the infrastructure for cycling and walking, measures that make individual car use less attractive are essential. Less car traffic in cities leads to a better quality of life for all and is also crucial for the achievement of the climate and environmental goals in the transport sector.

Changes to the Road Traffic Act and the road traffic regulations could be a key lever in this respect. They currently strongly favour the car. The traffic authorities have so far only been able to restrict car use for traffic management reasons. This means, for example, that neither the introduction of parking charges nor the establishment of cycle paths can currently be based on the need to promote environmental and climate protection. The aims of the legal provisions therefore need to be supplemented: climate, environmental and health protection, as well as urban planning, must also be included as legitimate objectives. The municipalities must

◦ Figure 5

Recommendations for active and environmentally friendly urban mobility

	Federal government	Länder	Municipalities
Maintain and extend infrastructure	Extend and improve walking and cycling infrastructure		
	Give walking and cycling institutional basis		
	Amend legislation on financing municipal transport to include maintenance and operations		
	Establish fair competition conditions for mobility data		Spatial management of sharing schemes, use data for traffic planning
Bring actors together	Use mobility management		
Improve planning		Obligatory Sustainable Urban Mobility Plans	Sustainable Urban Mobility Plans in cities with more than 50,000 inhabitants
Reform the road traffic laws	Update the Road Transport Law in terms of aims and powers		Use road traffic regulation to re-organise traffic
	Introduce new requirements for parking space management		Improve management of parking
	Remove cap on residents' parking		Increase charges for residents' parking
	General maximum speed limit in built-up areas 30 km/h		Set up cycle lanes, restrict moving traffic
	Prioritise public transport, cycling and walking		
Apply economic instruments	Introduce distance-based car tolls		
	Stringent road pricing		

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be given greater powers vis-à-vis the transport authorities when traffic measures are decided.

At the municipal level, sustainable urban mobility plans are essential for a strategic combination of push and pull instruments and thus for the success of the mobility transition with respect to urban transport. The concept of sustainable urban mobility plans is also receiving particular support from the European level. The German Länder should therefore oblige municipalities with populations over 50,000 to draw up such sustain-

able urban mobility plans. In order to take appropriate account of urban-rural relations, coordination with neighbouring communities should form an important part of such plans.

As a further component, the private use of public space by cars must be charged for in such a way that it increasingly becomes available to all citizens once more. To achieve this, the scope for parking charges must be expanded. So far, pressure for parking space has been the only valid grounds for the introduction of parking

charges. And even where there are charges in Germany, public (parking) space is extremely cheap, as is the case with residents' parking. The cap on charges for residents' parking at federal level should therefore be lifted.

The SRU also advocates a distance-based car toll. This should be based on both kilometres travelled and the pollutant, noise and CO₂ emissions of the vehicle. A nationwide toll would achieve significantly better effects than a city toll and would avoid a patchwork of different regulations in German cities. In addition, nationwide regulations have a greater level of public acceptance. A congestion charge reduces the number of vehicles entering a defined area and therefore only has an effect in (inner) cities. A similar reduction in the number of cars in a city can be achieved just as easily by restrictive parking charges.

The neighbourhood: a space for more environmental and climate protection

More and more people live and work in cities. How much energy they consume there, how climate-friendly their heat and power generation processes are, how they use land and move around are all therefore of great importance for environmental and climate protection. Neighbourhoods play an important role in this, as they represent a spatial unit that forms a link between the individual buildings and the municipal or district level. In addition, the size of the neighbourhood makes it manageable on the one hand, but on the other hand allows it to reflect a variety of uses. It is where quality of life, urban infrastructure and commercial activity are directly experienced by everyone. Various measures that serve environmental and climate protection and create synergies with other objectives can be implemented at the neighbourhood level. Examples include local heat grids, serial energy efficiency-oriented refurbishment, collective renewable energy production, and also the shared use of recreational areas and mobility services. The size and layout of neighbourhoods vary according to the specific project and the local conditions. Nevertheless, neighbourhoods always form defined spaces in which local authorities can analyse and work on ecological challenges. Numerous synergies can arise in the fields of energy, urban planning to reduce use of land and avoid traffic, and neighbourhood-related governance.

Not the least important factor is that people identify with their neighbourhood. The neighbourhood is therefore particularly suitable for civil society engagement. Each neighbourhood contains a great variety of actors and structures, and the expectations, requirements and personal networks of those involved are correspondingly diverse. Cooperation and participation as well as management and communication are therefore crucial for a collective approach to better environmental and climate protection.

