



Environment – Policy – Advice

for Mitigating Climate Change, Conserving Biodiversity and
Creating a Cleaner Environment

A contribution to the discussion and a practical guide
for the advisory work of the GIZ

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

10 JAHRE



Foreword

The COVID-19 pandemic has illustrated in dramatic fashion just how closely human development is bound up with the state of the environment. The deterioration of our planet is having a direct impact on health and prosperity around the world. The international community is a long way off a sustainable development trajectory, despite having merged the global environmental and development agendas in 2015 and agreed on common Sustainable Development Goals (SDGs).

There are hopeful signs of a rethink, for instance, in the way that a number of governments are integrating environmental conservation and climate change mitigation into their green recovery measures, in the fact that the EU and its member states are raising their ambition level for climate change mitigation and environmental conservation in the Green Deal, in the dedication of young people around the world to promoting environmental transformation, and in the growing number of private companies making voluntary commitments to sustainability and climate neutrality.

The tangible urgency of global and local environmental issues, the changes in international frameworks and the burgeoning requirements in terms of environmental policy have all led GIZ to review its own approach to advising on environmental matters. This sees the company updating two previous papers: 'Umwelt – Politik – Beratung. Ein Diskussionsbeitrag zu den Möglichkeiten und Grenzen der TZ' ('Environment Policy Advice. A Contribution to the Discussion on the Opportunities and Limitations of Technical Cooperation') from 2001 (German only) and 'Umwelt – Politik – Beratung: Ein Orientierungspapier für die internationale

Zusammenarbeit' ('Environment Policy Advice. A Guidance Paper for International Cooperation') from 2010 (German only). This paper is the result of a multi-year process of cross-departmental dialogue, which included discussions at GIZ conferences in 2016 and 2018 and a summer workshop on modern environmental policy in 2017. Surveys of selected GIZ experts and discussions with external academic experts provided further impetus.

The 'Environment Policy Advice' paper is designed to provide guidance to all GIZ employees in Germany and abroad and to other international cooperation players on how to design their environmental policy advisory services. The 'Environment' section describes current environmental and societal challenges and trends. The 'Policy' section outlines the wide-ranging requirements for effective environmental policy and introduces six strategy elements to guide our action. These are intended for all countries, regardless of their level of development. The six strategy elements form the conceptual thread running through this paper. The 'Advice' section draws conclusions for the specific work carried out by GIZ in terms of environmental policy advice and uses case studies from day-to-day project work to illustrate how the strategy elements can be brought to life in practice. The paper is intended as a source of inspiration for GIZ advisors in their project-development and advisory work and at the same time aims to encourage dialogue on the further development of advisory approaches.

We hope to contribute through this paper to the necessary transformation towards a sustainable and forward-looking economy and society that conserve natural resources for future generations.



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Introduction

The adoption of the 2030 Agenda and the Paris Agreement on climate change in 2015 represented the setting of ambitious goals: ‘Transforming our World’ involves limiting global warming to far below 2°C (under 1.5°C if possible) and conserving our natural sources of livelihood. These ambitions are underscored by other multilateral environmental agreements, including the UN Convention on Biological Diversity (CBD) and the UN Convention to Combat Desertification (UNCCD). All of this strengthens the mandate of environmental policy¹ and at the same time presents it with major challenges. As a policy area, it is not strong enough in most cases to drive sustainable development effectively. Short-term economic goals often conflict with the conservation of environmental assets and livelihoods. In emerging economies and developing countries especially, considerable implementation deficits are found in many places. People suffer from the detrimental effects of urban air pollution on their health and have to contend with contaminated water, growing volumes of waste, and contaminants in daily items and products.

The COVID-19 pandemic has also illustrated to the world just how closely connected the valuable commodity of health is with an unspoilt natural environment. As ecosystems continue to shrink and biodiversity diminishes further, not least as a result of climate change, there is a growing risk of diseases jumping from animals to humans (zoonoses). However, the importance of nature conservation is not the only lesson the virus has taught us; it has also shown the tremendous lengths to which countries are able to go in order to avert the worst consequences of the pandemic and that lifestyles can be radically altered, even

in a short space of time. Given the historic scale of the measures taken to manage the economic and social impact of COVID-19, the question arises as to what extent the disruption of business as usual caused by the pandemic could also be exploited as an opportunity to promote more sustainable development. It is still too early to answer this question and it is also unclear to what degree the global economic stimulus packages will be geared to the environmental goals of a green recovery.

It would appear that the prospects of ecological restructuring to create a green economy have at least improved. Surveys have shown that environmental conservation and climate change mitigation were the key policy area in the 2019 European Parliament elections. At the same time, movements such as Fridays for Future, which saw young people in particular calling for a radical policy rethink and concrete action, grew stronger around the world. Worth hundreds of billions of euros, the European Green Deal sees the European Union (EU) sending out a strong signal that it intends to spearhead the transformation to a green economy at international level, supporting developing countries and emerging economies in the process. The EU made a decision in late 2020 to cut its greenhouse gas (GHG) emissions by 55% by 2030, with a vision of becoming the world’s first climate-neutral continent by 2050. China also intends to achieve climate neutrality by 2060. The United States rejoined the Paris Agreement in 2021 and President Joe Biden has been using the term Green New Deal, coined by the United Nations Environment Programme (UNEP), to refer to his government’s economic restructuring plans.

¹ This report does not distinguish between environmental and climate policy. Environmental policy is used as an umbrella term for all relevant aspects in this sphere, including climate and biodiversity.

Environmental policy thus faces the challenge of contributing to the transformation of key sectors, such as industry, agriculture and infrastructure (including energy and transport, and construction and buildings). It is necessary in this context to develop solutions for managing the natural environment, ecosystems and limited resources in a way that permits the achievement of a low-emission circular economy. This raises the question of how to deal with potential conflicts of interest, in particular the classic dichotomy between the economy and the environment. How can economic recovery be reconciled with the ever more urgent issue of climate change mitigation, with biodiversity and with other environmental assets? Additionally, how can environmental policy develop beyond its conservation role to become more of a driver of alternative technologies and economic practices that are environmentally sustainable, but also help to create new branches of industry and jobs at the same time?

One of the key tasks of GIZ's environmental policy advisory work is to support developing countries and emerging economies in forging their own development-friendly path to greater environmental conservation, climate change mitigation and biodiversity protection. In addition to these global issues, there is also a focus on local environmental problems and on strengthening environmental policy at national, regional and municipal level. Consequently, environmental policy advisory services must strike a balance between the conservation of global and local environmental goods on the one hand and the meeting of local people's needs on the other.

This paper is devoted to the question of how, given the changes in the international framework, environmental policy should be designed in future to take account of the wide-ranging requirements and how GIZ can support its partners effectively in this endeavour. The paper is aimed at all GIZ staff members and builds on two predecessor papers (2001, 2010).

However, it represents a fundamental reworking of the content, informed by the results and recommendations of a company-wide dialogue at GIZ conferences (2016, 2018), a summer workshop on modern environmental policy (2017), surveys of selected GIZ environmental advisors, and external academic expertise.

Like its predecessors, this paper is broken down into the three parts of the title: 'Environment Policy Advice'.

Section 1 'Environment', describes current and future environmental and societal challenges and trends.

Section 2 'Policy', outlines the wide-ranging requirements for effective environmental policy and introduces six strategy elements to guide our action. These are intended for all countries, regardless of their level of development.

Section 3 'Advice', draws conclusions for the environmental policy support provided by GIZ to developing countries and emerging economies, identifies approaches to taking action, and issues recommendations for GIZ's advisory work.

2030 Agenda, Paris Agreement on climate change and Convention on Biological Diversity:

The international frame of reference for environmental policy

The 2030 Agenda for Sustainable Development, the Paris Agreement on climate change, the CBD and the UNCCD, and numerous other multilateral environmental accords provide the frame of reference for national and international environmental and development policy.

The 2030 Agenda sees the international community underscoring a fact that was first acknowledged at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, namely that economic and social development are inextricably linked to environmental conservation. The Millennium Development Goals (2000 to 2015) were geared primarily to combating poverty and hunger in developing countries and, as such, were established alongside the environmentally inspired Rio process for sustainable development. With the integrated approach of the 2030 Agenda, the international community is committing itself to comprehensively ‘Transforming our World’ in order to achieve sustainable social, environmental and economic development. A total of 17 Sustainable Development Goals (SDGs) were defined to this

end, with five principles at their heart: People, Planet, Prosperity, Peace, and Partnerships. Additionally, the guiding principle of leaving no one behind requires the inclusion of disadvantaged and vulnerable population groups. The Agenda is universally applicable and is aimed at developing countries, emerging economies and industrialised nations alike.

The 2030 Agenda guides environmental policy, as it places the focus on the diverse interactions between the environment, the economy and society. The SDGs on water, climate, life on land, life below water, and responsible consumption and production make particularly clear reference to aspects of the environment. At the same time, almost all the SDGs incorporate environmental aspects in their targets, including those for poverty, hunger, energy, industry, infrastructure and urban development. The SDG ‘wedding cake’ model has established itself as a means of illustrating the foundational nature of environmental conservation for achieving the economic and social SDGs.

Figure 1: SDG wedding cake (SRC 2016)



The Paris Agreement on climate change sets the complementary aim of limiting global warming to an average of well below 2°C (preferably under 1.5°C if at all possible), compared to pre-industrial levels. This is the first time that the upper temperature threshold has been enshrined in an accord that is binding under international law. Other aims of the Agreement concern adapting to the effects of climate change and making finance flows climate friendly. Like the 2030 Agenda, the Paris Agreement for the first time requires all (signatory) states, regardless of their level of development, to commit to common, but differentiated responsibilities² for creating a just transition. At its heart is the responsibility shared by every state to contribute to implementing the Agreement and make nationally determined contributions (NDCs). In order to ensure that these ambitious goals are achieved, the states must report regularly on their contributions. These contributions will be reviewed

every five years from 2020 onwards and must be increased on a successive basis, in accordance with the principle of progression.

The CBD has since 1992 combined environmental and economic goals in its approach to protecting biodiversity as a whole, using it sustainably and fairly distributing the benefits arising from its use. The CBD takes into account legal, cultural, political and social factors, making it a key contributor to integrated environmental conservation and justice. The 15th Conference of the Parties to the Convention on Biological Diversity will set a new strategic framework for the period up to 2030 and herald a turning point in global biodiversity conservation. The new list of targets will replace the Aichi Targets of the CBD's Strategic Plan for Biodiversity 2011–2020.

² The Kyoto Protocol was only binding on some members of the international community, namely the annex countries.

The 2030 Agenda, the Paris Agreement and the CBD are interlinked at numerous levels. As such, climate change mitigation and adaptation are at the heart of SDG 13, biodiversity conservation is reflected in SDGs 14 and 15, and SDG 12 aims to achieve sustainable management of chemicals, resources and waste, both in production and consumption. At the same time, biodiversity is being negatively affected by the advance of climate change, the increase in environmental pollution and the growing volumes of waste generated. Conversely, healthy ecosystems and sustainable resource management make a key contribution to climate change mitigation.

The three agreements form part of a complex architecture involving other multilateral environmental accords and governance mechanisms. These include the High-Level Political Forum (HLPF) of the 2030 Agenda and the United Nations Environment Assembly (UNEA). The UNEA has been convening every two years in Nairobi (Kenya) since 2014, addressing different priorities each time, including the prevention of environmental pollution ('Towards a pollution-free planet') and a potential convention for tackling marine debris. Other multilateral environmental agreements focus on the management and trading of chemicals and hazardous waste. The 2016 Kigali Amendment to the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer added provisions on climate change mitigation to the treaty.

Challenges of effective environmental policy and environmental policy advice

The 2030 Agenda and the multilateral environmental accords place high demands on all states, even if they can largely shape their own specific implementation processes. They are required to translate the provisions into national legislation and strategies with goals, plans of action, milestones and indicators. To this end, they must develop capacities, institutional structures and monitoring systems. Many developing countries are overstretched by the complexity arising from the implementation of the different agreements.

At the same time, the environmental situation is often precarious or drastically deteriorating in poorer countries especially. Many of these nations rely on

extractive sectors of the economy and on foreign currency from the sale of mineral, fossil, forest or agricultural resources, resources which are processed in industrialised countries and, increasingly, in emerging economies. In most cases, a considerable proportion of the ecological rucksack of the products consumed in wealthy nations remains in the countries of origin, which are rich in raw materials, yet have low incomes.

Environmental policy has institutional weaknesses in the majority of developing countries. Priority is given to economic growth, foreign exchange earnings and infrastructural expansion. Weaknesses in cooperation with other ministries are as frequent as those found in collaboration between national, regional and local administrative structures. While ambitious legislation has been created, there are often considerable deficits in its enforcement. Environmental aspects, such as obtaining permits for and running mining, industrial and infrastructure projects, receive insufficient attention. One of the consequences of this is an increase in the contamination, deforestation and destruction of ecosystems, due in part to the advance of agricultural activity. Negative incentive structures, from harmful subsidies to a lack of sanctions and a failure to apply the 'polluter pays' principle, are significant drivers of environmental destruction and GHG emissions.

Demand for environmental policy support is high in developing countries and emerging economies. This concerns the implementation of multilateral agreements as much as solutions to local environmental problems, protection and conservation of natural capital, and the improvement of environmental quality. Nonetheless, the international funding provided for environmental policy is increasingly focused on issues of global relevance. This can serve to reinforce the contradictory image of formally progressive environmental policy with ambitious goals, programmes and legislation on the one hand and very weak enforcement on the other.

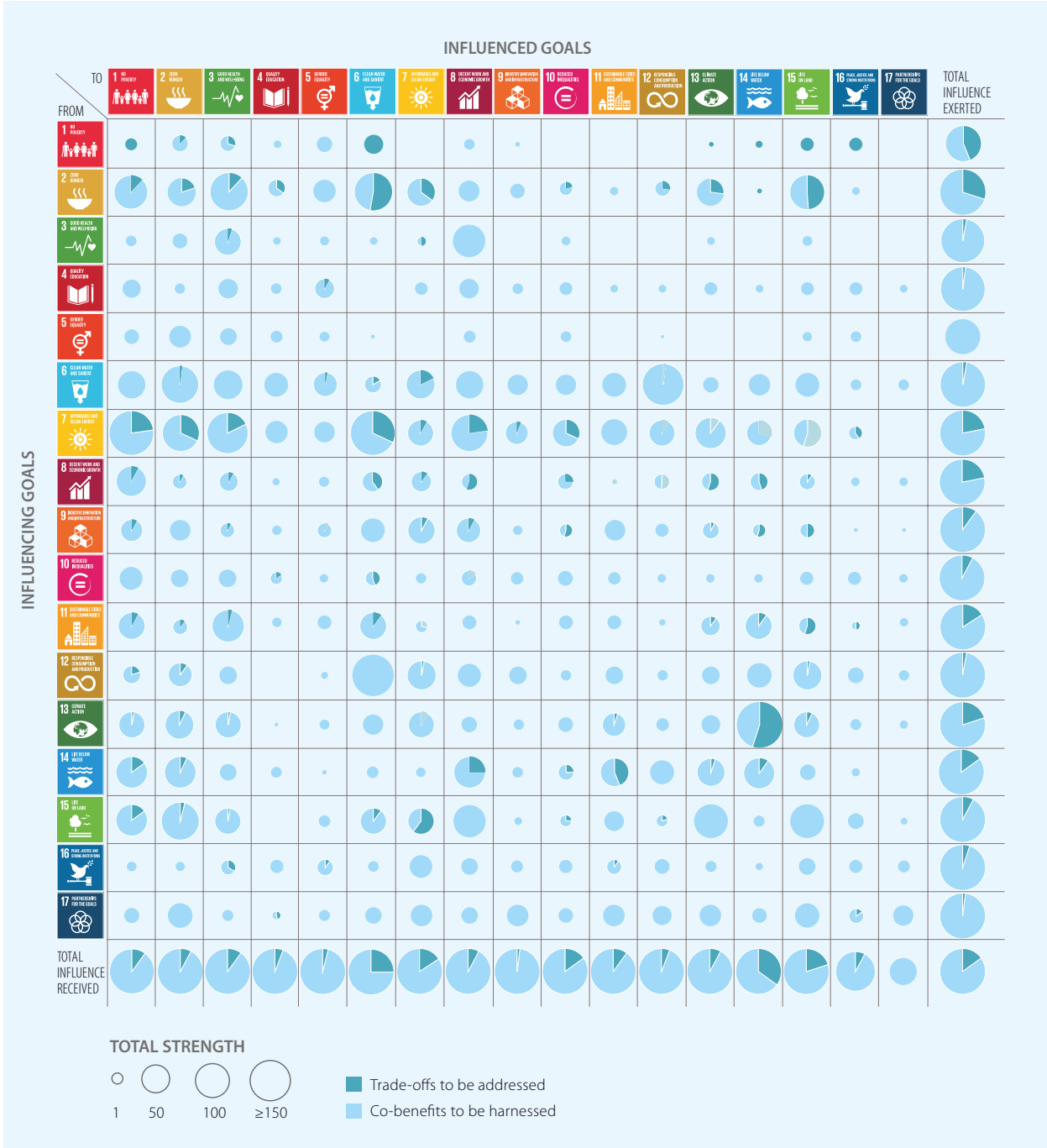
GIZ's environmental policy advisory work thus faces the challenge of strengthening environmental policy and capacities for tackling environmental problems in a way that has to be ultimately measurable in terms of local implementation. The core task of environmental policy continues to be the conservation of the environment and natural resources; it must advocate for the preservation of these natural resources that sustain life on earth. Nonetheless, it is now necessary to move from a primarily defensive role to an active and influential role, referred to in the research community as 'transformative environmental policy'. If we are to go from catch-up development to achieving a transformation to inclusive, sustainable, climate-resilient and low-carbon economic and social policy, then environmental policy will need to provide greater impetus, become the driving force of innovation and help to co-create the future.

Combining ecological transformation with socio-economic improvement is crucial to gaining acceptance from the population and making the changes politically feasible. There is still a very widespread view in many countries that environmental policy hampers economic and social development. However, the Global Sustainable Development Report shows that there are far more synergies between the SDGs than there are trade-offs (Figure 2). These synergies could be leveraged to generate co-benefits and minimise conflicting goals in environmental and climate strategies.

The aforementioned conditions and interactions pose a particular challenge to GIZ in its advisory work. This paper offers practical guidance on effective environmental policy advice.



Figure 2: Interactions between the SDGs (IGS 2019)



Source: This diagram is based on a systematic inventory, which drew upon 65 global environmental reports, including those of the United Nations, and 112 research articles.



1. Environment

Global environmental reports provide firm evidence of the undesired, yet ongoing developments of recent decades and draw attention to the tremendous risks of a world on the edge of or having already exceeded environmental boundaries. The inventory shows a world in transition and illustrates how great the challenges

are and how urgently an environmental turning point is needed. While many trends bring with them increasing environmental problems, they also offer opportunities. One message that can be taken away from all the reports is that effective environmental policy has never been as urgently needed as it is now.

Current Reports on the State of the Environment Around the World

- UNEP (2021)** *Making Peace with Nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies.*
- IGS (2019)** *Global Sustainable Development Report. The Future is Now: Science for Achieving Sustainable Development.*
- IRP (2019)** *Global Resources Outlook: Natural Resources for the Future We Want.*
- IPBES (2019)** *Global Assessment Report on Biodiversity and Ecosystem Services.*
- UNEP (2019c)** *Global Environment Outlook – GEO-6: Healthy Planet, Healthy People.*
- UNEP (2019b)** *Global Chemicals Outlook II: From Legacies to Innovative Solutions.*
- IPCC (2018)** *Global Warming of 1.5 °C. An IPCC Special Report [...].*

1.1 State of the environment around the world: a risk to humans and the planet

Global environmental issues have increased dramatically in scale over recent decades. This trend is substantiated by the following examples:

- Atmospheric carbon dioxide levels doubled from 218 ppm at the start of the industrial revolution to 410 ppm in 2019. Annual GHG emissions levels reached a new record high of 37.5 GtCO₂ in 2018 (UNEP 2019a).
- Global warming has now reached 1.2°C (WMO 2021) and is already leading to more frequent and intense extreme weather events such as heat waves and drought, as well as rainfall, storms, flooding, glacial melt and permafrost thaw (IPCC 2018).
- One million of the world's eight million species of flora and fauna face the threat of extinction. The global biomass of wild mammals has decreased by over 80% since the beginning of human civilisation (IPBES 2019).
- Three quarters of the world's land mass has already been modified as a result of human intervention and 23% is affected by degradation (IPBES 2019).

- The volume of natural resource extraction at global level tripled from 27 billion tonnes in 1970 to 92 billion tonnes in 2017 and could double again to 190 billion tonnes by 2060 (IRP 2019).
- Humans have generated 6.3 billion tonnes of plastic waste since the 1950s, of which just 9% has been recycled (IGS 2019). It is estimated that eight million tonnes of plastic end up in the ocean each year (UNEP 2019c).

While global issues such as climate change, loss of biodiversity and soil degradation affect all nations, other environmental problems limited to specific localities and regions, such as air, soil and water pollution caused by industrial facilities and waste disposal activities, continue to pose major challenges especially in developing countries and emerging economies.



As such, one third of rivers in Africa, Asia and Latin America are highly contaminated with pathogens. Eight of the world's ten rivers most heavily polluted with plastics are located in Asia and the other two in Africa. In Africa alone, 600,000 people die each year from the effects of air pollution created from burning biomass, such as wood, dung and charcoal, indoors for cooking and heating purposes. 98% of urban areas in developing countries and emerging economies fail to meet WHO standards for clean air. The United Nations Environmental Programme (UNEP) speaks of three interconnected planetary crises: climate change, biodiversity loss and pollution (UNEP 2021).