The technical potential of neighbourhoods has already been recognised in the academic world and to some extent also in politics, but now it is a matter of realizing it in practice. The SRU recommends the establishment of cooperation platforms, where possible based on existing structures such as neighbourhood management bodies. Such platforms will involve a variety of actors, support the establishment of actor networks and monitor and support the implementation of the measures envisaged in the neighbourhood strategy. There is also a need for reform within local administration, as the instruments for integrated planning and action are not yet sufficiently firmly established. Collective action across the individual disciplines is indispensable for better environmental and climate protection in urban neighbourhoods. Last but not least, an integrated approach also requires people to look beyond their city boundaries: intermunicipal cooperation, which has now also found its place in urban development funding, can open up important synergies for environmental protection and people's quality of life. Finally, projects at neighbourhood level require sufficient staff resources both on site and within the local administration.

The SRU recommends that funding for the implementation of integrated sustainable neighbourhood plans be increased significantly in order to tap the specific potential of the neighbourhood and at the same time to take account of its diverse infrastructure and functions. The level of funding should be based primarily on the added value offered by the measures proposed for environmental and climate protection.

The buildings sector has an important role to play in meeting climate protection targets, since - like transport - it has so far contributed little to reducing greenhouse gas emissions. By increasing efficiency and supplying heat from renewable energy sources, it can make a major contribution to climate protection, especially in urban areas. So far, political measures have been heavily focused on individual buildings. However, the

o Figure 6

Recommendations for better environmental and climate protection at the neighbourhood level

	Thematic complexity	Diversity of actors	Financial resources	Legal framework
Overarching recommendations	Launch funding initiative for the implementation of integrated sustainable neighbourhood plans			
	Support for cooperation platforms			
Energy (Framework)	Adapt administrative structures	Incorporate neighbourhood level in Leipzig Charter 2.0		
			Make use of national flexibilities in implementing the Clean Energy Package	
			Establish retrofitting paths	Enhance innovation clause in the German Energy Act for Buildings
				Greater focus on heating grids
Energy (Implementation)	Establish advice centres at Länder level		Support 'net rent neutral' neighbourhood retrofitting	Develop and establish drafts for neighbourhood targets
	Support retrofitting communities through implementation management			Link renewable energy potential to energy demand, exploit digitalisation
Urban planning to reduce use of land and avoid traffic	Develop neighbourhood usage concepts		Investigate scope for and promote unsealing projects	
	Promote and support multi-functional usage			

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energy retrofitting of individual buildings is not enough. Moreover, it can be inefficient, as can individual heat supply. The SRU therefore recommends a stronger focus on neighbourhoods - from all levels, from the EU down to local authorities - and a stronger focus on the concept of local-level heating planning. The innovation clause in Section 103 (3) of the German Energy Act for Buildings enables building efficiency requirements to be met jointly and thus opens the door to the joint retrofitting of several buildings as a group. However, this must not lead to the potential efficiency gains of individual buildings remaining underutilised, especially as the standards for individual buildings are not very ambitious. In future, the law should offer more scope for the neighbourhood level, for example by extending the innovation clause to larger clusters of buildings.

The SRU believes it is important that the Renewable Energy Directive is implemented swiftly. The scope offered by the Directive for the self-supply of electricity and for cooperative schemes such as neighbourhood

power supply, citizen owned energy communities and tenants' associations should be used to strengthen participation and expand the possibilities for self-supply. In addition, the framework conditions for the supply of electricity produced by building owners for the tenants ("Mieterstrom") should be changed to make it significantly more attractive for suppliers. The recommendations presented in the July 2019 progress report for the BMWi on this issue provide a good starting point.

In urban renewal programmes supported by the KfW, neighbourhood-based retrofitting schedules should be included as a criterion for funding in order to increase the rate of retrofitting of the building stock, reduce the final energy demand and to increase the supply share of renewables. Neighbourhood-based retrofitting schedules focusing on the optimisation of heat supply and heat generation from renewables should also be eligible for funding. In general, more importance must be attached to heating in energy policy programmes.

Tenants often have to absorb rent increases following energy retrofitting work if the rise in the basic rent is higher than the fall in heating costs as a result of the retrofitting. Households with below-average incomes must also be able to benefit from the urban energy transition and from energy retrofitting measures. The SRU therefore believes that the existing subsidy programmes should be supplemented by „net rent neutral“ (warmmietenneutrale) neighbourhood retrofitting schemes.

Neighbourhood energy audits help to identify building clusters that have similar prerequisites for energy retrofitting or similar potential for the use of renewable energies. This enables retrofitting to be carried out more efficiently and cost-effectively than on the basis of single buildings. At neighbourhood level, the collective generation of heat and electricity can also be increased, thus contributing to the energy transition.

The opportunities offered by digitalisation must also be exploited in neighbourhood development projects. Data from geoinformation systems are an essential foundation for such tasks as analyses as well as demand and energy audits and should therefore be made available to all stakeholders. In energy retrofitting, digitalisation can help to support joint initiatives and to enable economies of scale and makes it easier for the resulting cost savings to be exploited more quickly and effectively.