Environmental pollution and destruction of the natural environment on this scale have dramatic consequences for people's health. The COVID-19 pandemic has illustrated for the world the consequences of destroying natural habitats, trading in wildlife and industrial-scale livestock farming. Millions of people around the world have become infected and died either as a direct or an indirect consequence of the virus. The resulting costs of the pandemic are in the trillions of dollars. However, COVID-19 is just the tip of the iceberg in terms of diseases transmitted between humans and animals (zoonoses). The deadliest zoonoses of recent decades include Ebola, AIDS and SARS, and 40 further pathogens have been identified with high potential to cause a pandemic. The further people encroach into and destroy natural habitats, the greater the risk of hitherto unknown zoonoses being transmitted

to the human population. The health of millions of people is being put at additional risk as a result of the pollution of the air, soil and water with hazardous substances and chemicals and a lack of adequate sanitary facilities.

As the natural world progressively deteriorates as a result of its continuous overexploitation, the economic importance of an unspoilt environment is becoming ever more evident. The ecosystem provides some USD 125 trillion worth of services to humans and the economy each year (Costanza et al. 2014³) – significantly more than the gross domestic product (GDP) of the whole world combined (USD 73 trillion in 2011, the year of comparison). Over half of the global economy is moderately or highly dependent on the natural environment (USD 44 trillion of economic value generation; WEF 2020a). The internationally renowned Dasgupta Review on the Economics of Biodiversity has demonstrated the economic significance of the natural environment in a comprehensive fashion (Dasgupta 2021), something that is also being increasingly recognised by the private sector. For instance, the World Economic Forum is giving increasing prominence to environmental risks in its annual global risks reports. For the first time, all five of the greatest global risks mentioned in the 2020 Global Risks Report were environmental: extreme weather, climate action failure, natural disasters, biodiversity loss and man-made environmental disasters (WEF 2020b).

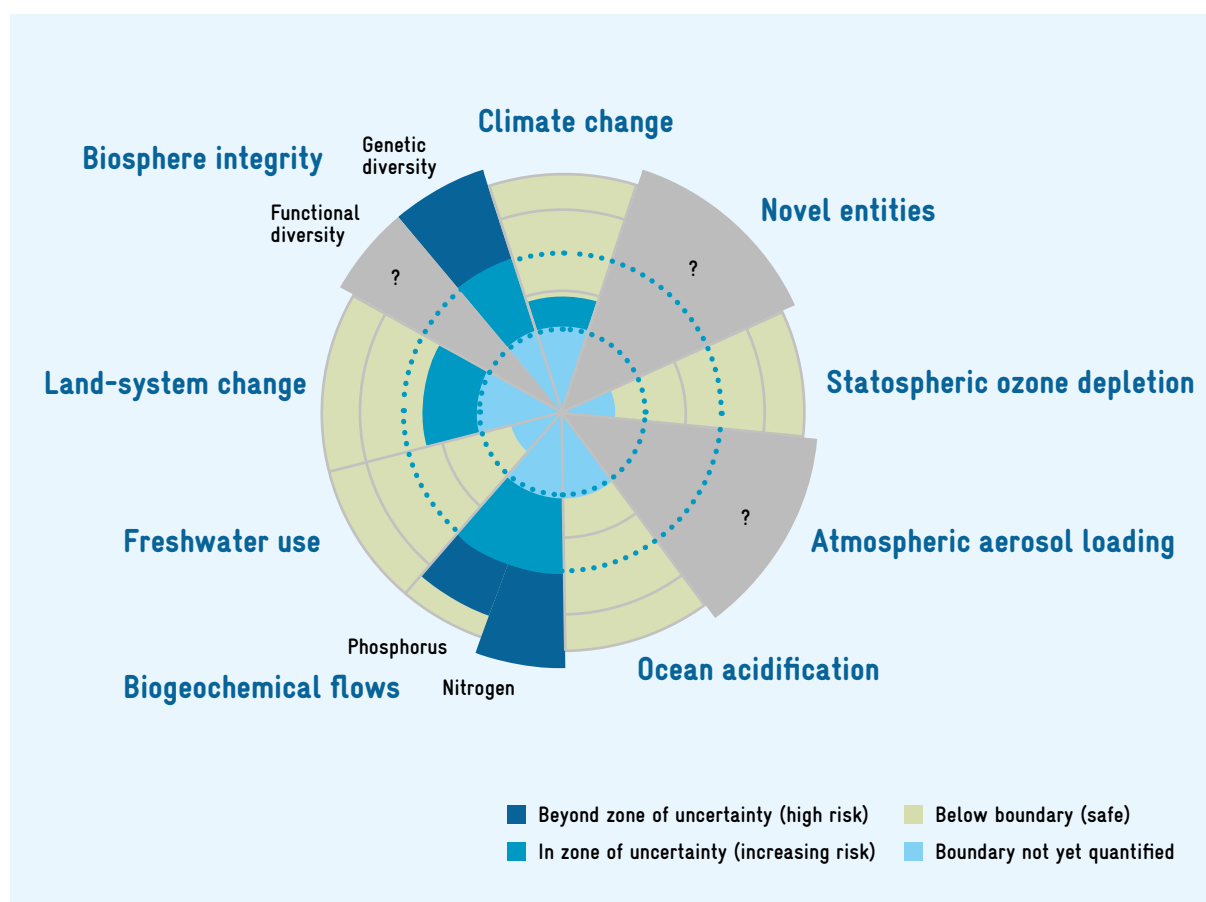
³ This was calculated on the basis of 17 ecosystem services, including climate regulation, erosion control, pollination and food production. The authors stress the limited representativeness of such global aggregate values, but point out their legitimacy as approximate figures for raising awareness of the topic.

1.2 Planetary boundaries: ecological guardrails for development

Over the course of history, humans have increasingly come to drive global environmental changes. The extent of these changes and the attendant risks are illustrated by the concept of planetary boundaries (Figure 3).

The concept defines nine ecological stress limits. Exceeding these boundaries entails major risks and brings with it negative environmental, economic and social consequences, as it can change fundamental functions of our planetary system. This increases the likelihood of the planetary system and the atmosphere becoming progressively unstable, with

Figure 3: Planetary boundaries (Steffen et al. 2015, update of Rockström et al. 2009, who first presented the concept)



potentially catastrophic consequences for humankind. The boundary for climate change is set at 350 ppm atmospheric carbon dioxide. Below this level, the risks from global warming would be minimal (green zone Figure 3). The authors consider there to be a zone of uncertainty between 350 ppm and 450 ppm, that is, a greater risk of negative consequences (yellow zone), and a high risk of grave consequences above 450 ppm (red zone). The concentration level had already reached 409 ppm in 2019. The authors consider biodiversity/biosphere integrity and climate change as core boundaries. Exceeding the boundaries of one of these two dimensions could jeopardise the stability of the planetary system as a whole. It is accepted that four of the nine boundaries have already been exceeded.

Tipping points, that is, critical thresholds which, if exceeded, lead to drastic, non-linear, rapid and irreversible upheaval, pose a particular risk. The melting of sea ice around the world carries one such risk, as do permafrost thaw, dying coral reefs, changes in monsoon rainfall and deforestation in the Amazon rainforest. It is not yet known where the critical threshold lies for each of these phenomena. One thing is clear, however: the more that humans exceed ecological boundaries, the closer they will get to these thresholds. Consequently, a preventative approach is needed in order to minimise the risk of dramatic upheaval.

Success story: Montreal Protocol on Substances that Deplete the Ozone Layer

One notable exception among these ecological dimensions so critical to the world as a whole is the stratospheric ozone layer, which is experiencing an increasing recovery. The background to this development is the clear international regulations agreed under the 1987 Montreal Protocol, which stresses the shared responsibility of signatory countries while differentiating between the obligations of industrialised nations and those of developing countries. The Protocol has also made a major contribution to reducing GHG emissions and is often referred to as the most successful multilateral environmental agreement. While there is a long way to go in terms of fully restoring the ozone layer and ensuring universal use of climate-friendly refrigerants, the Montreal Protocol illustrates how taking decisive joint action in accordance with clear rules can help to resolve a global issue.

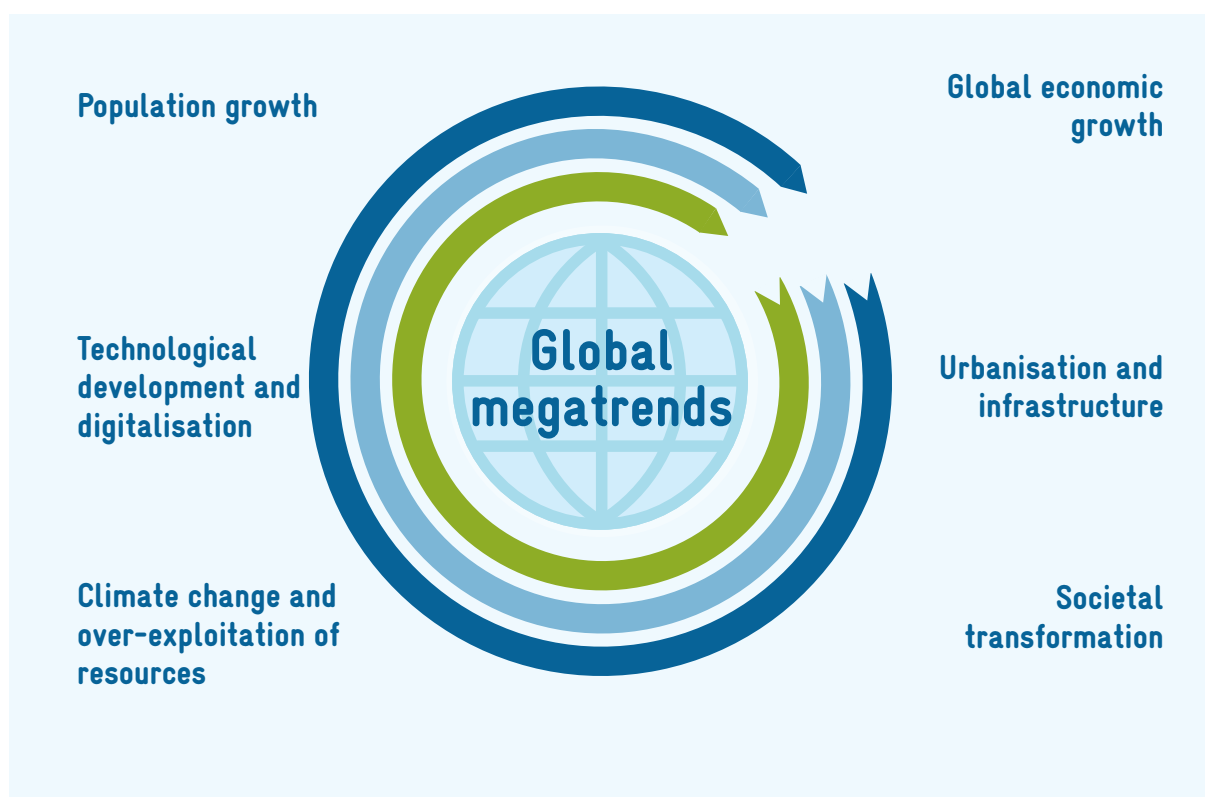


1.3 Global megatrends: challenges and opportunities for the environment

The world is facing major changes and societal upheaval. There are six global megatrends influencing the underlying trend (Figure 4). There is a particularly significant degree of upheaval in the area of technological advances and digitalisation. From an environmental policy perspective, these megatrends are inconclusive. Historically, population and

economic growth have usually been associated with increasing environmental pollution. At the same time, they present opportunities for innovation and job creation in green growth sectors. A forward-looking environmental policy could help shape these trends and leverage potential for enhancing the natural environment.

Figure 4: Overview of global megatrends (five trends according to GEO-6 and UNEP 2019c, supplemented by 'social change')



Population growth:

the world's population will continue to grow. It is estimated that it will increase to as many as 10 billion people in 2050, stabilising in the second half of the century (UN 2019, Vollset et al. 2020). Until then, an expanding global population will generate more environmental pollution. Population growth is not distributed equally across regions and is most pronounced in least developed countries, where it will exacerbate local environmental problems. As the population increases, the use of natural resources will intensify, while pressure will grow to create jobs and incomes. This offers potential for environmental policy. The expansion of renewable energy and the restoration of degraded ecosystems create jobs and facilitate local value creation. Population growth must be set in the context of impact per capita when looking at global environmental issues. Historically speaking, most of the world's resources have been consumed and the majority of global emissions produced by a relatively small number of people in industrialised nations. Nowadays, the lifestyles of global middle and upper classes have a far more detrimental impact on the environment than those of poorer people.

Global economic growth:

economic growth is a central objective for virtually every nation. For instance, SDG 8.1 aims for at least 7% GDP growth per annum in the least developed countries. Economic growth has helped to release more than one billion people from poverty in the last 25 years. The global middle class currently comprises some 3.5 billion people and could increase by another two billion over the next decade. Even the consequences of the COVID-19 pandemic are not expected to permanently inhibit growth. The global economy could still grow by over 5% in 2021 if the pandemic is brought under control (IMF 2020). Economic growth is also a key driver of resource consumption and environmental degradation. Global environmental costs could rise to USD 28.6 trillion per annum

by 2050, which corresponds to 18% of projected GDP (2008: USD 6.6 trillion/ year and 10.4% of global GDP) (Trucost 2011). From an environmental policy perspective, it is necessary to decouple economic development from detrimental environmental impacts. To date, GDP and prosperity have increased at a faster rate than resource consumption and GHG emissions (relative decoupling), whereas negative environmental impacts have continued to increase (lack of absolute decoupling). The decarbonisation of the economy, increased resource efficiency and the establishment of a circular economy prioritised by global agendas create opportunities for green economic growth and environmental enhancements.

Technological development and digitalisation:

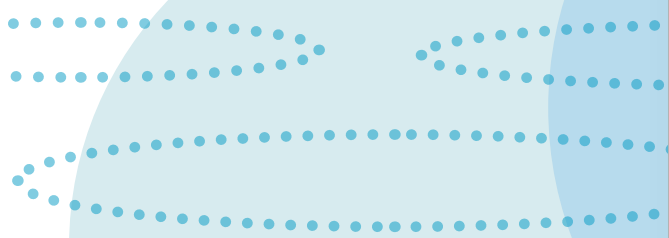
smartphones, the internet and computers have already revolutionised our everyday business and social lives. It is almost impossible to predict the changes and upheaval that lie ahead of us. With artificial intelligence, Industry 4.0, connected products and services, the provision of more data and use of data-processing systems in industry, policymaking, administration and private households, decision-making processes will increasingly be supported, if not taken over, by algorithms. There are also numerous revolutionary ideas in other areas of technological development. This is associated on the one hand with wide-ranging opportunities for creating jobs and new business models and on the other with foreseeable structural disruption that will unsettle people and growing demand for energy and raw materials, for instance, as a result of the rapid growth in the global server infrastructure. Digitalisation and technological advances hold great promise for environmental enhancement: Smart factories, smart grids and smart cities increase resource efficiency and close material cycles. Precision farming optimises fertiliser requirements and minimises the use of pest control. Battery solutions for electro-mobility are becoming increasingly suitable for everyday use. Digital finance for green investment is becoming an established practice. It is not yet

possible to predict whether these trends will deliver on their potential and what risks they carry with them. One thing that is clear, however, is that effective environmental policy must help shape the digitalisation process and influence technological developments in order to exploit the environmental opportunities and minimise risks.

Urbanisation and infrastructure:

global infrastructure, for instance, for the generation and supply of electricity, for transport, for water supply and sanitary systems, and for telecommunication, will double in size by 2040 (UNEP 2019c). Infrastructure construction is often associated with GHG emissions, resource consumption and environmental destruction. However, new infrastructure also offers an opportunity to plan more sustainably from the outset instead of subsequently making costly and resource-intensive improvements. Building new infrastructure and renovating existing infrastructure can reduce environmental damage. It must be adapted to existing environmental changes, in particular climate change. Designing climate-smart infrastructure and offsetting climate-related damage to infrastructure

will become increasingly important in future. Opting for green infrastructure, such as mangrove forests for flood prevention or green urban spaces for climate change adaptation not only enhances the environment, but is often also economically beneficial. Infrastructure is closely related to urbanisation. More than half of the world's population has lived in urban areas since 2008, with this proportion set to rise to two thirds by 2050 (UNEP 2019c). 90% of urban growth is taking place in emerging economies and developing countries, particularly Asia and Africa. Although cities cover just 2% of the earth's surface, they generate 70% of global GDP and 70% of global waste and GHG emissions, and account for 60% of global energy consumption (UN-Habitat 2016). Urbanisation exacerbates classic environmental problems such as air and water pollution, ecosystem loss and waste production. However, the dense infrastructure of cities also provides scope for meeting societal needs in a more resource-efficient manner and leveraging the great potential for innovation within urban areas.



Climate change and over-exploitation of resources:

climate change is the manifestation, result and driver of environmental changes all at the same time. It accelerates resource scarcity and the loss of biodiversity, intensifies desertification and ocean acidification, is a factor in agricultural crop failure and contributes to an increase in storms, flooding and infrastructure damage. Climate change causes sources of drinking water to become polluted and/or dry up. Global water stress is set to increase as demand for water rises and the effects of climate change are felt more and more. There are 2.1 billion people around the world with no access to clean water and some four billion people have to contend with severe water shortages for at least one month a year (UN-Water 2020). However, the effects of climate change are uneven in their distribution. A small number of regions even benefit from climate change initially, for instance, as a result of permafrost thaw. Nonetheless, most emerging economies and developing countries suffer detrimental effects. Competition over and unequal access to increasingly scarce resources combined with population growth and urbanisation drive environmental degradation further. This serves to increase the likelihood of food crises, armed conflict, migration and financial instability. Nevertheless, the fact that the effects of climate change and the over-exploitation of resources are becoming far more tangible could be opportune in terms of people being more open and willing to shape the transformation to sustainable and climate-adapted resource use.

Societal transformation:

the changes and upheavals described above also impact societal structures, affecting social classes and social environments, and creating new communities and norms. New middle classes are emerging in many countries in response to positive economic trends. A number of regions in industrialised nations are grappling with the migration of entire industrial sectors to countries with cheaper production costs, and fewer environmental requirements and general regulation of the private sector. Migration and urbanisation processes are changing the demographics of many places. If these changes are experienced as upheavals and chip away at familiar safety nets, then people might become overwhelmed and respond defensively. As societal systems change, so do the frameworks and scope for environmental policy. The success of populist movements in many countries goes hand in hand with a rejection of environmental goals and increasing misrepresentation of environmental issues, which denies the scientific basis of these problems. At the same time, the ever more tangible effects of climate change, resource scarcity and environmental pollution have raised awareness of environmental issues all over the world. Societal pressure to tackle environmental problems is growing, as evidenced by global movements such as Fridays for Future.



1.4 Current situation and outlook: SDGs of the 2030 Agenda, Paris climate goals and biodiversity goals

The scale of the environmental challenge is reflected in the achievement of or failure to achieve the international environmental goals. Five years after the adoption of the 2030 Agenda and the Paris Agreement, the world is not on course to achieve its environmental goals. The proportion of renewable energies has increased, as have the number and size of terrestrial and marine conservation areas. Approaches to sustainable forest management and sustainable use of biodiversity are also becoming increasingly widespread. However, these sporadic achievements are insufficient for curbing the problems. The Global Sustainable Development Report has found that the SDGs continue to be characterised by negative long-term trends in four areas: rising social inequalities, increasing amounts of waste globally, biodiversity loss and climate change (Figure 5). This paints an abysmal overall picture in terms of the environmental goals. It is extremely unlikely that the SDGs will be achieved by 2030 with a business-as-usual approach.

















The same applies to the Paris climate goals. Even when the agreement was adopted, it was apparent that all NDCs combined would be insufficient for limiting global warming to 2°C, let alone 1.5°C. To limit global warming to 1.5°C, the world would have to achieve net zero carbon emissions as early as 2050 (IPCC 2018). However, annual GHG emissions are still rising, with no peak in sight as of yet. Even if all countries meet their NDCs for 2020, the global temperature is likely to increase by an average of 2.8°C by 2100. Many states are having difficulty meeting

their NDCs, as a result of which global warming might even exceed 3°C. The turning point being sought through the principle of progression (by which the level of ambition is raised every five years) is not yet on the horizon.

The stock-take of the Aichi Targets, announced in 2010 with the Strategic Plan for Biodiversity 2011–2020, also makes for sobering reading. The Secretariat of the Convention on Biological Diversity (SCBD) concluded in an evaluation (SCBD 2020) that none of the 20 targets have been reached in full and good progress had only been made for six targets. A new global framework for biodiversity conservation is set to be adopted at the 15th UN Biodiversity Conference, replacing the Aichi Targets. The major challenge will be to herald a global turning point on the loss of biodiversity with what are in some cases even more ambitious targets and at the same time to improve the implementation process, which failed for the previous targets.

All key environmental reports show what is needed to achieve the goals of the 2030 Agenda, the Paris Agreement and the CBD and thus to facilitate prosperity and development within environmental limits: a fundamental transformation and effective environmental policy.