Another challenge in neighbourhoods, besides the energy transition, is the efficient use of land as a limited resource. For what purposes, and for whom, should public spaces be made available in the future? Who should pay how much for what kind of use? It is by no means easy to bring together the different demands on and different functions of urban space.

The solution lies in intelligent usage concepts and multifunctionality, enabling land to be used effectively, in the public interest, in a climate- and environment-friendly way that involves only short and simple journeys. The compact city is therefore a key concept for sustainable urban development. The idea behind this is that residents can meet all their daily needs within their neighbourhood or in the immediate vicinity. This reduces traffic, cuts emissions and improves the quality of life.

In Germany, a high proportion of urban land is in private hands. For this reason, the mobilisation of private actors is of central importance for environmental and

climate protection. In the sustainable city, the residents themselves are the agents of neighbourhood development. They act as users, consumers, co-decision-makers and investors all at the same time. In order to keep these actors better informed, the SRU recommends the establishment of advice centres at Länder level to improve community heat and power generation in the neighbourhood.

The SRU recommends that during Germany's EU Council Presidency in the second half of 2020, it should strive to enshrine the neighbourhood in the Leipzig Charter 2.0 as a level for political action. This would also strengthen the importance of neighbourhoods for European environmental and climate protection and for integrated, sustainable urban development throughout Europe.

The future of European environmental policy

The European Green Deal presented by the European Commission in 2019 should be a green flag for faster progress. In Germany and in the EU politicians must demonstrate that they are capable of effective action in the face of enormous environmental and economic challenges. There can be no doubt that European environmental policy has achieved a great deal. The EU is and remains an important driver of environmental law and policy. Nevertheless, the necessary fundamental strategic decisions have not yet been taken to the extent called for. More than half of the European sustainability targets for 2020 are likely to be missed. Final energy consumption and emissions from transport and agriculture continue to increase and the loss of biodiversity is advancing. Environmental progress has also slowed down in key areas such as greenhouse gas emissions, waste streams and energy efficiency.

One of the reasons for this is that there is an implementation and enforcement deficit in European environmental policy at the level of the EU itself, but also at the level of the member states. In addition, despite the binding EU mandate under Article 11 TFEU, environmental and climate protection concerns are still insufficiently integrated into key policy areas such as agricultural, transport, economic and infrastructure policy. Moreover, ongoing environmental problems in many areas require a fundamental change in behaviour.

These include energy supply and mobility, agriculture and the use of finite resources.

In recent years, the EU has been confronted with a series of crises, such as the financial crisis, crisis of asylum policy and the withdrawal of Great Britain from the EU. So environmental and climate protection has not been at the forefront of European politics in the last few years. The European Green Deal, which aims to achieve climate neutrality by 2050, now offers an important opportunity for Europe and makes it clear that fundamental transformations are needed.

At the same time, in the planned conference on the future of Europe, citizens will be involved in discussions on the direction the EU should take. The 2017 White Paper on the Future of Europe, which defines and describes a variety of development paths, provides a basis for these discussions. For environmental policy, the SRU believes it makes sense to develop a model involving the differentiated exercise of competences with regard to environmental protection. This should enable EU-wide regulations with effective implementation and at the same time allow necessary national differentiation to strengthen protection tailored to regional environmental conditions by giving some discretion and authority to the member states and regions.

On the one hand, then, the EU must now breathe life into the European Green Deal. To this end, the planned European climate law should set out an ambitious and transparent reductions pathway. In the view of the SRU, the 8th Environmental Action Programme could act as a monitoring framework for the implementation of the European Green Deal. The EU has committed itself to achieving the UN's sustainability goals by 2030. These Sustainable Development Goals (SDGs) should be integrated into the „European Semester“ as an instrument already in place for strengthening environmental protection and sustainability.

At the same time, the mandate given in Art. 11 TFEU for the integration of environmental concerns into other policy sectors must be put into effect. The need for integration and adaptation is particularly great in the agricultural, fisheries and transport sectors. In line with the European Green Deal, all measures in these areas must be consistently focused on environmental sustainability in order to significantly reduce negative impacts on health, biodiversity, air, water and soil. Ongoing monitoring of the European decision-making processes is therefore indispensable to the successful implementation of the climate law provided for in the European Green Deal. This must be ensured by appropriate institutional arrangements, such as en-

◦ **Figure 7**

Recommendations on the future of European environmental policy

European Green Deal	EU implementation of Agenda 2030	Enforcement
<ul style="list-style-type: none"> - Fleshing out the European Green Deal - Climate Law at the EU level - Greening the EU Budget and economic policy - Greening sectoral policies (CAP, CFP) - Use the 8th Environment Action Plan as a monitoring instrument for the European Green Deal 	<ul style="list-style-type: none"> - Set priorities for the implementation of Agenda 2030 at EU level - Strengthen sustainability in the institutions Develop the EESC into a European Sustainability Committee - Coupling the European Semester with the SDGs 	<ul style="list-style-type: none"> - Capacity Building in the member states to improve the enforcement of environmental law - Issue an Inspection Directive at European level - Improve environmental governance Transparency, public participation, access to the courts, ensure compliance, efficiency and effectiveness

vironmental officers in the Directorates-General and a reformed European Economic and Social Committee (EESC).