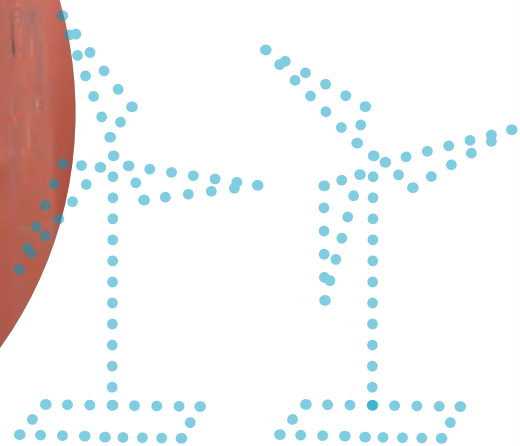
Figure 5: Projected distance from reaching selected SDG targets by 2030 (IGS 2019)

GOAL	Within 5%	5–10%	>10%	Negative Long-term Trend
		1.1 Eradicating extreme poverty	1.3 Social protection for all	
		2.1 Ending hunger (undernourishment)	2.2 Ending malnutrition (stunting) 2.5 Maintaining genetic diversity 2.a Investment in agriculture*	2.2 Ending malnutrition (overweight)
	3.2 Under-5 mortality 3.2 Neonatal mortality		3.1 Maternal mortality 3.4 Premature deaths from non-communicable diseases	
	4.1 Enrolment in primary education	4.6 Literacy among youth and adults	4.1 Enrolment in secondary education 4.2 Early childhood development 4.3 Enrolment in tertiary education	
			5.5 Woman political participation	
		6.2 Access to safe sanitation (open defecation practices)	6.1 Access to safely managed drinking water 6.2 Access to safely managed sanitation services	
		7.1 Access to electricity	7.2 Share of renewable energy* 7.3 Energy intensity	
			8.7 Use of child labour	
		9.5 Enhancing scientific research (R&D expenditure)	9.5 Enhancing scientific research (number of researchers)	
			10.c Remittance costs	Inequality in income*
			11.1 Urban population living in slums*	
				12.2 Absolute material footprint, and DMC*
				Global GHG emissions relative to Paris targets*
				14.1 Continued deterioration of coastal waters* 14.4 Overfishing*
				15.5 Biodiversity loss* 15.7 Wildlife poaching and trafficking*
			16.9 Universal birth registration**	

Note: Selected indicators only. SDG 17 is not included as it consists of a wide range of indicators that cannot easily be captured using the methodology for assessing distance from reaching targets. Estimates of the distance from the target by 2030 are based on forecasted value of the corresponding indicator in 2030, relative to target. Forecast based on best-fit trends on individual indicators, given the available data range.

* Quantitative target for 2030 is not specified in the SDG indicator framework; targets are estimated

** Assessment is based on indicators outside the SDG indicator framework; inequality in income is based on data from household surveys



2. Policy

Given the major environmental challenges and the sobering analysis of target achievement for the 2030 Agenda, the Paris Agreement and the CBD, the question arises as to how environmental policy can shape and guide the transformation to an inclusive and

climate- and environmentally friendly economy and society. What does effective environmental policy look like? And what are the strategy elements to which environmental policy work should be geared?

2.1 Requirements for effective environmental policy

Environmental policy must fulfil the aspiration of contributing to the transformation of the economy and society to which the signatory states have committed themselves with the 2030 Agenda, the Paris Agreement and the CBD. This gives rise to new mandates, as well as room for manoeuvre.

2.1.1 Challenges for environmental policy

Environmental policy has been constantly evolving in recent decades and remains a dynamic and highly innovative policy area. Despite verifiable success in many countries, it continues to face major challenges. Many tasks have not yet been sufficiently carried out, such as protecting against damage to health as a result of pollution or systematically implementing environmental targets, strategies and legislation. Familiar demands, such as the long-term consideration of environmental concerns in economic sectors and the systematic realisation of efficiency potential, are largely unmet. The existing environmental policy agenda is nowhere near completed.

Unresolved local environmental issues

Environmental policy has its origins in the 1950s and 1960s, when environmental problems in industrialised nations became increasingly apparent due to economic growth (for instance, air pollutants in Germany, which led Willy Brandt to demand that the sky over the Ruhr area become blue again). Similar processes took effect shortly afterwards in many emerging economies and developing countries. The emphasis was on reducing harmful emissions and waste, and minimising risks from the operation of industrial facilities or the use of chemicals. The solutions initially comprised curative measures and technical solutions (end-of-pipe or add-on technologies) for keeping pollutants at bay and regulatory instruments (rules and prohibitions). These were supplemented over time by approaches for averting environmental risks (integrated technologies) and instruments for increasing efficiency and promoting innovation in the polluting sectors. These have led to clear improvements in many countries. Success stories in Germany include the restoration of water bodies, the reduction of many air pollutants and the organised recording and treatment of waste. Indeed, the sky over the

Ruhr area did turn blue again. By contrast, in many emerging economies and developing countries, environmental policy still has to offer solutions to the most pressing environmental problems.

The fact that not all environmental policy tasks are tackled on an equal basis is usually due to a lack of personnel, administrative, financial and institutional capacity. Topics are often addressed selectively. For instance, many countries have developed capacity for climate change mitigation and adaptation, supplemented in some cases by forest conservation, often in response to the international support and finance available. Local and national issues, on the other hand, such as air and water pollution, and waste and chemical management, are addressed on a patchy basis.

Enforcement deficit and weak environment ministries

Environmental policy is an established policy area not only in industrialised nations, but also in developing countries and emerging economies. Responsibility for environmental- and climate-policy issues rests with government ministries and authorities around the world at national, regional and local level. While institutional structures and environmental legislation frameworks exist at formal level, there is a considerable implementation and enforcement deficit in many cases. A lack of capacity (budgets, personnel and institutional resources) means implementation is falling far short of the aspiration to protect humans and the environment. Adopted legislation, targets and instruments are being implemented insufficiently if at all.

A key challenge lies in the competing interests of different ministries and the fact that countries continue to

prioritise their own economic development. The scope of environment ministries for enforcing requirements in the polluting sectors is often limited due to political dynamics, and coordination capacities are frequently insufficient or not clearly allocated. In many developing countries and emerging economies especially, environment ministries lag way behind the conventional ministries of agriculture, water, construction/transport/infrastructure, industry, economy, etc. in terms of human resources and budgets.

Untapped efficiency potential and its limitations

Innovation and efficiency gains have long been a goal of environmental policy. Nonetheless, there is still plenty of potential to be exploited, in most cases even with economic and social benefits. Savings could be made at micro-economic level, for instance, on energy or material costs, while health costs could be avoided and jobs created at macro-economic level. Many environmental problems can be addressed using technical solutions that prevent the creation of emissions in the first place or avoid the use of problematic substances from the outset (integrated technologies). The costs of filter technologies and wastewater/offgas treatment are correspondingly lower. Investment in and operating expenditure on end-of-pipe technology has been falling since the early 1990s, while markets for integrated efficiency technologies are showing high growth rates (DeStatis 2006).

At the same time, the limitations of technical solutions and efficiency improvements are becoming increasingly apparent. While vehicle emissions are

being reduced thanks to more efficient engines, more stringent emissions thresholds and higher fuel taxes, there are opposing trends of higher engine power, heavier vehicles and the expansion of road transport. The resulting increase in consumption is counteracting efficiency gains at least in part or even outweighing them (rebound effect). More stringent legislation and regulations that define emissions thresholds and efficiency guidelines in production processes often have the effect of displacing the problems if they result in production activities being migrated to countries with less regulatory pressure. Finally, technical solutions and efficiency improvements aimed at optimisation do not fundamentally call into question the existing economic and societal structures and processes. Consequently, the necessary environmental turning point cannot be achieved with such approaches alone.

Integration of environmental policy

Environmental policy was intended to be an integrated approach from the outset. Because the economy is defined in the first instance by policies for individual sectors, such as agriculture, mobility, construction and industry, such policies are decisive to the state of the environment. However, environmental policy is often weak compared with that of other ministries. To date, it has not been possible to integrate environmental issues into sector policies on a lasting and comprehensive basis in Germany or in other countries.

Environmental policy has to contend with the competing interests of other ministries and groups that effectively push environmental and sustainability concerns into the background. In many countries, political systems and ideologies tend to serve current interests rather than long-term sustainability goals. Ultimately, environmental policy is formulated in small steps in most countries, despite the long-term challenges. Resistance to ambitious regulations, the abolition of environmentally harmful subsidies, effective green taxes, etc. is resulting in softer, voluntary instruments being chosen. In some cases, the targets and standards being adopted fall far short of the requirements, while more ambitious targets are not being systematically enforced. As such, environmental policy ambitions can only be raised and implementation made more effective on a gradual basis.



Case study: protests in France

In order to finance the energy transition, the French Government had submitted plans in 2018 for higher taxation of fossil fuels. These plans triggered what became known as the yellow-vest (*gilets jaunes*) movement, which saw weekly protests, at times violent, throughout the country. The higher taxes would have disproportionately affected the poorer population in rural regions, for whom cars are a key means of transport, and were initially designed without key social compensation mechanisms. An envisaged EUR 2,500 subsidy for electric cars was not a feasible support measure in this regard. In just a short space of time, the demonstrators' list of demands grew to include comprehensive social- and economic-policy reforms. The announcement of a fuel duty increase served to strengthen existing perceptions of social inequality. The energy transition quickly faded into the background as the originally planned measures were ultimately withdrawn by the government.

Neglect of social aspects

Since the 1990s, there have been increasing efforts to join up environmental and economic policy and provide economic incentives for environmentally friendly behaviour, such as green taxes or payments for ecosystem services. At the same time, the social aspects of environmental policy have long been neglected. Only recently has the focus shifted to the need to achieve a delicate balance between environmental conservation and social justice. Environmental justice has become established as a guiding concept, encompassing both negative and positive aspects. Proposals for green taxes and duties periodically give rise to fierce public debate and criticism that they would hit people with low incomes the hardest. At the same time, positive effects, such as health benefits from improved air and water quality or financial and resource-related savings from increased energy efficiency, are rarely given sufficient attention or adequately discussed in public.

2.1.2 Ecological transformation: ambition and fresh scope for action

The global environmental and sustainability debate is characterised by the concept of transformation, which has been given a political mandate through the 2030 Agenda in particular. The Preamble to the Agenda commits the signatory states to 'transform our world' and improve human life and prosperity on a healthy planet. While the term 'transformation' is mentioned in the 2030 Agenda, it is not defined any further, nor is it referenced explicitly in the Paris Agreement on climate change. Consequently, it needs to be defined from an environmental policy perspective. State institutions and civil-society organisations have taken up the term, which has long been discussed in academic and research circles, and are working on fleshing it out for practical application. Specialist bodies such as the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) indicate just how ambitious this undertaking is: it is nothing less than the transformation of key areas of society. The common denominator in this aspiration can be formulated as follows:

Transformation refers to the radical change needed in the economy and society in order to facilitate sustainable and environmentally and socially responsible development. From an environmental-policy

perspective, the primary focus is on the socially responsible ecological transformation of society and the economy.

Priority transformations: starting points for practical implementation

Different sources identify and cluster together economic and societal sectors in need of transformation in order to achieve the goals of the 2030 Agenda, the Paris Agreement and the CBD. There is significant overlap in content between the different representations: the focus is always on specifying entry points for practical implementation, while taking account of correlations and interactions between these sectors.

The **IPCC Special Report on Global Warming of 1.5 °C** (2018) pinpoints four areas of transformative change required for achieving the climate goals:

1. Transformation of the energy system
2. Transformation of land and ecosystems
3. Transformation of cities and infrastructures
4. Transformation of the industrial system.

The **IPBES Global Assessment on Biodiversity and Ecosystem Services** (2019) identifies eight leverage points:

1. Visions of a good life
2. Total consumption and waste
3. Latent values of responsibility
4. Inequalities
5. Justice and inclusion in conservation
6. Externalities from trade and other telecouplings
7. Responsible technology, innovation and investment
8. Education and knowledge generation and sharing.

A group of high-level researchers headed up by **Jeffrey Sachs, Dirk Messner and Johan Rockström** (2019) have proposed six SDG transformations:

1. Education, gender and inequality
2. Health, well-being and demography
3. Energy decarbonisation and sustainable industry
4. Sustainable food, land, water and oceans
5. Sustainable cities and communities
6. Digital revolution for sustainable development.

The **Global Sustainable Development Report** (IGS 2019) lists six priority entry points for transformation:

1. Human well-being and capabilities
2. Sustainable and just economies
3. Energy decarbonisation with universal access
4. Food systems and nutrition patterns
5. Urban and peri-urban development
6. Global environmental commons.

The necessity for such a transformation is derived from the recognition that technological development and incremental improvements and reforms will be insufficient to guarantee development and prosperity within environmental boundaries.

Targeted transformation of key areas of society and sectors of the economy

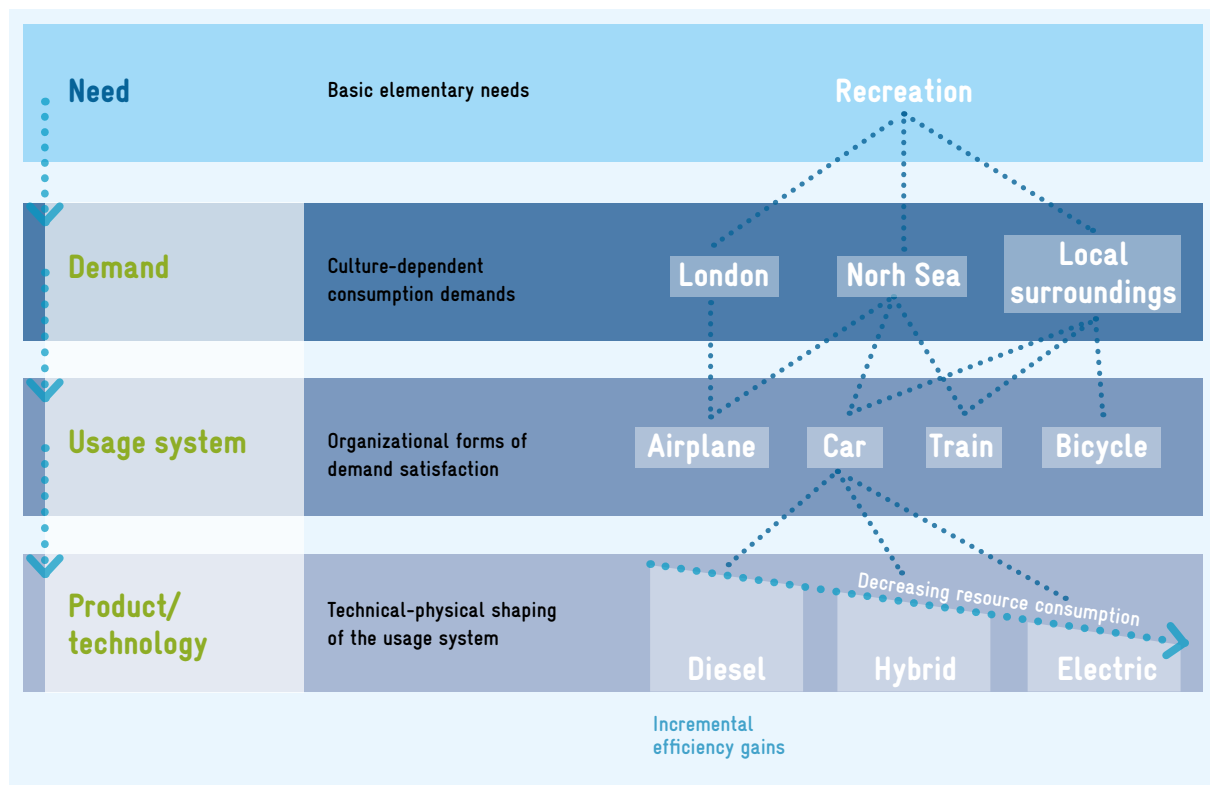
Societies are in a constant process of change, which has repeatedly resulted in transformations throughout history. These transformations may concern society as a whole or sub-systems, such as specific sectors or technologies. Examples include the radical transformation from an agricultural to an industrial society and the transformation of former socialist states into democratic market economies. An example of sectoral transformation can be seen in the replacement of wood with coal, followed by oil and gas, and subsequently renewable energies. Some of the changes brought about by increasing digitalisation are transformative in scale.

The change envisaged by the 2030 Agenda, the Paris Agreement and the CBD differs from previous societal upheavals in its aspiration to intentionally and systematically bring about social and environmental transformation. This aspiration raises numerous questions in relation to environmental policy steering, for instance, what should actually be transformed and what is the direction in which the system should change? Different institutions and authors have attempted to cluster together the economic and societal sectors in which transformation is required.

The ambitious changes sought with the ecological transformation

At its heart, transformation is about meeting societal needs (for instance, in terms of mobility, housing, communication, food, material supplies and recreation) differently than in the past. Socio-technical and socio-economic systems determine the way in which such needs are met. As such, in addition to products and technologies, this involves the interplay between

Figure 6: System levels (Paech 2012)



Case study: German energy transition

While the initial focus was on technology research and technological experiments (including failures, such as the ‘Growian’ wind turbine), the political and economic incentives of the German Renewable Energy Sources Act (EEG) (feed-in tariff, subsidies, etc.) facilitated the expansion of wind and solar power, two niche technologies at the time. Comprehensive investment and additional research funding boosted the effectiveness of key technologies, reduced manufacturing costs (price drop of over 90% for photovoltaics in the period from 1990 to 2015) and thus facilitated competition in the energy mix globally. As a result of this dynamic market trend, political expansion targets were exceeded, allowing them to be successively raised. Unexpected disasters (such as Fukushima 2011) served as a window of opportunity alongside changes in demand patterns and consumer attitudes (green energy), encouraging further expansion. At the same time, the renewable energy breakthrough is giving rise to new technical and social innovations, such as demand for storage capacity, new network requirements (e.g. smart grids, integrated grid solutions with electric vehicles), the emergence of energy cooperatives and the rise of prosumers (private households that feed energy into the grid as well as drawing energy from it). While the energy transition is not yet complete, Germany generated over 40% of its electricity from renewable sources in 2019.

a wide range of system elements, such as infrastructure, markets, knowledge, political frameworks, societal norms and values, consumer behaviour and the natural environment. Ecological transformations thus seek to bring about change in socio-technical and socio-economic systems. Consequently, they go beyond the adaptation or optimisation of individual elements within a system, such as efficiency gains, infrastructure expansion or the prohibition of particular products. Depending on the context, they may use different system elements as entry points, addressing underlying societal structures in the process (Figure 6). Transformations thus include both technical and social/institutional change. Incremental change and transformation often go hand in

hand; incremental change can pave the way for transformative change. However, it should be noted that measures with a long-term impact, such as infrastructure planning, can reinforce path dependencies that hinder transformation. It is therefore imperative to never lose sight of long-term transformative goals when setting the level of environmental-policy ambition.



At the same time, one (disruptive) innovation does not equal a transformation. Only when innovations interact with one another are system turnarounds possible. As such, innovations for electric motor vehicles are only effective if there is corresponding development of charging infrastructure and changes in consumer behaviour (social innovation). Legal and political frameworks also play a role in the implementation of innovations (see the case study of the energy transition). Trends and step changes often influence or trigger one another. For environmental policy, this means that transformations can only be predicted and managed to a limited extent.

New scope for effective environmental policy

The aforementioned aspiration to intentionally shape a green transformation builds on earlier ambitions. The United Nations Conference on Sustainable Development in Rio de Janeiro (Rio+20) in 2012 saw the formulation of a call to comprehensively restructure polluting sectors and structures in the interests of sustainability. These ambitions have remained largely unfulfilled, not least because environmental policy depends on interaction with other sector policies whose stakeholders have been insufficiently willing to make relevant changes. There are still challenges with regard to the ecological transformation. Given the fact that environmental policy can only develop a transformative impact if it has an effect in other economic and societal sectors, it should be increasingly understood as a proactive restructuring policy. And environmental policy can only have a restructuring effect if actors from different policy areas collaborate with non-governmental stakeholders to drive societal and economic transformation.

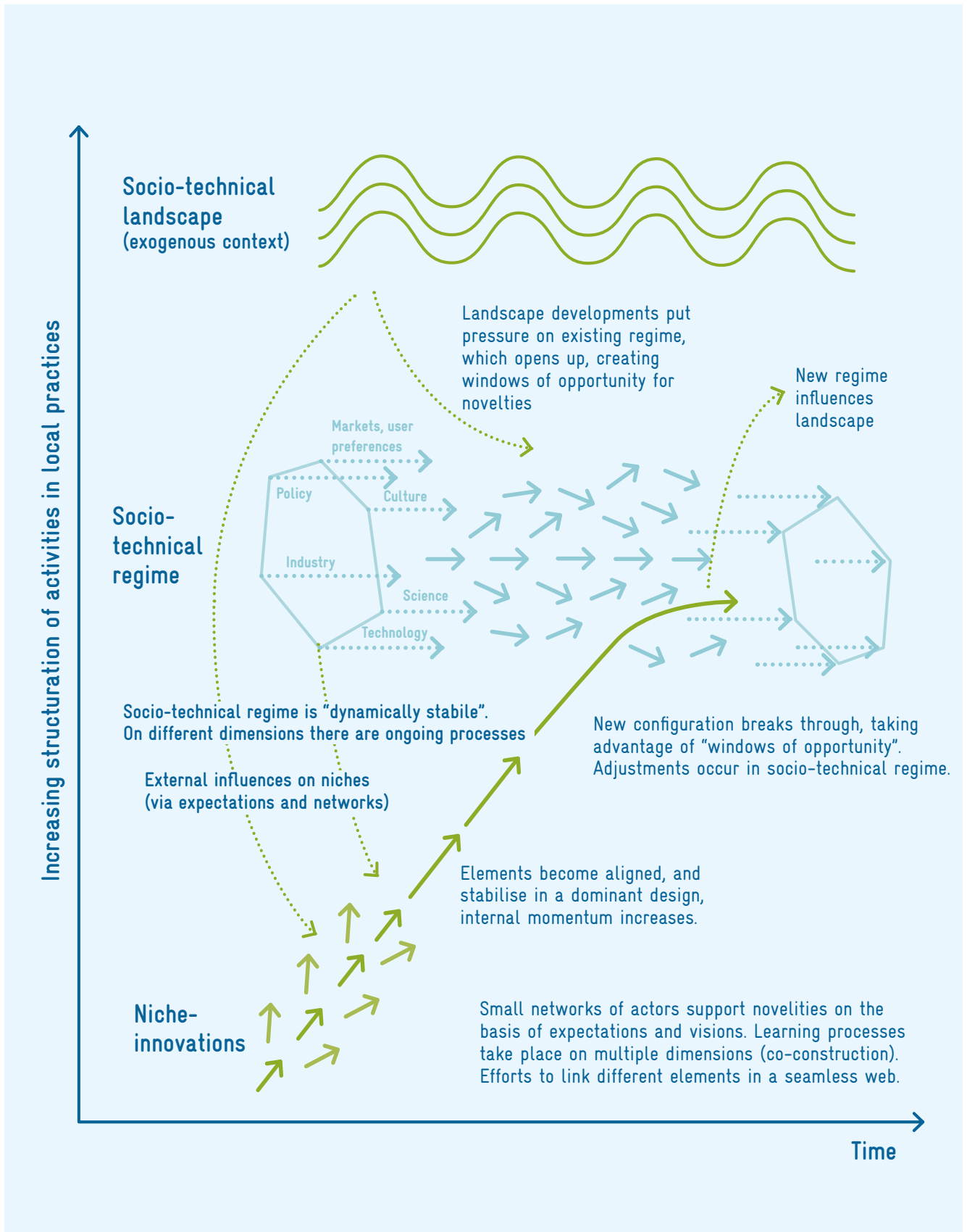


In order to avoid having to wait for rare windows of opportunity for cross-sectoral cooperation and a willingness to change, it is helpful to apply the concept of transformative change. This concept provides greater clarity as to how effective environmental policy can complement established environmental policy approaches by preparing for and supporting such opportunities. The main focus here is on the tremendous potential of societal change dynamics and the strategic role of technical, social and institutional innovations (Figure 7). There are a large number of non-governmental stakeholders involved in transformation processes that initiate and accelerate change and/or help achieve a breakthrough with it. These stakeholders, which include companies, consumers, municipalities and affected groups, also influence transformation through their own dynamics. For instance, local communities are experimenting with alternative food supply models (e.g. urban gardening), pioneering companies are piloting sustainable business models, and researchers and start-ups are devising disruptive key technologies for environmentally friendly development. Industry is also increasingly expressing interest in more specific regulation by policymakers in order to enhance planning security for companies. For environmental policy, this means limitations in terms of being able to plan and steer such processes.

At the same time, it could initiate, support and build on these dynamics by promoting social, institutional and technical innovation or by establishing links to cultural transformation. In this way, it would also be possible to develop and pilot innovations in small steps, in niche areas or in demonstration projects. This in turn helps to increase pressure for change in the societal and economic sectors to be transformed, and to prepare for and establish alternative technologies and practices. These are all key elements for far-reaching, systemic change.

Equally, transformative change takes place over time. While it arises largely from disruptive niche innovations, these innovations cannot be implemented or a new system established without political decisions and leadership, a corresponding regulatory framework and, frequently, a window of opportunity. These change processes always have to contend with and actively address resistance, established interests and the inertia of the status quo.

Figure 7: Multi-level perspective on transformation processes (GIZ 2020, Original: Geels 2004)



2.2 Strategy elements of effective environmental policy

The wide-ranging requirements suggest that for an environmental policy to be effective, it must take account of all practice-based approaches and the entire environment policy toolkit. Guidance is provided here by six strategy elements (Figure 8). From GIZ's perspective, these elements bring together and categorise the key levers and approaches to be taken and thus come together to create a cohesive whole. Each strategy element is fleshed out by a series of key approaches to be taken, which provide entry points for practical environmental policy. These approaches are broken down into different action dimensions as required. The connections between the strategy elements and their approaches are identified with corresponding references.

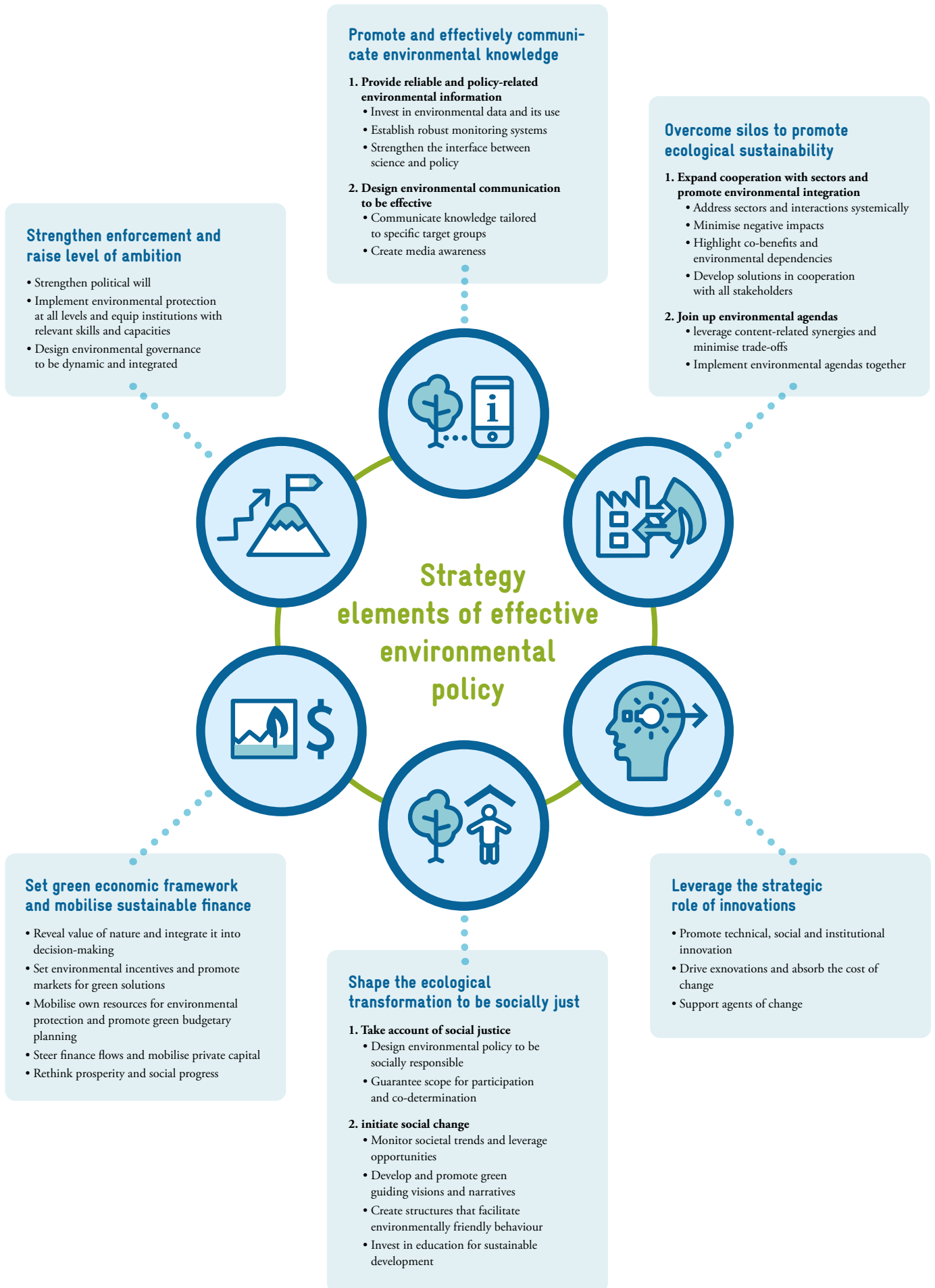
The strategy elements as a whole are relevant when it comes to effective environmental policy. Context- and situation-specific priorities mean that not all of these elements must be used in practice. However, the strategy elements could provide key impetus when developing and planning GIZ advisory projects in order to identify (additional) options for action and structure discussions.

As cross-cutting issues, a number of aspects are relevant to several strategy elements. These include technological developments and digitalisation. They bring with them radical changes and upheavals, have a corresponding impact on the environment and offer opportunities for environmental improvements, making them especially significant for effective environmental policy. The role of windows of opportunity for environmental policy, which open up as a result of both unpredictable (extreme) events and more plannable events, is relevant from beginning to end. As such, frameworks for environmental policy have changed as a result of the COVID-19 pandemic. The crisis illustrates the risks posed by zoonoses, and thus how closely an unspoiled natural environment and human health are connected. There are also promising points of connection with medium- and long-term efforts to combat the economic consequences of the pandemic, such as green economic stimulus programmes and green recovery measures.



Figure 8: Strategy elements of effective environmental policy.

(Each strategy element is fleshed out by approaches to be taken, some of which are themselves broken down into two action dimensions.)





2.2.1 Strategy element: strengthen enforcement and raise level of ambition

Environmental policy faces a dual challenge in many countries. Although the regulatory framework has now been set almost everywhere by an established environmental administration system and more or less comprehensive environmental legislation, there is often a failure to systematically enforce the relevant regulations. At the same time, most of the existing legislation, instruments and measures are not ambitious enough. When it comes to the necessary integration of environmental goals and issues into economic and sector policies, political and societal momentum is frequently lacking. There is therefore a need to bridge the gap between the pressing environmental-policy challenges and the complex political consensus-building process in which environmental policy is always just one voice among many. In order to strengthen the enforcement of existing legislation while at the same time raising the ambition level, the following approaches are available for effective environmental policy:

Approach: strengthen political will

Implementing environmental legislation and measures, like long-term change processes, requires political will on the part of all stakeholders at all levels. This is the only way to realise environmental policy design aspirations, such as the energy, transport or agriculture transition. Clear and high-level political leadership is needed in this context, particularly in the interplay between different ministries, political levels and stakeholders. For environmental policy to be effective, it is essential to strategically leverage the existing political will among these stakeholders and actively expand the scope for action. International policymakers could provide key impetus here. National environmental policymakers could invoke the ambitions and commitments in multilateral agreements in order to strengthen the political relevance and legitimacy of national policy. Mechanisms for regular reporting,

such as those established for the 2030 Agenda, the Paris Agreement, the CBD and other international accords, are also beneficial in this context. By disclosing their progress with implementation, countries allow themselves to be benchmarked against other countries and evaluated by civil society and the general public. This ‘soft’ competition often generates its own dynamism, as environmental policy stakeholders can refer to reports, assessments and comparisons with other states as a means of urging further progress.

Targeted communication of environmental policy ambitions, their relevance and solutions, and media reporting are very important when it comes to mobilising political will and creating public pressure ([↗ design effective environmental communication](#)). Environmental policymakers can also draw on the influence of societal movements, economic players and other interest groups (e.g. Fridays for Future and Business for Nature) to this end. Last but not least, the political consensus-building process is heavily determined by windows of opportunity in which societal and political acceptance of more ambitious environmental policy increases. In Germany, for instance, the nuclear reactor disasters in Chernobyl (1986) and Fukushima (2011) enabled environmental policy to be developed further. The COVID-19 pandemic could also provide a similar window of opportunity.

Approach: implement environmental protection at all levels and equip institutions with relevant skills and capacities

Environmental ministries and authorities are key anchor points for implementing environmental legislation and administrative regulations. Strengthening the requirements at all levels is thus a fundamental element of effective environmental policy. To this end, it is necessary to define responsibilities to allow

environmental problems to be tackled at the most appropriate administrative level. Localised challenges can usually be best addressed by local authorities. However, environmental problems frequently cross administrative boundaries, both within and between states. Accordingly, it is often necessary for different authorities to work together. In addition to clear responsibilities, institutions also require corresponding rights of intervention in order to ensure compliance with existing legislation and regulations. Relevant mandates and ever more complex requirements are increasing the pressure on modern environmental administrations as well as the demand for financial

and human resources. It is therefore essential that environment ministries and authorities have the resources and professional staff they need in order to fulfil their mandate. This issue is especially pressing at local level in developing countries and emerging economies. There are still serious problems here (water, soil and air pollution caused by contaminants and waste) and the authorities are often insufficiently equipped to tackle them.

Case study: cross-institutional cooperation for sustainable development, climate change adaptation and disaster risk management in Germany

Extreme events such as floods, drought and earthquakes pose a risk to humans, ecosystems and infrastructure in all areas of life and policymaking. The advance of climate change is making disaster risk management and effective responses to extreme events ever more important. Measures to strengthen disaster risk management and climate change adaptation must therefore be well coordinated and implemented in harmony with relevant international treaties (Sendai Framework for Disaster Risk Reduction and Paris Agreement on climate change). Germany serves as a good example in this context of coherent cooperation at multiple levels between ministries, authorities and stakeholders. In order to implement the Sendai Framework, Germany has established a National Focal Point, which is among other things developing a National Platform for Disaster Risk Management. An Inter-Ministerial Working Group steers national and international measures. Regional conferences have been established as part of Germany's climate change adaptation strategy, providing a forum to discuss common challenges and opportunities associated with regional measures (such as the increasing frequency of heavy rainfall events in northern Germany). At local level, measures are planned and implemented with the involvement of relevant ministries and stakeholders. In Bremen, for instance, road construction methods were adapted to heavy rainfall as a result of a plan agreed across local government departments. Thanks to this multi-level, cross-sectoral cooperation, climate change adaptation and disaster risk management are being integrated into all relevant policy areas. As a result, resources are being deployed more efficiently, resilience against disaster risk is being enhanced, and sustainable urban development is being driven forward.

The German Federal Constitutional Court's decision on the German Federal Climate Change Act (2021) illustrates how courts can play a key role in the implementation of ambitious environmental policy. Strengthening independent courts and more effectively institutionalising environmental legislation

instruments helps the authorities to implement environmental policy. As a result, administrations, the population and civil society are provided with legal remedy to take action against poor enforcement of legislation. In practice, alongside the right of those directly affected to take legal action, class action and

action in the common interest have proven particularly effective. Such action allows a judicial review of whether administrative decisions meet the

requirements of environmental legislation without the plaintiffs themselves having to be affected by the decisions.

Case study: Pascua Lama, Chile – environmental lawsuits as an instrument for the effective protection of humans and the environment

An almost 20-year-old chapter of mining activity in Chile came to a close in September 2020. Barrick Gold, the world's largest mining company, had been planning the Pascua Lama gold mine along the Chilean-Argentine border since the early 2000s. The mine began operations in 2009, but has been inoperative since 2013 due to violating 20 environmental regulations. A court prohibited the mine's further operation in 2018 due to it posing a huge risk to glaciers and the local water supply. This verdict was upheld by Chile's highest environmental court in 2020 and the company was also ordered to pay a USD 11 million fine for violating environmental regulations. The ruling is considered a victory for the local and indigenous population, who, out of concern for their livelihoods and with the support of non-governmental organisations, had taken action against the company for infringing environmental requirements. This case study illustrates how the rights of affected individuals to take legal action in the event of a failure to comply properly with environmental legislation and regulations play a key role in the protection of humans and the environment.

Approach: design environmental governance to be dynamic and integrated

Environmental change processes can only be managed to a limited extent by environment ministries and authorities. They are influenced by a wide range of state and non-governmental stakeholders, meaning they cannot be planned and implemented at the drawing board. There are a number of process-oriented guidelines that have proven effective in the policy design process. Environmental policy measures are most effective when they are designed and implemented as dynamic, long-term processes that provide repeated impetus for negotiations, implementation, evaluation and learning. Such impetus is generated, for instance, by successively increasing the target achievement level by means of clauses providing for dynamic adjustments or ambition mechanisms such as those in the Paris Agreement. It is necessary in this context to work towards long-term goals, despite an open planning horizon. Because many political and economic stakeholders operate according to short-term considerations, environmental policymakers must work towards long-term provision, e.g. by using

relevant cost-benefit analyses. In addition to the temporal dimension, an integrated approach is the cornerstone of effective environmental governance. Relevant approaches comprise the appropriate involvement of stakeholder groups (**↗ guarantee scope for participation and co-determination**), the integration of environmental policy into other policy areas, such as systemic baseline analyses and multi-stakeholder partnerships (**↗ expand cooperation with sectors and promote integration of the environment**) and the involvement of new stakeholders that drive the ecological transformation (**↗ support agents of change**). Integrated policy approaches, such as landscape approaches that coordinate different institutions within a region, have proven effective here in practice, as have nexus approaches that address the interfaces between different problems. The areas of action or entry points for priority transformations proposed by international reports such as the Global Sustainable Development Report (IGS 2019) could guide the integration of topics and stakeholders in practice.

One final component of effective environmental governance is the recognition that, in a dynamic environment, one single environmental policy instrument is insufficient to address the large number of obstacles and challenges. Whether it is resource and energy efficiency or the energy transition, such changes cannot be achieved with just one instrument in each case. What is needed is a policy mix of instruments and governance approaches. There is a

tried-and-tested toolkit for this purpose, with well-known, thoroughly proven instruments. The design of a policy mix depends on the respective context, the situation and the specific challenges, obstacles, goals and stakeholders. Feedback mechanisms and clauses providing for dynamic adjustments allow the chosen policy mix to be subsequently modified over the course of the process.

Overview of environmental policy instruments

- **Regulatory instruments:** imperatives and prohibitions, approvals, regulations (e.g. compliance with thresholds, product and/or process standards), environmental liability, environmental criminal law
- **Planning instruments:** spatial planning, sectoral, environmental-media or resource-based planning (e.g. urban land-use, air pollution-control, waste-management and water-supply plans), environmental impact assessment, strategic environmental assessment, policy impact assessment
- **Economic instruments:** duties (e.g. environmental taxes, fees, contributions, product and special levies), discounts (e.g. subsidies, tax breaks, special write-downs, compensation agreements, user benefits), licences, certifications, deposit systems
- **Information instruments:** advisory and information services, standardised measurements, reporting requirements, environmental education, environmental labels, environmental research
- **Cooperation instruments:** voluntary commitments, negotiations, networking, sectoral agreements; standards developed by international non-governmental organisations



2.2.2 Strategy element: promote and effectively communicate environmental knowledge

For many environmental problems, the cause-and-effect relationship is not immediately visible or tangible and is seemingly far removed from everyday life (environmental destruction increases the likelihood of pandemics, carbon emissions lead to climate change). There is thus a need for reliable information and data in order to make environmental issues politically tangible. *'If you can't measure it, you can't manage it'* is a management insight that applies equally to environmental policy and is a prerequisite for evidence-based political decision-making. At the same time, practical experience shows that knowledge about problems and solutions is not sufficient in and of itself to bring about political action. Environmental policy must take account of the wide-ranging barriers that result from the gap between environmental knowledge and action. Consequently, the reliable collection of environmental data and its processing for target-group-specific environmental communication aimed at changing behaviour are two key pillars of effective environmental policy.

ACTION DIMENSION 1: **provide reliable and policy-related environmental information**

In many nations, especially developing countries and emerging economies, environmental policy has to contend with a glaring lack of data. Environmental data in these nations is either non-existent, of insufficient quality or spread across many institutions and not publicly accessible. The data gap for SDG monitoring is becoming particularly apparent, and progress will be measured on this front using 231 indicators. For two thirds of environment-related indicators, however, the worldwide data situation is so unsatisfactory that it is barely possible to evaluate trends or progress. Yet, the collection of environmental data is not enough in itself to enable the formulation of evidence-based environmental policy. The interface

between the provision of knowledge and its use by policymakers, and the data skills of decision-makers are further key areas of action. The following approaches are key:

Approach: invest in environmental data and its use

Investing in the collection of environmental data and strengthening the institutions responsible for its collection are prerequisites for evidence-based environmental policy. On the one hand, it is necessary to collect new data systematically, regularly and in line with uniform standards. On the other hand, existing data can be consolidated, curated, harmonised and made more widely accessible to the public. Digitalisation and technical development have significantly improved access to environmental data. Remote surveying using satellites, aircraft and drones has helped to make high-quality information available at lower cost. Satellite imagery can be used to register and prosecute illegal slash-and-burn activity or forest fires more quickly ([↗ implement environmental conservation at all levels and equip institutions with relevant skills and capacity](#)). Big data applications and artificial intelligence open up additional opportunities offering tremendous potential; the United Nations is even talking about a data revolution. Digital and mobile applications also make it easier for citizens to get involved in data collection and research (citizen science). At the same time, investment in environmental data requires that the data skills of users and decision-makers be strengthened. Building capacity for processing, interpreting and using environmental data is therefore a key task.

Case study: soya moratorium in Brazil – new forms of monitoring using new technologies

Soya cultivation is a major driver of tropical rainforest deforestation in Latin America, especially in the Amazon region. Greenpeace ran a provocative campaign in Brazil in 2006 in order to raise awareness of this problem. A working group was formed in response to the resulting pressure, bringing together representatives from civil society, the soya industry and the government to look for solutions. This resulted in a voluntary commitment by the industry to refrain from purchasing soya from land that had been deforested after 2008. Key to the success of this moratorium was the use of satellite imagery and aerial photographs from the National Institute for Space Research (INPE). INPE has been carrying out satellite surveillance since 1998 in order to determine deforestation rates in the Amazon. The regular capture of imagery facilitates effective and cost-efficient monitoring, making it possible to identify soya fields that have been created as a result of recent deforestation. Soya produced in these fields can then be excluded from trading activity. The monitoring activities cover 76 districts in which most of the soya in the Amazon region is produced. Scientific studies show that the soya moratorium has drastically reduced the rate of deforestation in this region. The moratorium is a success story of cooperative environmental policy and illustrates how new technologies are expanding the scope for shaping natural resource conservation.