In order to better embed the issues of sustainability and climate protection on an institutional level, the SRU recommends strengthening and expanding the EESC as the central voice of civil society organisations. The EESC already advises the European Council, the European Commission and the European Parliament on economic and social matters. Since many economic and social development issues can no longer be dealt with today without taking environmental challenges into account, the EESC should be guided by the principle of sustainability and renamed the European Sustainability Council. Its task would be to work towards the implementation and observance of European sustainability policy the climate protection strategy. To this end, it would need to be given greater political authority.

Member states must be not only willing but able to implement existing European environmental legislation, the SDGs and the European Green Deal. To do so, they need functioning governance structures and sufficient financial, technical and human resources. In its communication on the European Green Deal, the European Commission has made it clear that it will support the member states in its implementation. The new Directorate-General for Structural Reforms can help build more effective institutions and more efficient public administration. In addition, a so-called Inspection Directive is under discussion, which would provide concrete guidelines for the enforcement of environmental law and thus also ensure that environmental administrations are better equipped. The SRU supports this idea, since laws are only ever as good as their enforcement.

Ambitious goals, focused yet flexible working methods, clear guidelines for implementation and monitoring and, last but not least, comprehensive integration of environmental and climate protection objectives into all important policy areas - the challenges for the EU are great. But this is the only way to ensure that the epochal environmental problems can be effectively solved. An additional consideration is that European goals as embodied in the European Green Deal can also serve internationally as a model. Only, however, if the EU speaks with one voice and acts collectively. Then it can set standards that resonate globally and have a real impact through its trading power.

Looking ahead

The various individual analyses highlight a number of important overarching questions that will need to be answered if we are to enact an ambitious environmental policy in Germany and Europe:

How far-reaching can the changes be that environmental policy demands from people? The more valuable time elapses, the more radical the measures recommended by science to protect the natural foundations of life will have to be. For example, CO₂-emissions paths compatible with the objectives of the Paris Agreement have to be increasingly steeper the longer effective emissions reductions remain unachieved. At the same time, policymakers from other sectors often ask for measures to be allowed to lag behind the scientific recommendations because of social and economic considerations. In the view of the SRU, protecting the foundations on which life depends in the long term must remain a non-negotiable red line for environmental policy. That said, the more far-reaching the environmental policy, the more consideration must be given to cushioning social hardship resulting from environmental policy measures.

How do politicians and policymakers deal with the increasingly frequent failure to meet targets? Germany, for example, is currently falling behind on 20 of the 25 environmental goals in the German Sustainability Strategy for 2030. Even legally binding targets are often not met, for example with regard to water conservation, air quality and climate protection. So far, the failures are too often simply accepted, and targets are postponed into the future. This raises the risk that environmental goals lose credibility. In order to avoid this, the implementation and enforcement of existing environmental legislation urgently needs to be improved. In view of the scale of the challenges, however, it is clear that there will continue to be certain areas where scientifically justified targets cannot be achieved. A transparent, constructive and reflective approach to such failures should be developed. This means that the causes must be systematically analysed, action plans adapted accordingly, and forms of supervision and control enhanced. Examples here are the German Sustainability Strategy and the national climate protection targets. In addition, arrangements must be made for the continuous updating of targets to reflect the current state of scientific knowledge.

Finally, the analyses conducted for this report confirm that a key question of environmental policy remains unresolved: how can environmental protection be effectively integrated into other policy areas? As long as such sectors as transport, agriculture, product management and financial policy do not take the protection of natural resources seriously and do not orient their actions towards sustainability, then our environmental and climate goals cannot be achieved.

Our society faces the elemental challenge of protecting the foundations on which life depends.

An intact environment is the irreplaceable basis for our social, but also our economic life, for our health and our prosperity. A failure to successfully meet this challenge would affect not only us, but above all the younger and future generations. Growing public awareness among the younger generation in particular, with their demands for stronger climate protection, together with the long-term strategic decisions currently facing Europe, offer an important opportunity for a change of political priorities and for environmental policy to finally take the lead.

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