Approach: establish robust monitoring systems

Environmental data is especially politically effective if change measurement is institutionalised by means of indicators and monitoring systems. Strongly aggregated indicators are especially suitable for political messages and public communication. By contrast, detailed and disaggregated information is required for the political planning process. Ideally, monitoring systems not only map the state of the environment, but also record additional data about drivers, environmental pollution and its impact, and political measures for environmental conservation. The Driver-Pressure-State-Impact-Response (DPSIR) indicator system originating with the OECD and developed further by the European Environment Agency (EEA) continues to be authoritative for this purpose (OECD 1993, EEA 1999). Corresponding monitoring systems facilitate the planning, management and evaluation of environmental policy measures and change processes. If evaluations are conducted regularly by independent, socially accepted institutions, then they will also help to provide accountability and transparency.

Approach: strengthen the interface between science and policy

Scientific and research findings provide the factual basis for environmental developments. They legitimise ambitious environmental policy, identify emerging challenges and contribute to the development of solutions. In order to ensure that the findings are politically relevant and inform decision-making processes, it is important to actively shape the interface between research and policy. For applied research in particular, it is necessary to gear research to political issues and frameworks and to explore potential solutions beyond the investigation of environmental problems. Social science expertise could also be made more readily available for use in designing institutional mechanisms for environmental policy. Effective scientific communication that processes complex insights in a clear manner makes research findings easier to use in a policy context (↗ **communicate knowledge to specific target groups**). New approaches, such as co-production of knowledge, are also helpful in complex ecological transformation processes, which are fraught with uncertainty and associated with

wide-ranging values. Policymakers, researchers and societal stakeholders work together in this context to transparently produce the knowledge required for making decisions. This can be supported by in-depth dialogue between researchers and policymakers, which can be institutionalised in the form of independent advisory bodies. Exemplary international advisory institutions are found in the areas of climate (IPCC), biodiversity (IPBES) and natural resources (International Resource Panel, IRP). Prime national examples include the German Council for Sustainable Development (RNE), the German Advisory Council on Global Change (WBGU), and the UK's Natural Capital Committee (NCC).

ACTION DIMENSION 2: **design environmental communication to be effective**

Many environmental problems have been known about for decades and environmental awareness is increasing steadily around the world. Nonetheless, there is frequently a great disconnect between environmental awareness and day-to-day environmentally friendly behaviour. This is due not only to a lack of knowledge, but also to a wide range of motivations: financial considerations ('electric cars are too expensive'), a sense of being far removed from the issue ('climate change is a long way away'), a feeling of being overwhelmed ('disaster scenarios are paralysing'), convenience and well-being ('cars are more convenient than trains'), social norms ('my neighbours don't separate their waste properly either'), and trends and personal lifestyles ('long-distance travel is in right now'). Sustainable behaviour often also requires a break with established routines and cherished habits. These barriers hinder change and must be understood in order to effectively address them. In addition to new approaches to societal transformation (➔ **initiate societal transformation**), good communication is especially important in this context.

Approach: communicate knowledge tailored to specific target groups

Barriers to change are wide-ranging, which is why communication strategies cannot be generic, but rather must be adapted to each individual target group. Effective communication is geared to the living environments, needs and motivations of its target groups, in terms of both its messages/arguments and the media it employs. Comprehensive administrative publications would appeal neither to a company nor a village group. The village might need a meeting to discuss the impact of changes, while a business association may be best served with an appealing two-page document addressing the specific interests of the sector in which it is based. For environmental communication to be effective, it is crucial that the different target groups, whether businesses, civil-society stakeholders or policymakers, are each addressed in an appropriate, positive and motivational manner. It is essential here to not only employ rational arguments, but also to address the values and social norms of the target group. Infotainment, social media and films could play a key role in this context. It is also helpful to work with individuals trusted by the target group, such as mayors, influencers or their own children, who are demonstrating with Fridays for Future. However, participation by these stakeholders in environmental policy and decision-making processes, beyond a communication context, must not be allowed to fade into the background (➔ **guarantee scope for participation and co-determination**).

In order to identify the causes of trade barriers and develop clear messages in response, each communication strategy must involve an analysis of stakeholders. The first basis for doing so is an appropriate differentiation between the target groups. For instance, the private sector is not a sufficiently specific definition, as the pharmaceutical industry works under a different framework to the cosmetics industry, and small smart-ups operate completely differently to large corporations. Understanding the interests and living environments of each target group usually requires a careful analysis.

Approach: create media awareness

Media reporting often simultaneously reflects and sets the pace of public opinion. Media outlets not only disseminate information, but also place topics on the political agenda, raise the awareness of readers and listeners, and, potentially, reach societal groups that have traditionally had little connection to

environmental topics. Traditional media such as newspapers, TV and radio are no longer the only relevant players. Digitalisation and technological change have fundamentally transformed public communication. New channels have emerged, form and style have radically changed in some cases, and the volume of information available in real time has mushroomed. This has also led to an increase in fake news. Effective environmental policy can mobilise media attention by institutionalising and professionalising its public relations and press work. Twitter accounts run as a sideline, long press releases and impenetrable jargon have so far failed to entice any journalists to come out from behind their desks. Environmental policy cannot avoid the need to use other (including entertaining and affective) communication formats to reach new target groups and deconstruct fake news in public debate.



2.2.3 Strategy element: overcome silos to promote ecological sustainability

Environmental policy has long been recognised as a cross-cutting area in which policymakers must proceed on an integrated and cooperative basis. Environmental issues have been increasingly mainstreamed in economic sectors and policy areas as environmental challenges have become more pressing. There is also room for greater cooperation to leverage synergies

within the environmental policy sector itself. Consequently, the process of overcoming silo boundaries to promote ecological sustainability has two action dimensions: ‘expand cooperation with other sectors and promote environmental integration’ and ‘join up environmental agendas’.

ACTION DIMENSION 1:
expand cooperation with sectors and promote environmental integration

Most environmental pollution is generated by economic sectors and policy areas outside the sphere of responsibility of environmental policy itself. It is therefore reliant on the willingness of other stakeholders to engage in cooperation and change processes. Overseeing the entire mainstreaming process would be extremely difficult for the environmental policy sector, especially when it intends to bring about a green transformation of entire sectors or policy areas. These sectors and areas have their own rules and goals, the logic of which must be understood. Environmental aspects are not always compatible with these goals, and are also impeded by the inertia of the well-oiled machinery of non-sustainable sectors of the economy. Ultimately, environmental policy cannot make people willing to engage in cooperation and change processes. In order to drive environmental sustainability nevertheless, it can use approaches that improve cooperation and environmental integration. These include:

Approach: address sectors and interactions systemically

In a connected world, complex economic cycles and supply chains are linked with one another and with other sectors, with their social and ecological environment, and with social values and norms, etc. One challenge for environmental policy is to address different aspects and their interactions all at the same time. The art is to accept the complexity on the one hand, but to reduce it in a conceptually appropriate manner on the other to ensure that policy remains effective. A systemic perspective aids analysis. It is necessary to define the sector to be addressed (are we dealing, for instance, with the entire transport sector, public transport or just the use of bicycles?) and identify characteristic elements, the interactions between which are to be analysed and made tangible.

Integrated models that represent social, economic and environmental aspects provide the toolkit for this purpose. It is necessary to consider in this context that, while a narrow framework can reduce complexity, a broad perspective opens up new scope that is necessary for environmental transformation and goes beyond conflicting objectives, such as those that exist between a number of SDGs. For example, it is foreseeable that competition between using land for food cultivation and for other purposes (biofuel production, reforestation for carbon sinks, nature conservation) will intensify further. Part of the solution to this conflict between objectives involves adopting a broader perspective of the food system as a whole. In this way, sustainable dietary habits and the reduction of food waste can help to mitigate competition for land.

Approach: minimise negative impacts

Projects, policy instruments, legislation, technological development, etc. can also have unpredictable and undesirable impacts on the environment. The precautionary approach employs preventative analysis and is an effective means of taking account of environmental risks at an early stage. Proven environmental policy instruments include regulatory, policy and technology impact assessments, or strategic environmental assessments. However, the practical impact of such analyses often falls short of expectations. Binding and transparent regulations on taking account of the analysis findings could be helpful here. Safeguards play a key role for institutions, ensuring that systematic account is taken of environmental and other risks. It is also necessary to review and monitor environmental policy measures in terms of any unintended environmental and social risks and compliance with gender and human rights standards (➔ **take account of social justice**).

Approach: highlight co-benefits and environmental dependencies

Addressing the particular interests of political and economic stakeholders has proven to be an effective environmental policy approach. Identifying co-benefits and environmental dependencies illustrates the contribution made by environmental policy measures to the success of economic activities and the achievement of political objectives such as fighting poverty, creating employment and promoting economic growth. This helps to legitimise the ecological transformation and contributes to constructive discourse on the integration of environmental aspects. There are numerous examples that illustrate the co-benefits of ambitious environmental policy. Green business practices create employment opportunities and economic growth; using solar panels simplifies the electrification process in rural areas of Africa and thus contributes to reducing poverty; the biodiversity of tropical rainforests safeguards the production and development of modern pharmaceuticals, thereby contributing to global health care provision. Instruments such as scenario analyses are well suited to

making environmental dependencies and expected co-benefits visible, communicating them to specific target groups ([↗ communicate knowledge to specific target groups](#)) and realising suitable measures, projects and policy instruments. There are interesting approaches in, among other areas, the green economy, the circular economy, resource efficiency and sustainable supply chains.

Approach: develop solutions in cooperation with all stakeholders

In order to initiate environmental change processes, it is often not only necessary to involve the different stakeholders in the decision-making process, but also to work with them on a peer-to-peer basis to develop solutions. Interministerial working groups and similar formats are a proven means of breaking up political silo structures. At the same time, environmental changes do not only relate to bilateral processes between the environment ministry and one other stakeholder or group in each case. Wherever the ecological transformation is geared to entire (sub-)sectors, there is a need for communication and cooperation between

Case study: Uganda's green economy strategy

With its Uganda Vision 2040, Uganda is pursuing the objective of comprehensively modernising its economy and improving the prosperity of the population by 2040. In international treaties (2030 Agenda, Paris Agreement) and national development plans, Uganda has committed to following the principle of inclusive sustainable development. In order to flesh out these goals, the country has adopted the Uganda Green Growth Development Strategy (UGGDS) 2017–2030. The UGGDS was developed by the National Planning Authority in cooperation with other ministries, authorities and Ugandan civil society. It identifies five areas of priority investment for green growth in Uganda: sustainable agriculture, natural capital management, green cities, renewable energy and sustainable transport. With the UGGDS, Uganda could create an additional four million jobs and grow its economy by another 10% by 2030. At the same time, GHG emissions could fall by 28% by 2040, significantly exceeding the national target of 22%.

several stakeholder groups in the form of multi-stakeholder processes and partnerships. While these processes, in which environmental policy changes are negotiated and designed in cooperation with all stakeholders, could result in ambitious decisions being delayed and sometimes even prevented, they are still necessary in order to create acceptance among stakeholders and within society (see case study of *German Coal Commission*). The integration of environmental issues into sector policies is made especially difficult if there are conflicting objectives which are extremely difficult to resolve under current technical, political and economic conditions. In order to make headway with environment policy in such situations, compensation mechanisms, such as financial compensation

payments, subsidies and grants may be helpful. Complementing this, environmental policy can provide targeted support for innovations and change pioneers, thereby getting the green transformation under way, which often also leads to the identification of solutions for minimising conflict between objectives. Renewable energies, for example, reduce the conflict of objectives, which once seemed impossible to resolve, between affordable electricity and low-carbon energy production ([↗leverage the strategic role of innovations](#)).

Case study: German Coal Commission

How can Germany pull out of coal-fired power generation and do so in a way that is fair for the regions affected by the structural transformation? The German Government convened the Commission on Growth, Structural Change and Employment in 2018 to tackle this Herculean task. Dubbed the 'Coal Commission', this body brought together 31 delegates from the political sphere, the energy industry, the scientific community, environmental associations, trade unions and coal regions to draft a climate-friendly and socially responsible phase-out strategy for fossil fuels on which consensus can be reached. The final report issued some ground-breaking recommendations: 2038 has been set as the final date for the fossil-fuel phase-out, and the affected regions will receive financial support to tackle the structural transformation. However, the Carbon Commission illustrates the challenges involved in this kind of process. It was clear upon publication of the final report that, while the Commission contributed to securing a societal consensus, the climate policy objectives were still insufficient. The proposals were further softened in the subsequent negotiation processes between the German Government and the federal states. In May 2020, the new Datteln IV coal-fired power station went online, against the Commission's recommendations. From an environmental policy perspective, this reflects the ambiguity of solutions created with the involvement of all stakeholders. While these solutions aid mainstreaming and increase acceptance, they are rarely able to implement ambitious environmental policy objectives.

ACTION DIMENSION 2: **join up environmental agendas**

Environmental policy has also seen a differentiation into different topic areas, spheres of responsibility, approaches and strategies in recent decades (e.g. climate, biodiversity, desertification, circular economy, green economy). These issues are often situated within different institutions and covered in each case by a dedicated international agreement. Environmental topics frequently compete for political and public attention, although many of them are not only linked with other policy areas, but also with each other. It is the task of effective environmental policy to counteract tendencies towards a silo mentality within its own ranks and to offer cross-cutting solutions.

Approach: leverage content-related synergies and minimise trade-offs

Many environmental problems are mutually influencing and reinforcing. Climate change is already one of the five main drivers of biodiversity loss and could become even more significant in the future. At the same time, these links offer the potential to address several environmental challenges simultaneously and resolve them on an integrated basis. Nature-based solutions, for instance, could play a decisive role in climate policy, both as carbon sinks and to aid adaptation to climate change. They could account for up to 30% of cost-effective climate change-mitigation measures by 2030. Corresponding solutions help to prevent soil erosion and protect biodiversity at the same time. In addition to being cost-effective and efficient, such integrated

approaches could also be politically appealing. Nonetheless, it is necessary to minimise risks and unintended impacts on other environmental aspects, such as the loss of biodiversity and soil degradation resulting from the cultivation of renewable energy crops ([↗ Minimise negative impacts](#)).

Approach: implement environmental agendas together

From wetlands, mercury and bats to desertification, international lakes and hazardous waste, these topics and dozens of others each have their own multilateral environmental agreement. Implementing and reporting on all these conventions and preparing corresponding national strategies, instruments and monitoring systems involves a great deal of administrative work. Many conventions and topics overlap thematically. Greater coordination and joint implementation, along with monitoring synergies, facilitate more efficient use of resources, increase coherence between measures and reduce the administrative burden. For example, there has been a synergy process in place since 2008 between three multilateral chemicals conventions, which harmonises the implementation, reporting and advisory processes. This initiative simplifies the implementation process for developing countries and emerging economies in particular and is blazing a trail in terms of harmonising the fragmented environmental institutions.



Case study: nature-based solutions bridge the gap between climate and biodiversity treaties

The concept of nature-based solutions has been used since 2009 by the International Union for Conservation of Nature (IUCN) in order to increase awareness among policymakers of the strategic use of nature conservation. It has since enjoyed a broad reception and helped to leverage nature conservation synergies in many places. Nature-based solutions are activities that help to overcome political challenges, such as climate change, food security and the prevention of natural disasters through the protection, restoration and sustainable use of ecosystems (IUCN 2016). When it comes to climate change mitigation and adaptation in particular, they are playing an increasingly important role; two thirds of the countries had already integrated these solutions into their NDCs in 2019. Nature-based solutions bridge the gap between the CBD and climate treaties, and illustrate that climate change mitigation and biodiversity conservation can and must be integrated, as called for, for example, in the closing statement of the UNFCCC COP25 (Chile/Madrid). The conservation and restoration of carbon-rich ecosystems, such as forests and marshlands, simultaneously protect the climate and the natural environment. As a form of sustainable resource use, agroforestry creates carbon-rich, biodiverse and resilient agricultural landscapes and thereby contributes to climate change mitigation and adaptation.



2.2.4 Strategy element: set green economic framework and mobilise sustainable finance

Although the economic and financial world is reliant on unspoilt ecosystems, a stable climate and a healthy planet, it largely operates on an unsound ecological basis. The true cost of natural resource extraction and environmental destruction is reflected neither in the prices of products and services nor in GDP, which is why it receives too little consideration in policy, investment and purchasing decisions. At the same time, existing incentive systems often reinforce a way of doing business that leads to ruthless exploitation of the planet. This gives rise to a(n artificial) competitive disadvantage for environmentally friendly products, technologies and business models. Under these conditions, the financing of environmental-policy measures, projects and solutions frequently fails to meet demand. A green economic framework and an environmentally friendly finance system are crucial for effective environmental policy and can be addressed with the following approaches:

Approach: reveal value of nature and integrate it into decision-making

One key component on the way to achieving a green economic framework is to uncover the socio-economic value of the natural environment and a stable climate, as well as the environmental cost resulting from a failure to act. Environmental policy could draw here upon proven methods and increasingly standardised analysis requirements, such as cost-benefit analyses, eco-system service assessments and natural capital analyses. An internationally recognised statistical framework was established for the first time in 2012 by the United Nations in order to represent the environment on an equal footing with state economic statistics and in a format compatible with GDP (natural capital accounting). This framework was expanded in 2021 to include a System of Environmental-Economic Accounting (ecosystem accounting), making it possible to reliably and repeatedly

record interactions between the environment and the economy and to take account of these interactions in the decision-making process. Companies and financial players are also increasingly considering the economic opportunities and risks of their environmental impacts and dependencies. Environmental policy can provide support by developing standards and suitable disclosure obligations.

Approach: set environmental incentives and promote markets for green solutions

Fundamental to the ecological transformation of economic and financial systems is a framework of incentives geared to environmental needs and reflecting ecological realities in pricing. While the classic toolkit for this purpose has long been well-known in environmental-policy circles, it still remains one of

Case study: Vietnam and Morocco – environmental taxes and subsidy reform

Vietnam introduced a broad-based environmental tax programme in 2010, which entered into effect in 2012. The programme includes taxes on fossil-fuel energy sources, plastic bags and a wide range of pesticides. The legislation prescribes a possible corridor for developing the level of taxation, which makes it simpler to raise taxes. While the taxes were comparatively low upon their introduction in 2012, they have since been increased twice. Scientific studies show that fossil fuel taxes have already helped to reduce carbon emissions, and environmental taxes already accounted for 5% of total tax revenues in 2016. This illustrates how green finance reforms exert significant influence and also help to mobilise resources for sustainable development.

Morocco is a prime example of how fossil fuel subsidies can be phased out effectively and in a socially responsible manner. The country reduced the subsidies dramatically, from 5.3% of GDP in 2011 to just 1.1% of GDP in 2015. Petrol and diesel subsidies have been completely phased out, saving the Moroccan state USD 3 billion each year. Initially reducing the subsidies benefiting the middle and upper classes ensured that this reform was socially responsible. At the same time, subsidies of essential importance to the poorest population groups were retained. Parallel to this, existing social transfers and health programmes for poor sectors of the population were greatly expanded.

the greatest political challenges. Environmental taxes and duties, and the abolition of harmful incentives, such as environmentally damaging subsidies, exert influence via pricing signals and could help to mobilise resources. Especially in times of empty state coffers, entry points can arise for such reforms (**➤ mobilise own revenues and promote green budgetary planning**). Most importantly, these entry points must be designed in a socially responsible manner (**➤ design change measures to be socially responsible**). More recent approaches, such as payments for ecosystem services, tax transfers (e.g. from national budgets to regional governments) linked to green criteria, and bonus payments tied to sustainability performance, could also make an effective

contribution to a green economic framework. Other proven incentives comprise investments and subsidies for developing green solutions and enhancing their economic appeal. More specifically, these include research funding and the transfer and wider roll-out of green products, technologies and business models. The drop in the price of key green technologies, such as renewable energies, batteries and meat substitute products is a prime example of the effectiveness of these approaches. Promoting corresponding consumer behaviour is also a key component to this end (**➤ upgrade the structural status of environmentally friendly behaviour**). Environmental policy thus helps to create markets for green solutions.

Approach: mobilise own resources for environmental protection and promote green budgetary planning

Mobilising one's own resources is a key lever for closing financing gaps in state environmental policy. Existing public funding could be reallocated for environmental conservation as part of the budgetary planning process. This requires political will (➔**strengthen political will**). At the same time, additional funding could be generated using fiscal instruments, such as taxes and duties. Initially, it is the intended purpose of taxation, not the exact items being taxed, that is decisive. For instance, a cigarette tax could be introduced to cross-finance environmental conservation. The mobilisation of one's own resources becomes even more influential if it is linked to environmental sustainability criteria (➔**set green incentives and create true-cost pricing**). This kind of green budgeting covers both state revenue and expenditure, and in practice entails green finance reforms (environmental taxes and duties and the phase-out of environmentally harmful subsidies), expenditure programmes for environmental conservation and sustainable procurement. A key component on the way to establishing green budgets is the analysis and disclosure of the environmental impact of state revenues and expenditure, for example, in the form of green budget statements or subsidy reports.

Approach: steer finance flows and mobilise private capital

Integrating environmental aspects into the risk analyses of business, central and development banks, investment firms and regulators exerts a significant influence on finance flows. Factoring in default risks arising as a result of climate change and ecosystem degradation can trigger a profound environmental reallocation of portfolios and finance flows, as can the foreseeable fall in value of assets such as fossil fuels (stranded assets). By creating uniform standards and criteria for green financial markets and assets and setting political trajectories, environmental policy

can help to provide planning security. Examples include the EU taxonomy for sustainable investment, and Article 2 of the Paris Agreement on finance flows consistent with climate change mitigation. The growing interest in green investment among private investors and conventional investors with a socio-environmental and philanthropic focus is helping to promote innovative financial products, such as green bonds and blended finance models. Digital innovations within the finance sector using blockchain, artificial intelligence, big data and the Internet of Things are also being noticeably employed for green solutions. The mobilisation of resources for green investments has so far been constrained by the limited availability of suitable green projects and sustainable enterprises. Effective environmental policy could play a key role by supporting the marketability of such projects and companies.

Approach: rethink prosperity and social progress

The limitations of GDP have long been known, yet it remains the benchmark by which we determine whether development activities have succeeded or failed. GDP largely disregards the environment and resource consumption. Overuse and damage, for example due to pollution or extreme weather, can often even have a positive impact on economic growth and may suggest development success where the natural environment has been destroyed and costs have been incurred from damage to health or infrastructure. At a time when the climate crisis is leading to an increase in insurance claims, this calculation makes less and less sense. Numerous alternative approaches have already been developed, including ones that use environmental aspects to correct GDP (green GDP), make it equal with other indicators, or measure prosperity and social progress in an entirely

new way. These approaches reflect the value discussion on what kind of (qualitative) growth and which development pathways are desirable in society. Due to their diverse and complex nature, none of these approaches has established itself globally as the new lodestar for development, even though a number of states are experimenting with alternatives at national level (e.g. gross ecosystem product in China since 2018 or linking of the public budget to a set of 60 expanded well-being indicators (well-being budget) in New Zealand since 2019). Effective environmental policy could refine and disseminate such alternatives and thereby contribute to evidence-based policy action (↗**promote and intentionally communicate environmental knowledge**) and new societal models (↗**initiate societal transformation**).



2.2.5 Strategy element: shape the ecological transformation to be socially just

The guiding principle of sustainable development already contains a three-pronged focus on the environment, the economy and the society. Socially disadvantaged persons are often the ones hardest hit by pollution and directly dependent on the use of natural resources. At the same time, environmental policy measures often have a disproportionately detrimental effect on socially disadvantaged individuals if there is a failure to take explicit account of the social impacts. The aspiration to achieve an ecological transformation places an even greater focus on the social dimension. Structural change resulting from environmental policy and changes in patterns of social behaviour often gives rise to tremendous resistance on the part of a wide variety of different social groups. If people sense that their livelihoods and customs are under threat or feel or actually are disadvantaged by such change, then effective environmental policy must not only be socially equitable in design and

address the potential losers of change but must also generate broad acceptance on the part of all population groups, take people on board, and work towards a common objective regarding the ecological transformation. Overcoming opposition and resistance to change is the central requirement for effective environmental policy with specific approaches in two dimensions: ‘take account of social justice’ and ‘initiate societal transformation’.

ACTION DIMENSION 1: take account of social justice

The 2030 Agenda principle of leaving no one behind means that all SDGs must take account of social justice. This is about more than just securing livelihoods; indeed, there is a need to ensure the inclusion of previously disadvantaged groups and individuals and provide all people with access to vital resources and unspoilt ecosystems, which also includes the

protection of the aesthetic, cultural and spiritual value of nature. Based on the climate debate and in the context of the decarbonisation of the energy sector, the process of shaping the green transformation to be socially responsible is known as the ‘just transition’.

Approach: design environmental policy to be socially responsible

Even at the planning stage of environmental-policy measures, it is important to analyse any social impacts and identify the (potential) winners and losers of change. The concept of environmental justice makes clear that poorer people are frequently more heavily affected by pollution, including waste, noxious exhaust fumes and traffic noise, and that they have less access to environmental assets, such as high-quality urban green spaces. This is where environmental policy can help to overcome social inequality and to bring about environmental justice. Environmental policy measures should ideally be designed to pursue environmental policy and social policy objectives in equal measure

(see case study of *Metrocable*). Wherever this cannot be achieved, then a social impact analysis is required in order to make a targeted intervention, for example with compensation payments for groups particularly affected by environmental duties or restrictions on utilisation. Socio-political instruments also help to make the green transformation socially responsible. These instruments include vocational training, social protection and an active labour market policy that provides for retraining measures and the promotion of new employment opportunities. This is not only an imperative of social justice, but also a requirement for the acceptance of environmental policy measures, which are in turn largely determined by strategic communication with specific target groups ([↗ design environmental communication to be effective](#)).

Case study: Metrocable, Colombia

With Metrocable, an integrated local public transport system, the authorities in the Colombian city of Medellín, home to 2.5 million people, pursued environmental and social policy objectives from the outset. Even into the early 2000s, the steep slopes of the city were still not connected to the local elevated transport network. The people living on these slopes, most of them poor, thus had to rely on overcrowded buses, outdated cars and long treks on foot in order to reach other neighbourhoods in the city, for instance, for work purposes. The increase in traffic led to greater carbon emissions and air pollution, while marginalisation of the population groups in the sloping area resulted in violence, crime and a lack of prospects. The slopes were connected in 2020, following the construction of a six-line gondola system and integrated into the elevated transport network. This reduced pollution from traffic and cut journey times and costs, offering poor individuals access to more and better job opportunities. The fact that the Metrocable system is used by all population groups has had a positive effect on mixing between social classes. All stations, including those on the highest slopes, are equipped with modern facilities, guarded and regularly cleaned. This is a sign of respect to the residents in these neighbourhoods and helps to enhance their communities. There has since been a notable decrease in crime and violence.

Approach: guarantee scope for participation and co-determination

Environmental policy measures often touch on the interests of a wide range of stakeholders. One of the basic principles of cooperative environmental policy is to afford different stakeholder groups the right to be heard in political decision-making and planning processes, for instance, by means of interest groups or stakeholder representatives. From an environmental policy perspective, involving the population is a key instrument in planning infrastructure and economic activities (e.g. mining), helping to safeguard the right of affected residents to an unspoilt environment by means of environmentally responsible project development. Consultations may vary in scope and in the degree to which they are binding, from public hearings to input sessions to co-determination, and in the process steps they entail. Effective environmental policy guarantees transparent communication for specific target groups, making clear who is to be involved, when, why and to what extent, and how much influence the stakeholders' contributions actually have on the decision-making process. Successful participation processes require facilitation and mediation, as well as communication. All of this helps to legitimise environmental policy measures; achieving this kind of societal consensus increases the likelihood of implementation.

ACTION DIMENSION 2: initiate social change

Societies are in a constant state of change, something which can be exploited by environmental policy. Research into how and under which conditions this change takes place or can be initiated is only in its infancy. There is no gold standard as of yet in terms of how environmental policy can actively support and shape this change. The objective is clear, however, namely, to encourage environmentally friendly patterns of behaviour and consumption and promote their underlying values, norms and attitudes. Effective environmental policy can make a particular contribution in this regard through the following entry points:

Approach: monitor societal trends and leverage opportunities

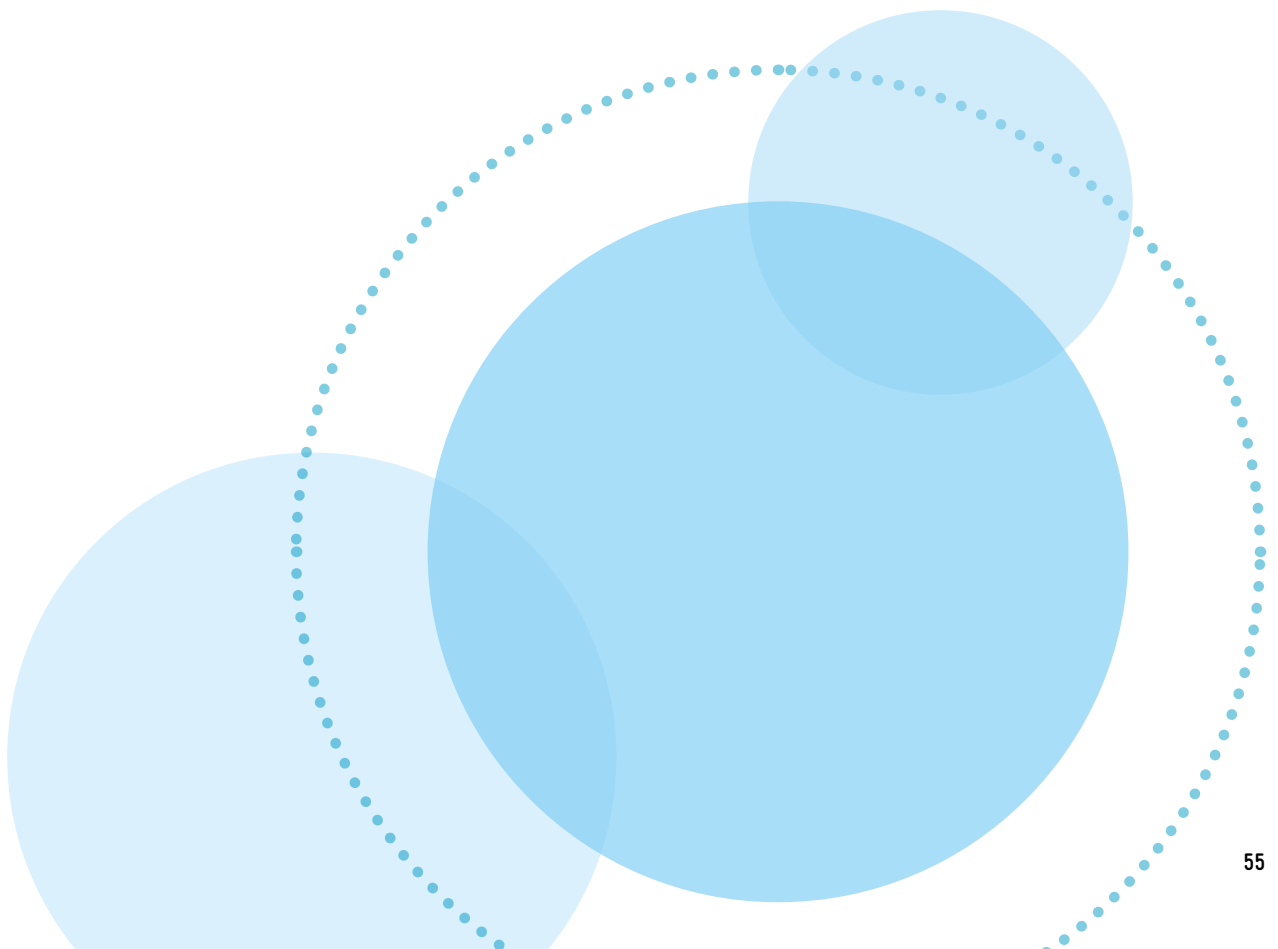
Economic and societal trends, triggered, for instance by the megatrend of digitalisation, new usage systems such as car-sharing, and changes in societal value systems (think vegetarian diets), offer opportunities for environmental policy to accelerate the green transformation. These opportunities could be identified by employing the appropriate trend and context analysis approaches. At the same time, societal trends can also hinder environmental policy action if they serve to restrict or preclude future options for action (path dependencies), as is the case with the trend towards larger vehicles with conventional combustion engines.

Approach: develop and promote green guiding visions and narratives

Shared guiding visions and narratives shape the way people think, guide everyday actions and influence social norms and values. They can serve as an instrument for developing and consolidating visions supported by society as a whole and be utilised by change pioneers to introduce social innovations and alternative lifestyles into societies ([↗leverage the strategic role of innovations](#)).

Case study: the Blue Planet II effect

The Blue Planet II is a BBC-produced nature documentary that managed to generate a great deal of public awareness of marine pollution. Using spectacular footage, the documentary showed the beauty of the oceans while at the same time addressing the threat posed to it by human activity, in particular the generation of plastic waste. Blue Planet II was the UK's most successful series of 2017 (14 million viewers) and attracted a tremendous amount of international attention. The influence of Blue Planet II, which researchers also refer to as the 'Blue Planet II effect', has also now been scientifically proven (Males & Val Aelst 2020). The series led to an increase in Google search queries and media reports, and interest in degree programmes such as marine biology and in voluntary plastic clean-up events. This public attention also exerted an influence on British politics, with in-depth discussion of a ban on single-use plastics just a few months after the documentary was released. The UK finally imposed a ban on plastic straws and plastic cotton buds in 2020. While these account for just a small fraction of total plastic waste, the ban impressively illustrates the dynamic effect that affective and emotional entertainment formats can have by translating supposedly abstract issues into vivid narratives.



Guiding visions bring together specific, long-term visions and goals that are accepted by a broad section of society and are typically recorded in writing, for instance, in the form of sustainability strategies. They describe desirable futures and provide direction for change processes. By contrast, narratives translate facts and information into stories, metaphors and arguments, thereby appealing to people's emotions and daily realities (➤ **communicate knowledge to specific target groups**). They can include specific terms as well as large narrations (see case study of the 'Blue Planet II effect'). The effectiveness of a narrative or role model depends largely on whether and how effectively it builds on current discourses in a given country and whether it is accepted by a broad section of the population. Consequently, it is important that they will be developed and/or grow in conjunction with other stakeholders.

Approach: Create structures that facilitate environmentally friendly behaviour

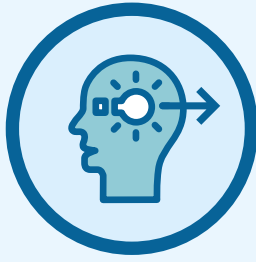
Incentives, rules and infrastructure guide everyday actions and facilitate or hinder environmentally friendly behaviour. The design of people's physical and social environment is thus a key lever for effective environmental policy. Specific entry points for exerting environmentally friendly influence include: using default product settings (e.g. use of default setting 'print on both sides' to reduce paper consumption), guiding consumer attention (prioritising the placement of regional products on supermarket shelves) and regulating road traffic (sequencing of successive green lights for cyclists, as already practised in Amsterdam and Copenhagen, for instance). Infrastructures that prioritise sustainable alternatives are also helpful. Providing better and safer cycle paths and public transport makes people more likely to leave their cars at home and take the bus or cycle instead. Such approaches nudge people towards environmentally friendly behaviour, which then becomes structurally established. Determining which approaches

are most suitable in different contexts depends heavily on what motivates the individuals concerned to take a particular action and what prevents them from doing so.

Approach: invest in education for sustainable development

Raising awareness of environmental issues, disseminating environmental knowledge and educating people on alternative action are the task of education for sustainable development. It empowers people to address complex sustainability decisions and trains them to become responsible, environmentally aware citizens. Education for sustainable development is thus a key building block which is not limited to the school classroom, but involves various forms of life-long learning, including preschool and extra-curricular education, school and university curricula, vocational training centres, and adult education. In addition to sustainability skills, increasing consideration is being given to digital and technical skills, for instance, in order to design environmentally friendly production processes.





2.2.6 Strategy element: leverage the strategic role of innovations

Innovations are driving our ever faster and more complex world. Increasing digitalisation and technological developments are fuelling this transformation and creating radical upheaval for the economy and society. Innovations are also strategically significant for the ecological transformation when it comes to using technological solutions to meet existing needs in a different way and making people's shared living experience more sustainable. It is possible to categorise innovations according to their potential to bring about change. Incremental and reforming innovations change and improve existing systems or structures within the given parameters. They also bring about environmental improvements, for example, by leveraging potential for efficiency and optimising systems. By contrast, disruptive innovations fundamentally replace existing systems or structures. This goes hand in hand with far-reaching changes and often brings about further innovations (co-evolution of innovations). The smartphone has replaced conventional mobile phones, thereby giving rise to new business models and user behaviour. The same applies to PCs and typewriters and to renewable energy and fossil-fuel energy generation, and perhaps will also apply in future to meat substitute products and intensive animal-farming. An effective environmental policy could leverage this potential by means of the following approaches:

Approach: promote technical, social and institutional innovation

Innovations are 'something new in a form that is of practical use' (GIZ 2019). Based on this definition, an invention, an idea or a pilot measure is not an innovation; the decisive factor is that it establishes itself on the market, in the policymaking sector or within society. For effective environmental policy,

this gives rise to a need to strategically promote innovations and take account of the entire innovation cycle and associated needs. The initial step involves identifying innovations that are promising from an environmental perspective. Disruptive innovations are of particular interest for the ecological transformation, even beyond technological developments. Social and institutional innovations (i.e. new social practices, lifestyles and ways of thinking, and new forms of state and economic action) are necessary for initiating societal change and institutionalising new forms of governance, new business models and new types of companies. Environmental policy could promote innovation in practice by creating safe spaces (niches) to develop and test innovations, making funding available, and providing access to networks and expertise. Incubator and accelerator programmes have been established to this end in a corporate context.

Nonetheless, promoting disruptive innovations remains a challenge, as they often fail to catch on, they pose a correspondingly high investment risk and very few investors commit to financially supporting them as a result. Once innovations have developed to a more advanced stage, the legal and economic frameworks can be used to help disseminate them (as seen, for example, in the way the German Renewable Energy Sources Act (EEG) has paved the way for the roll-out of solar and wind power). Innovations could enable emerging economies and developing countries in particular to leapfrog certain development steps by, for example, opting for environmentally friendly technologies and infrastructures from the outset. This process could be supported by means of suitable knowledge and technology transfer.

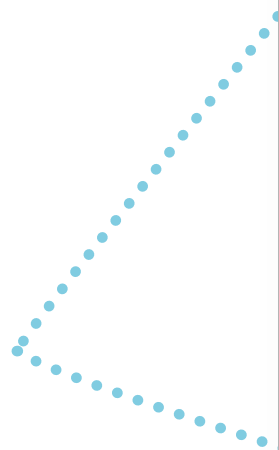
Approach: drive exnovations and absorb the cost of change

When disruptive innovations become established, this also calls into question previously dominant practices and technologies and, ultimately, replaces them with new ones. In order to accelerate this transition process and thus take account of the urgent need for an ecological transformation, environmental policy must fulfil its responsibility to actively promote and drive this phase-out. Politically imposed deadlines provide stakeholders with a sense of direction and planning security, for example, for the phase-out of technologies such as coal-fired power generation and combustion engines, or for the divestment of unsustainable industrial sectors. This requires political will and the availability of alternative technologies and solutions that can be deployed cost-effectively. Nonetheless, the negative consequences of such exnovations could change entire regions if they end up crippling structural industries (see case study of *German Coal Commission*). It is then the task of effective environmental policy to shape this structural transformation by supporting industries with processes for redesigning business models and absorbing social impacts ([↗ take account of social justice](#)).

Approach: support agents of change

Whether in the political sphere, the research community, the private sector, the consumer arena, the media or civil society, individuals and organisations can provide impetus for effective environmental policy and a green transformation. It is often just a small number of stakeholders or stakeholder groups that lead the way in taking risks as first movers and

early adopters. Examples include Kenyan environmental activist and Nobel Prize laureate Wangari Maathai, Greta Thunberg, the Club of Rome, Costa Rica (pioneering forest conservation by means of payments for ecosystem services) and the private-sector forest certification programmes FSC and PEFC, which have since been accepted by the EU as evidence of sustainable timber. In most cases, markets, sectors and majorities do not follow suit until later on. Environmental policy could support these stakeholders by helping them to network with one another and supporting the dissemination of messages, solutions and approaches. Economic stakeholders are increasingly among the agents of change interested in the further development of environmental policy. They are interested in, among other things, limiting the costs and risks associated with climate change, the loss of biodiversity and access to resources, thereby obtaining long-term investment security. Cities, municipalities, regions and civil society stakeholders also develop and support environmental policy. Take, for instance, the involvement of US states and municipalities in climate change mitigation measures. The establishment of organisations with strong individual interests or a mandate for an ecological transformation (e.g. producers of green energy or renewable energy agencies) is another useful entry point for effective environmental policy.







3. Advisory

This section illustrates how GIZ carries out its advisory work and puts the strategy elements outlined in Section 2 into practice. Specific examples are used to determine which factors increase the effectiveness of environmental policy advice and how advisory services can support transformation. The recommendations are geared towards GIZ staff, development

workers, integrated experts and other interested experts and are intended to provide orientation and ideas for advisory work.

The section's structure is oriented towards the strategy elements and approaches for effective environmental policy outlined above.

3.1 Scope for influence and action in the provision of environmental policy advice

GIZ's environmental policy advisory services include technical, organisational, process and strategy advice. It may also include other services, such as strategic competence development, networking, mediation, and management and logistics services. Generally speaking, GIZ combines its service offering according to the context and the client concerned. Nonetheless, it is possible to identify a number of conceptual and substantive guidelines that characterise GIZ's environmental policy advisory work, regardless of the client or commissioning party:

Strengthening partner systems: Many of GIZ's partner countries are struggling with the growing demands being placed on environmental policy as a result of weak political and institutional structures. GIZ's environmental policy advisory work thus focuses on helping to develop its partners' capacities in a way that enables them to effectively implement the environmental policy strategy elements. This includes providing partners with targeted support for creating

frameworks for effective transformation. GIZ's understanding of capacity development is based on the assumption that societal issues can only be resolved in the long term if, firstly, people and organisations are in a position to identify them and develop their own solutions and, secondly, political and institutional frameworks permit stakeholders to retain their performance capacity in the long-term.

Impact orientation: Environmental policy advice works at many levels, its impact is difficult to allocate to individual projects given the complexity and long-term nature of political change processes. Nonetheless, GIZ always gears its advisory work to the results agreed with its partners and clients and reviews these results regularly. A key goal of advisory work is for the partner organisations to competently apply the environmental policy strategy elements outlined in Section 2. GIZ works with its partners to create outputs, such as new data systems, guidelines and coordination mechanisms, which are needed in order to go

on to achieve outcomes. Depending on the initial situation in the country, these outcomes might be changes to legislative requirements or direct improvements to the environmental situation. Longer-term environmental policy results or transformations to which the outcomes contribute are defined as impacts that are, however, beyond the control of individual projects.

Collaboration in cooperation systems: GIZ always collaborates with others in its partner countries. One of GIZ's basic principles in its advisory work is that it never achieves results on its own, but rather always in cooperation with its national partner organisations and other international stakeholders. In order to manage these partnerships, GIZ has developed the cooperation management model Capacity WORKS. By adapting its focus on the five success factors of strategy, cooperation, steering structure, processes, and learning and innovation to each individual situation, Capacity WORKS supports stakeholders within a cooperation system in achieving sustainable objectives together.

Focus on global objectives: International cooperation in the environmental sector has been set within the context of global objectives ever since the Rio Conference in 1992. GIZ advises its partners on implementing international environmental policy accords, such as the Paris Agreement on climate change. Such long-term goals require radical economic and societal transformation, which is why GIZ's environmental policy advisory services are increasingly concentrating on initiating and supporting relevant transformation processes. In this context, GIZ's advisory services address both the transformation of key sectors (e.g. agricultural transition, energy transition) and the establishment of cross-sectoral, interdisciplinary environmental policy instruments.

Systematic linkage to country-specific conditions: GIZ determines for each partner country which advisory focus will add the greatest value. This is based on an analysis of such conditions as political volatility, the existing level of environmental policy ambition, legal frameworks, implementation capacity at local level and societal acceptance. States with weak environmental institutions will have these further strengthened. For states with advanced legislation, but

insufficient implementation, the focus will be on implementation capacity and on bringing on board private-sector and societal allies to achieve environmental goals. Supporting partner countries in solving local and national environmental issues will continue to play a key role in advisory work. In states with fragile and volatile governance structures, it is particularly important to work with a broad range of stakeholders who are able to drive environmental policy objectives. By means of cooperation with environmental policy pioneers, GIZ aims to raise the degree of ambition in partner countries and at international level through regional and international dialogue.

Leverage synergies and achieve coherence: Different projects implemented by GIZ are increasingly being pooled as part of a portfolio approach. This allows the projects to provide systemic advice across institutional and sectoral boundaries, leverage synergies more effectively, and help to implement climate, biodiversity, environmental and development goals on an integrated basis. Additionally, partner countries are coordinating more closely with other advisory stakeholders from the international cooperation community. While this coordination is labour- and resource-intensive, it will help in the long term to more effectively leverage the roles, functions, responsibilities, knowledge and strengths of the participating stakeholders in the design of transformation processes.

Adopt a global approach to environmental policy: In addition to carrying out capacity development in partner countries, GIZ advises and assists its clients with regard to international environmental policy dialogue and supports international initiatives and alliances, such as the UN's Partnership for Action on Green Economy (PAGE). New approaches to combining bilateral, regional and global environmental policy advisory services are expanding the spectrum of cooperation. GIZ is working with a number of ambitious partner countries to drive innovative approaches internationally and to promote them in other countries by means of triangular and South-South cooperation. The use of domestic policy levers for sustainably shaping the global economic system, such as the German Supply Chain Due Diligence Act, is also a key area for development cooperation.

3.2 Environmental policy advisory services – approaches used in practice

The approaches and examples outlined below provide an insight into the diverse methodology applied within the environmental policy advice sector. A key success factor in this context is to link several strategy elements with one another and leverage the synergies between them. The decision as to which strategy elements and approaches should be focused upon when advising partner institutions depends on the respective context, the needs of the partners, and the opportunities and general conditions. Priority should be given during the project design process to those elements

offering the greatest leverage in order to achieve environmental policy progress in the medium and long term, and ultimately make a contribution to the transformation process.

One or more project case studies are assigned to each individual strategy element in the following subsections. Symbols indicate cross-references to other strategy elements, which are also brought to bear in the case studies.



3.2.1 How does GIZ raise the ambition level and strengthen enforcement?

Strengthen political will, encourage positioning of ambitious initiatives

Each development policy project is based on inter-governmental negotiations in which the partner countries express their interest in a cooperation arrangement. Nonetheless, responsibilities change over the course of time, particularly if there is a substantial lapse between the project appraisal and the beginning of the implementation process. Additionally, the objectives can often only be achieved if other national stakeholders and ministries make contributions. It is essential to conduct a comprehensive stakeholder analysis at the project design stage and at regular intervals during the implementation process

in order to identify the interests and guiding principles of those involved, and to develop strategies that strengthen the political will for change on an ongoing basis.

At both national and local level, there is a need for motivated and ambitious stakeholders in order to achieve environmental policy objectives. Ideas competitions and awards, for example for especially clean, environmentally conscious or climate-friendly municipalities, can awaken the ambition of local stakeholders to achieve environmental policy goals. Voluntary commitments on the part of municipalities to ambitious goals can also serve as a criterion for selecting pilot municipalities.

Additionally, many projects use delegation visits and triangular and South-South cooperation to familiarise partners with interesting initiatives and examples of successful implementation and motivate them to set up similar initiatives.

Environmental policy ambitions can also be raised by strategically leveraging international processes (e.g. EU convergence, OECD accession, organisation of international conferences), as seen in the following case studies from Colombia and Morocco.

Leveraging international platforms is one approach that has proven effective for strengthening key stakeholders in the environmental policy change process. When it comes to projects that aim to raise the ambition level of climate change mitigation, international Conferences of Parties provide a good platform for decision-makers to position their countries internationally. The resulting momentum could boost their influence and facilitate environmental policy reforms.

Example Colombia

The President of **Colombia** had declared OECD accession a political priority in 2013. Around one third of the OECD responses to Colombia's application pertained to the integration of environmental aspects into sector policies. The GIZ-led 'Environmental policy and sustainable management of natural resources in Colombia' project capitalised on the priority afforded to OECD accession at the highest political level. Working with the Ministry of Environment and Sustainable

Development, the project used this window of opportunity to achieve key development policy gains. It was possible to introduce environmental aspects into the National Development Plan 2014–2018 and initiate steps for implementing OECD recommendations and integrating them into sector policies. Another factor in the project's success with creating natural-capital instruments was the focus on water as a resource, which further boosted the project's political appeal.



Provision of advisory services to develop implementation and enforcement capacities and shape a dynamic and integrated model of environmental governance

With instruments such as capacity needs assessments, the GIZ toolkit offers extensive possibilities for gearing advisory services strategically and systematically to developing the capacities of partners (individuals, organisations and policy area) to implement environmental policy. In order to improve enforcement of environmental policy, it is necessary to both build the

capacities of individuals and organisations and strengthen the role of environment ministries within the cooperation system. Specific measures in this regard include training in mediation and constructive negotiation, and the provision of advice on shaping dialogue processes and establishing inter-ministerial coordination bodies. GIZ's local presence is a key success factor. Years of cooperation with local partners builds trust and makes it possible to build on previous project achievements and address dynamic trends.



Example Morocco



The Environmental and Climate Governance programme **Morocco** advised the national COP 22 steering committee in Marrakesh in 2016 on implementing the UNFCCC agenda for the preliminary negotiations, organising nine international conferences and planning the programme of side events in the Moroccan Pavilion. At domestic policy level, the Moroccan COP22 Presidency generated considerable momentum in terms of increasing public

awareness of climate policy. At the same time, Morocco consolidated its coordinating role in regional climate policy. The Moroccan Environment Minister launched the global NDC Partnership in cooperation with Germany at COP 22 and assumed the position of Co-Chair. Following COP 22, as a key regional player, Morocco used the NDC Partnership to drive dialogue with African states.



Example Peru



GIZ offers instruments, training and advisory services to strengthen the implementation structures of technical and local stakeholders (e.g. regulatory and monitoring authorities). In **Peru**, this has helped to drastically reduce deficits in enforcement by the environmental monitoring authority. By analysing and restructuring its processes, the authority eliminated unnecessary sub-processes, thereby cutting processing time from 274 to 38 working days. As a result of leveraging this tremendous efficiency potential, the authority can now carry out twice as many monitoring assignments as previously with the same budget. The GIZ-led

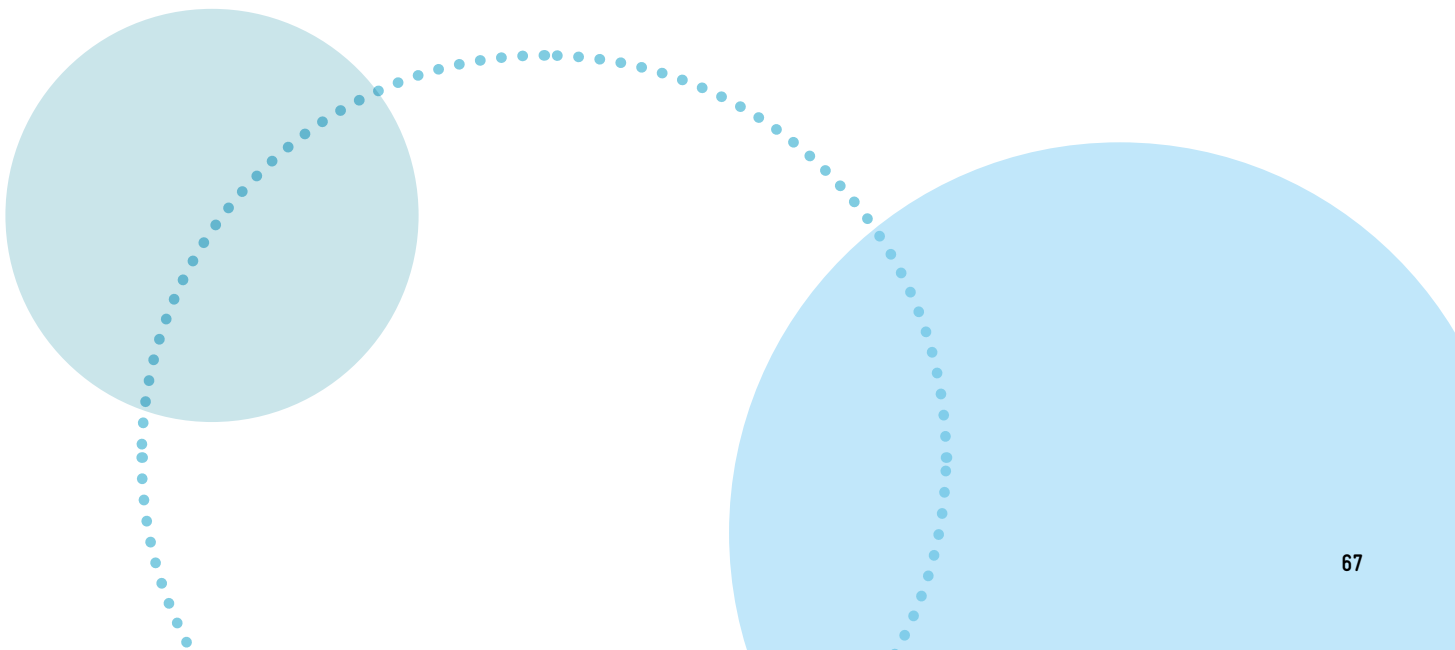
Contribution to the Environmental Objectives of Peru programme assisted with the establishment of a digital, messenger-service-based system that allows citizens to report environmental offences simply and easily. It was only in the context of greater digitalisation as a result of the COVID-19 pandemic that the involved authorities became convinced of the need for a transparent system of this kind, having previously been strongly opposed to it. Coupled with the reporting of violations to local and national monitoring authorities, this increases the pressure to take effective action against violations and reduces the risk of corruption.

Example Ethiopia



In an extremely ambitious conservation area management project in **Ethiopia**, the weak mandate of the key partner organisation proved to be a considerable hindrance. The project objective was to comprehensively consolidate conservation areas (including national parks, biosphere reserves and forests) on a cross-sectoral basis. In an environment characterised by a high degree of institutional fragmentation and, in some areas, political instability, the partner organisation lacked a sufficient mandate to implement the ambitious

project goals. While the organisation extended its mandate during the project, it was still not possible to achieve the project goals within the four-year term. This illustrates the protracted nature of major change processes and the need for adjusting the project design at an early stage in the case of any doubt in order to ensure the greatest possible results. At the same time, these experiences show that it is necessary to carefully coordinate and calibrate the level of ambition, the project timeframes and the political scope for action.





3.2.2 How does GIZ promote environmental knowledge and targeted communication?

Promote studies and tools for collecting and utilising environmental data, strengthen the interfaces between science and policy

In many developing countries and emerging economies, partner organisations are limited in their capacity and resources for collecting data on the state of the environment and environmental pollution and on the resulting consequences. The recording of reliable environmental data is a key instrument for convincing

societal stakeholders of the value of an ambitious environmental policy. In order to improve the way that environmental data are interpreted, utilised and disseminated, GIZ is assisting its partner organisations by involving research institutions in the management of environmental information systems and encouraging researchers, practitioners and policymakers to integrate their activities to a greater extent, for instance, as part of multi-stakeholder partnerships.

Example Kosovo

Digital tools offer cost-effective and innovative solutions for the collection of environmental data that can also help to promote greater participation on the part of the population. The Modernisation of Municipal Services project in **Kosovo** supported partners with developing the *Ndreqe* app for reporting illegal dumping

sites. The work of the supervisory authorities was greatly simplified through the provision of timely information about hotspots. At the same time, the approach promotes environmental awareness among the population (citizen science), as new opportunities are being created for active environmental-policy engagement.



Example South-East Europe

GIZ also strengthened its environmental policy partners with studies assessing the economic or health impacts of environmental conservation measures, as many of these initiatives deliver significant economic or social benefit. In a project on cross-border waste management in **South-East Europe**, key stakeholders were convinced of the need for better waste management as a result of these studies, which

showed the enormous economic costs that result for the tourism sector and the operation of hydropower plants as a consequence of waste being dumped in water bodies and the ocean. The studies were conducted and publicised by regional municipal associations in South-East Europe, resulting in the participating municipalities issuing joint recommendations for measures.



Example Brazil



The Innovation for Sustainable Development – New Partnerships project in **Brazil** adopted a comprehensive approach to establish application-based research partnerships. In addition to GIZ and the national partners, the project also involved the German Academic Exchange Service (DAAD). A total of 20 bilateral research projects were developed and their transfer to a practical context facilitated over the eight-year project term. As part of one research partnership, the Karlsruhe Institute of Technology and the Federal University of Paraná worked together with the water utility for the Brazilian federal state of Paraná to develop software and guidelines for more cost-efficient and effective reservoir water management. Systematically gearing the research projects to practical needs at an early stage was key

to the success of this partnership. This aspect had already been incorporated into the research tenders. Matchmaking events were used to initiate partnerships between research organizations and users, and led to innovative and application-focused project designs. Research-into-use projects were conducted towards the end of the individual research projects and saw project executing agencies and other public and private users discuss the results and prepare partnerships for future applications. Working closely with national research-funding institutions, the project helped to mainstream applied research to a greater extent at institutional level. Projects in Ecuador and Ethiopia assisted with establishing international research networks in order to help improve and leverage research findings in partner countries.



Establish efficient data-collection processes and robust monitoring systems and embed them in national institutions

GIZ assists many partner organisations with establishing and institutionalising monitoring processes. This may involve comprehensive environmental information systems or the monitoring of specific environmental problems, such as air quality or the entry of plastic waste into the environment in Indonesia, Algeria, Morocco, Mexico and the Philippines.

The monitoring of data on resource consumption and potential environmental pollution in global supply chains will become increasingly relevant. GIZ advises on both digital tracing systems, such as those used for timber resources in Ecuador, and the establishment of relevant approaches to product sustainability labelling, such as the Green Button. Digitalisation is also giving rise to new and more cost-efficient options for action in the area of monitoring.

Example Brazil – CAR

GIZ supported the establishment of the Rural Land and Environmental Management (CAR) registry for recording forest resources on private land in **Brazil**. The project provided advice on the development of the technical system and on incentives and participation processes for encouraging land owners and traditional population groups to enter information in the system. It also empowered the regulatory authorities by means of training and technical solutions. In order to ease the forestry authorities' workload in terms of reviewing system entries, the project worked with space-exploration, remote-surveying, agricultural-research and environmental institutes to develop an automated review process that makes use of remote-surveying data among other things. The project also advised the national forestry service on communicating with the Brazilian federal states for the purpose of integrating the CAR registry into land-register systems.

One key success factor was the fact that the Ministry of Agriculture and other participating stakeholders from the agricultural and finance sectors recognised the value added by the system to their own issues. The Ministry of Agriculture is using the data for the strategic development of the agricultural sector. The registry was used by a total of nine agricultural, social and environmental policy programmes. It was also used to prepare measures for restoring natural vegetation on the plots of 663 land owners in total in the pilot region, as well as in ten water catchment areas. Because the information from the CAR also serves as the basis for decisions on agricultural loans, entering information in the register is certainly an appealing prospect, if not essential, to many land owners.



Example Thailand – GIZ Data Lab



One example of new scope for monitoring that has been opened up by digitalisation is the GIZ Data Lab – Data 4 Mobility. The Data Lab assists partner organisations with using new data sources, such as satellite or mobile data. In response to the marked rise in urban traffic volumes the project is developing new planning instruments for urban planners and individuals with political decision-making power in order to create sustainable transport systems and enable needs-based and

climate-friendly operations. In **Thailand**, the GIZ Data Lab is using data on the distribution and frequency of journeys by the passenger transport firm Grab in Bangkok in order to calculate a macroscopic traffic model, road capacity profiles and short-term forecasts. Precise forecasts on traffic volumes also provide insights into the risk of damage to the environment and human health from air pollution in urban areas.



Establish partnerships for target group-specific communication, expand cooperation with the media

Environmental policy progress is virtually inconceivable without a civil society that calls for change and a population that is sustainable in its activities.

Consequently, many technical cooperation projects in the environmental sector support governmental stakeholders, as well as non-governmental organisations, the media, user groups, etc. in addressing the environment and sustainability in different societal spheres and disseminating knowledge.

Example India – NAMA

One example of the importance of differentiated, multi-media and target group-specific communication for environmental policy processes is the NAMA project in **Indien**, which supports the Indian Government in reducing GHG emissions in the waste and forestry sectors. The desired emissions reductions call for the strengthening of the authorities' administrative capacities as well as a willingness to change on the part of the population. The latter was encouraged by means of a differentiated communication strategy. A training and communication plan was developed for waste separation in Varanasi, as well as a plan for raising awareness of waste separation in Goa. Implementation of the plans was aided in both cities by training and a series of webinars. A set of guidelines on home composting for private households was published on the websites of municipal companies. Home composting relieves the burden on municipal authorities and helps to

reduce GHG emissions. The 'Varanasi fights COVID-19' newsletter contains special tips on waste management during the pandemic. A weekly column was published on the same topic in Goa's daily newspaper *The Goan*. In order to reduce the use of fuelwood, the project promoted improved cooking technologies in households, supplemented by a communication strategy for local communities, decision-makers and academics. The strategy included short videos, a street show and a radio programme addressing the correlations between the use of fuelwood, forest degradation, ecosystem services, time consumption and health. This form of communication was particularly effective at getting across the financial and health benefits of more energy-efficient cooking stoves. A broad swathe of the population was reached and made aware of the issue through the wide range of media channels.





3.2.3 How does GIZ help to ensure that account is taken of environmental sustainability in all areas?

Establish instruments and institutional mechanisms for systematically examining sectors and interactions

GIZ works with a differentiated partner structure in order to promote systemic perspectives in various sectors. Projects implemented by GIZ often have several partner ministries as project executing agencies (e.g. ministries of environment and energy or ministries of environment and economy) or involve institutions from outside the environment sector as executing agencies, implementation partners and members of steering committees. It is crucial in project planning to identify the most relevant partners and generate acceptance of a differentiated partner structure at an early stage. A key element of advisory services in the implementation process is the establishment of interministerial bodies with clear mandates and decision-making mechanisms. For instance, projects advise on the setting up of national sustainable development councils or support such councils in their work.

In order to maximise the reach of the project results, it is essential to maintain an exchange between GIZ projects themselves and between those projects and other donor and implementing organisations. Using

platforms for dialogue within and between different clusters, and with other donor and implementing organisations makes it possible to identify overarching objectives and develop entry points for the individual projects to contribute to these overarching objectives.

Methods such as causal loop diagrams, policy impact assessments and development-pathway/scenario analyses help to raise awareness among stakeholders from different sectors of the interactions, conflicting objectives and potential synergies between measures. Common interests such as access to finance, income generation and participatory sustainable resource use are identified in this context and support provided for building a consensus.

Example Uruguay



One example of strengthening interministerial bodies is the Interinstitutional Working Group on Green and Inclusive Economy in **Uruguay**, set up by the Ministry of Environment and involving, among others, the ministries of agriculture, industry and energy and the Office of Planning and Budget within the Presidency. The global Green Economy Transformation project is supporting the working group in jointly developing change projects (e.g. on a

quality label for ecotourism or green employment) that members then drove forward in their respective organisations. At the same time, preparations were made for Uruguay to join the UN Partnership for Action on Green Economy (PAGE), which saw the participation institutions gain access to international experience and additional support for green economy initiatives.



Example Morocco



The Sustainable Mobility with Renewable Energies project in **Morocco** combines the use of scenario analyses with the promotion of interministerial working groups. It uses the independent Sustainable Mobility platform to promote cooperation between relevant ministries on the one hand and private-sector, civil-society

and research players on the other. With support from external institutes and think tanks, working groups are developing scenarios that identify GHG reduction potential as a result of the expansion of renewable energies by 2050. This provides a solid foundation for political decision-making.



Highlight co-benefits and minimise negative impacts

Instruments such as strategic environmental assessments, environmental impact assessments, climate risk analyses and sustainability impact assessments are key levers for preventing negative impacts on the environment and climate from other sectors. GIZ strengthens the capacity of its partner organisations for introducing, developing and using such instruments. In order to convince stakeholders from other sectors of the importance of environmental and climate issues, it has also proven effective to illustrate the co-benefits of environmental conservation measures, for instance, in terms of health protection or the creation and safeguarding of business and employment prospects. Integrated management models and processes can help to demonstrate at local level the specific (e.g. economic) benefits arising from environmentally responsible action.

Develop solutions in cooperation with all stakeholders

Designing participatory dialogue and strategy processes for climate, environmental and development goals in individual sectors and across sectors is one of GIZ's core tasks. Since 2015, national implementation strategies for the 2030 Agenda, NDCs under the Paris Agreement and long-term strategies have served as key entry points for promoting ambitious environmental-policy goals. In order to promote coherence between these strategies and encourage their implementation and monitoring, GIZ supports the establishment of institutional mechanisms and platforms for coordination between state entities and non-governmental stakeholders.

Environmental programmes are also developing the facilitation, mediation and conflict-management capacities (e.g. Harvard negotiation model, mediation) of state and non-governmental stakeholders to enable them to conduct dialogue processes. As a key prerequisite for taking account of different interests, GIZ helps its partners to identify systematically relevant stakeholders and encourage their participation in consultation, strategy and implementation processes. Political partner organisations often need to be gently convinced that it is important to also involve critical voices. In order to safeguard sustainability, it is also necessary to consider societal stakeholders who are not viewed as typical partners of environmental projects, such as start-up hubs, consumer organisations and associations of manufacturing businesses.

Developing and promoting networks and multi-stakeholder partnerships is a key instrument when it comes to mainstreaming environmental issues. Depending on GIZ's role in the promotion of these multi-stakeholder partnerships, it can therefore be extremely important for advisors to assume a neutral intermediary role and use mediation and facilitation techniques to balance the interests of the different stakeholders. This requires specific process-management expertise. In each case, advisors must be conscious of their role at all times and communicate transparently whether they are advising on technical and regulatory matters or serving as neutral process advisors. Only in this way will they maintain credibility in the eyes of partners.

Example Peru



The following example shows GIZ's approach to strategic environmental assessments: **Peru** has put in place ambitious legislation which requires not only investment projects, but also plans, programmes and even policies to undergo an environmental assessment. The Contribution to the Environmental Objectives of Peru programme assisted the Ministry of Environment in better fulfilling its mandate for such assessments. Support was provided in this context for the establishment of the public agency SENACE, which was set up to assist with, evaluate and approve environmental impact assessments for large projects. The GIZ programme contributed to the development and use of transparent evaluation criteria and trained both SENACE and representatives of indigenous communities in participatory processes for environmental assessments. As a result, no new socio-environmental conflicts were registered in any of the investment projects supported by SENACE. The programme also advised on prioritisation processes for

identifying plans, programmes and policies of particular relevance to strategic environmental assessments from an environmental perspective.

However, as the Ministry of Environment often has limited capacity to enforce the use of these assessments, other GIZ projects in sectors relevant to strategic environmental assessments also support use of the instrument. The NAMA Support Project in Peru is planning to work with its partners to support implementation of a strategic environmental assessment in a participatory process for developing an urban mobility plan. Broad participation is used in an effort to integrate strategic environmental assessment recommendations into the mobility plan more effectively than would be possible for the Ministry of Environment to achieve on its own. The project builds on a long-standing, trust-based partnership and focuses on the goals of partners from the transport sector.



Example India



GIZ uses the advice it provides on sustainable industrial centres as a lever for mainstreaming environmental-policy goals within the industry itself in order to promote co-benefits. GIZ worked with the World Bank and UNIDO to develop the [International Framework for Eco-Industrial Parks](#) (EIP Framework), which mainstreams the different aspects of sustainability in the planning and operation of sustainable industrial centres. In **India**, the Sustainable Environment-friendly Industrial Production (SEIP) project works with the management structures of industrial areas and with federal

states. For example, it has conducted capacity development programmes for technical staff and other workers at wastewater treatment plants. Three industrial centres and 20 companies have already made improvements to their wastewater treatment plants, reducing the level of pollution and the operating costs. The follow-on SEIP II project is working closely with the Ministry of Environment and the federal state authorities to create adequate frameworks for reducing pollution from industrial wastewater.

Jointly implement global agendas, leverage synergies and minimise trade-offs

In order to jointly implement global agendas in the partner countries, GIZ is increasingly advising its partners on how to use instruments for reviewing coherence between the different national implementation strategies. Policy field analysis can support this kind of coherence review. Publicising examples of concepts such as [nature-based solutions](#), which highlight the relevance of healthy ecosystems for effective adaptation to climate change, effective climate change mitigation, inclusive social development and long-term prosperity, is key to sustainable practices

being used more widely. The interface projects of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)'s International Climate Initiative (IKI) implemented by GIZ have an explicit mandate to promote networking between the different IKI projects, raise the ambition level and, in at least two areas (mitigation and adaptation or biodiversity), implement measures. They offer new opportunities for promoting the achievement of national environmental and climate goals across topics and projects and ensure a link to international discussions by means of intensive dialogue with BMU.

Example Peru – NAMA Support Project



One example of assistance for broad coordination and participation processes is the NAMA Support Project in the **Peruvian** transport sector. By establishing and advising interinstitutional working groups and local participation processes, it has operationalised measures of Nationally Appropriate Mitigation Actions (NAMAs) for the revised NDCs and for the national urban transport programme. In order to secure political support, for instance, to promote local public transport with a newly

created and legally mandated transport association for Lima-Callao, the project also worked to exert influence in parliament through its partner ministry and the German Embassy. For example, trips by parliamentary delegations have aided understanding of the benefits of the transport association and thus helped to secure approval for its establishment. This was a key requirement for strengthening local public transport versus private transport.



Example Global – ABS



One example of a multi-stakeholder approach is the **global** ABS Capacity Development Initiative, coordinated by GIZ. It has been organising multi-stakeholder workshops on the complex topic of access and benefit sharing (ABS) at global, regional and sub-regional level since 2005. These have included the workshops ‘ABS and Business’, ‘ABS and Intellectual Property Rights’, ‘ABS and Communication’ and, since 2019, ‘ABS and Digital Sequence Information (DSI)’. The aim is to improve the understanding that the stakeholders have not only of the technical content but also and especially for one another, that is, for their different needs and interests, and to promote constructive cooperation by means of drafting joint recommendations. The primary focus with DSI is on strengthening the ability of the participating

negotiation partners and interest groups from the research and industry sectors to reach compromises in order to enable the Post-2020 Global Biodiversity Framework to be adopted at the UN Biodiversity Conference in China in 2022. Dialogues between participants from the worlds of policymaking and industry and from indigenous groups, experts from a wide range of fields, and representatives of thematically related international processes (e.g. on climate, forests, agriculture and nutrition) have also proven effective for national implementation. Time and again, participants report key, surprising insights from the events that help them to better fulfil their responsibilities in the national process with a clearer view of the perspectives and needs of other participants.



Example Costa Rica – Aktion Klima



One example of coherence reviews is the ‘Aktion Klima’ project in **Costa Rica**. As part of a policy field analysis, project partners for the first time systematically examined the extent to which national targets for implementing the 2030 Agenda and the targets of the NDCs mutually influence one another. It became clear that there were inconsistencies between a number of goals, while others positively reinforced one another. A qualitative evaluation was carried out to determine the extent of these positive and negative interactions. This led to the discovery of inconsistent goals, such as the promotion of biofuels versus the reduction of hunger, and the expansion of conservation areas versus the roll-out of accessible and clean energy. A surprising number and variety of co-benefits emerged in the context of waste management: jobs, circular

economy, resource efficiency, urban hygiene, environmental protection and strengthening of local structures. In order to drive forward joint implementation of the agendas, policy recommendations addressed those areas where there was positive reinforcement between goals. The analysis findings enabled the Ministry of Environment to enter into discussions with other ministries on a more informed basis and formulate its stipulations more specifically. This ultimately facilitated the process of negotiating the decarbonisation plan, which is geared to the transformation. The project partners were so convinced of the benefits of this systematic approach that they organised their own process for further quantifying the interactions in order to back up the previous qualitative statements on levers and potential with figures.



Example SADC Region



One example of the linking of climate and biodiversity goals is the project on Climate Resilience and Management of Natural Resources in the **SADC Region**. The project builds on a biodiversity project and a climate change-adaptation project and seeks to mainstream climate-smart measures within the agricultural sector and in the management of natural resources, including ecosystem-based adjustments within the

agricultural industry. To this end, it supports the SADC Secretariat in planning and coordination processes, works with regional training institutions to disseminate knowledge products on good practices and innovative technologies, and promotes demonstration projects in selected transboundary protected areas that can be used as examples of good practice in regional dialogue.



3.2.4 How is GIZ contributing to the establishment of a green economic framework?

Reveal the value of nature and integrate it into decision-making

In order to give appropriate consideration to the value of the natural environment in decision-making processes on the environmentally-friendly design of the economic system, it is important to involve influential economic stakeholders outside of the environmental institutions. It is necessary to use convincing arguments, facts and figures and narratives to bring these stakeholders on board with nature conservation efforts. Since the late 2000s, GIZ's work in the environmental sector has seen it step up its cooperation not only with environmental institutions, but also with ministries of finance, economy and planning

and with the private sector. Methods for evaluating natural capital, ecosystem services and the macro-economic costs resulting from environmental destruction are especially helpful when it comes to securing support from these stakeholders for environmental-policy measures. International and regional formats for dialogue on the use of such innovative concepts (for instance, as part of a triangular cooperation arrangement between Costa Rica and Peru on natural capital accounting and mechanisms for paying for ecosystem services) have proven effective in mainstreaming new perspectives on the socio-economic relevance of the environment.



Set environmental incentives, steer private finance flows and promote markets for green solutions

An environmentally oriented finance system is key to achieving a green transformation. Advisory services on designing green financial reforms have formed part of GIZ's environmental-policy work for many years, allowing partner institutions to put in place effective environmental incentives. The provision of advice on environmentally friendly approaches, such as the socially responsible reassignment of ecologically harmful subsidies and the legal enshrinement of payments for the use of ecosystem services, is a powerful lever in terms of implementing incentives for environmentally friendly action and contributing to green true-cost pricing. At the same time, GIZ advises public-sector partners on funding mechanisms and tax breaks for environmental management at companies, for instance, through environmental funds. The funding pilot for green business models, which involves training for companies, start-up programmes and the creation of business development services by specialist service providers, is supporting the redesign of economic structures. In order to open up environmentally oriented funding and financing options with a wider reach, GIZ is also advising and networking private and financial-sector stakeholders in regard to options for green bond investment financing.

Mobilise own resources for environmental conservation and promote green budgetary planning

GIZ's advisory services on green finance reforms focus not only on creating incentives for environmentally friendly business practices, but also on using the corresponding state revenues for investment in environmental conservation and climate change mitigation. The approach of ear-marking state revenues for environmentally relevant expenditure and for setting up environmental funds to support environmental-conservation and climate change-mitigation measures proved effective in this context. GIZ also advises on resource-mobilisation strategies for conserving biodiversity and on the establishment of crisis funds, which can, for instance, be a key pillar in the financing of protected areas in the context of the COVID-19 crisis and the resulting decline in tourism. Public investments are a major lever when it comes to promoting environmentally oriented infrastructure, products and services. Consequently, advisory services on green investment planning and green public procurement are becoming an increasingly important area for GIZ. Cooperation with stakeholders from outside the environmental sector (e.g. procurement offices, regional governments, audit offices) can also tap additional potential in this area in order to mitigate the negative environmental impact of public procurement and infrastructure decisions and make positive impacts usable.

Example Africa – ‘Grüner Wert’



The Africa-wide ‘Grüner Wert’ (‘green value’) initiative is the umbrella programme for BMZ’s work on the economic value of the natural environment in Africa. With the protected-area components of the initiative, GIZ and its research partners are helping to place the socio-economic value of protected areas in **Africa** in the political spotlight. By outlining the dependence of priority development goals and economic sectors on ecosystem services provided by protected areas, the initiative bridges the gap between nature conservation and economic development. In addition to producing the Africa’s Protected Natural Assets Report for

political communication across the continent, the initiative is working with six African countries to evaluate selected protected areas and take this evaluation into account in relevant political processes. A key factor in the initiative’s success is the fact that it works at different levels. The use of the national case studies is helping to create a better understanding of the value of the natural environment in the respective partner countries. At the same time, with its Africa-wide report, the initiative is providing a political platform and visibility to national ambitions and measures at international events.



Example Vietnam



One example of a comprehensive advisory approach to green finance reform is the Macroeconomic Advice programme in **Vietnam**, which has been supporting the introduction of environmental taxes since 2008. Study trips, training and information offerings gave the involved staff from the national authorities access to the experience of other countries in designing a process of this kind. Assessments of potential intended and unintended impacts of

financial reforms improved the basis for making decisions in relation to setting tax rates and specifying exemptions, and estimating the tax base. GIZ also supported consultation processes to enable account to be taken of the concerns of potential reform opponents. One of the main success factors was the flexible, trust-based cooperation established over the course of 15 years with the Ministry of Finance, along with a common understanding of the process.

Example Colombia



In **Colombia**, GIZ brought together different advisory approaches for promoting a green economy as part of the project on Environmental Policy and Sustainable Management of Natural Resources in Colombia. It advised economic stakeholders on environmentally friendly production methods and decision-makers from the policymaking sector on incentive instruments. The project worked with cooperatives from the manufacturing sector to assist with the creation of green business models, for instance, in the cocoa, rubber and livestock industries. For instance, it devised methods for identifying compensation areas for investment projects that intervene in biodiversity. The project also trained environmental authorities in the economic assessment of interventions involving biodiversity loss, advised on

adapting water delivery and developing legislation on paying for environmental services. One success factor in the positive reception of the proposed legislation was a study presented publicly in the presence of the President which showed that the environmental services provided by national parks significantly exceeded the investment in protected areas (for instance, 60% of the drinking water comes from protected areas). The project also worked with its partner to develop an approach for scaling up regional pilot experiences with the further development of environmental policy procedures and instruments by disseminating the experiences nationally in the form of manuals. This also helped to improve coordination between the administrative levels.

Example South-East Asia



The project entitled Advancing and Measuring Sustainable Consumption and Production (SCP) for a Low-Carbon Economy in Middle-Income and Newly Industrialized Countries in **South-East Asia** has an advisory focus on public procurement to strengthen sustainable patterns of consumption and production. GIZ advises partners on devising criteria for environmental labels for different product categories, such as refrigerators and air-conditioning appliances, textiles, lamps and office supplies, as well as services such as catering and building cleaning. At the same time, it advises on the

establishment of green public-procurement guidelines which favour products that fulfil the criteria of the environmental labels. Recognition of criteria by public-procurement and manufacturing staff is increased by means of workshops and networking meetings. Additionally, pilot projects were conducted in three countries in order to try out and establish standard processes for sustainable procurement. In Malaysia, for instance, four cities have purchased certified, high-efficiency indoor and outdoor lighting systems. This model will now be rolled out nationwide.



Examples Peru, Brazil and Colombia



The regional project 'Adapting public investment to climate change in Latin America' in **Peru, Brazil and Colombia** encouraged dialogue between Peru, with its innovative approach to climate risk management for public investments, and other emerging economies in the region. A study was conducted with a local university in Peru to analyse climate risks and identify best practices by means of a comparison of damaged and non-damaged infrastructure following the El Niño extreme weather event. Recommendations were derived from this study for climate risk-management guidelines and training courses for members of regional governments and employees from the agricultural sector. In Colombia and Brazil, for instance, methods were developed for risk

assessment. Nineteen individuals participated in joint learning as part of an exchange programme. This saw them complete a brief visit to the partner institutions in the other country in each case. The participants were subsequently advised as to how they could take the lessons they learned and apply them within their own organisations. In both countries, climate risk management was systematically integrated into the planning systems for public investments. Other joint learning formats comprised three country meetings, one study trip to Germany and several webinars. A publicly accessible online learning platform was set up in cooperation with the Latin American Faculty of Social Sciences for the purpose of long-term knowledge management.

Example Brazil



The **Brazil** case study shows how cooperation with the supreme audit institutions of Latin American states on financial audits in the environmental sector can be used as an additional lever for stabilising the environmental-policy activities of administrations. This was relevant, given the change of government in Brazil and the resulting decline in the priority of environmental issues. The auditing mandates of the audit institutions go beyond pure financial auditing and include the substantive orientation of all policy areas. In this way, the audit recommendations of the audit institutions enable

human-rights and environmental-conservation concerns to be addressed and facilitate their enforcement or implementation by policymakers and through the actions of administrations. GIZ pursued a regional approach in this context too. The promotion of coordinated financial audits by audit institutions from different countries with the involvement of external stakeholders had resulted not only in mutual experience-sharing, but also in greater political weight being attached to audit reports and a greater likelihood of specific audit recommendations being implemented.



3.2.5 How is GIZ shaping the ecological transformation in a socially just manner?

Design environmental policy to be socially responsible, guarantee scope for participation and co-determination

In order to fulfil the aspiration of a socially just transformation, GIZ advisors must bear in mind the impact of environmental-policy measures on access to (natural) resources, income and the living conditions of the population. A systemic approach that combines technical and process advice and repeatedly reviews the interactions between individual interventions is just as important as coordinated interactions at different state levels (national, regional and local, that is, a multi-level approach).

Change agents play a key role in enabling political reforms to take account of different perspectives and interests. They may be individuals with detailed knowledge of local conditions who are engaged in

intensive, trust-based dialogue with the groups of individuals involved in or affected by the transformation, though key players in the ecological transformation can also be children and young people, whose voice should be heard if only for the sake of intergenerational justice. In order to ensure that environmental-policy measures are socially responsible and increase the acceptance of reforms, GIZ supports compensation payments and other compensation measures. GIZ also advises partners on how to ensure active participation and co-determination on the part of civil-society groups.



Example Namibia



In **Namibia**, the Natural Resource Management project works at the interface between nature conservation and the sustainable use of natural resources. It seeks to conserve biodiversity and adapt to the effects of climate change, and also adopts a systemic approach in order to promote socially just improvements in the incomes of the rural population and distributive justice, as also specified in national guidelines. Local stakeholders are actively involved and thus become key agents in the change process. By defining new tasks and responsibilities themselves and contributing their cultural knowledge and technical expertise, they are supporting credible, trust-based communication, for instance, between stakeholders from urban and rural areas or between specialists and the rural population. The project activities led to the establishment of transparent processes for registering as a conservancy and thus to improvements in the legal rights of use and governance of local communities. A multi-level approach promoted consistent implementation. The new governance model requires socio-cultural change on the part of stakeholders, in relation to both power structures and values

and norms. The greater institutionalisation of structures as a result of deploying full-time natural resource management staff (including in remote and marginalised communities) to serve as intermediaries between the stakeholder groups had a positive impact in this regard. Additionally, the flow of information between the different governance levels was improved and the social compatibility of the measures safeguarded by means of a compliance management system. The supplementary arrangement of joint ventures with tourism operators and provision of support for marketing natural products led to investments in infrastructure, such as schools, water supply points and health care facilities. In addition to developing the capacities of employees for manufacturing, processing and local product development, the project also strengthened the application of research knowledge and access to financing and local and international markets for local products. GIZ and a large number of other international stakeholders provided advisory services over a number of decades, coordinating interventions on an ongoing basis.



Example Mexico



The Climate Protection in the Mexican Urban Policy project in **Mexico** builds on the political orientation at federal level, which stresses the social aspects of climate and environmental policy in the interests of a just transition. The project involves stakeholders from the worlds of policymaking, business and civil society, along with local actors, some of them vulnerable groups, who depend on ecosystem services and products and are thus feeling the impact of climate change acutely. In Mérida and Morelia, community and urban garden projects both improved environmental conservation and climate change mitigation work and created jobs for women, indigenous persons and young

adults. The projects also assisted with the growing of traditional vegetable varieties and strengthened social cohesion in previously largely marginalised urban neighbourhoods. A survey of the local population in Morelia and León revealed that they were in favour of voluntary payments for environmental services, for instance, via water bills, in order to support the local water supply or local nature conservation areas. This additional funding would in turn open up new options for action. The project also addressed the expansion of infrastructure for non-motorised transport and local public transport, upon which marginalised, low-income groups in particular often rely.

Monitor societal trends and leverage opportunities to develop and promote green role models and narratives

GIZ is increasingly helping to design holistic role models, such as Vision 100, which links 100% access to energy with 100% renewable energy and is capable of influencing action not just in the energy sector, but also in transport, urbanisation and economic projects. GIZ is also addressing new concepts in its advisory work and collaborating with local partners to further contextualise them, as seen, for instance, during the COVID-19 pandemic, when the international community responded with new models such as the green recovery and One Health. From GIZ's perspective, the pandemic cannot be understood exclusively as a global climate, environmental, biodiversity and health crisis, but rather as a watershed moment for our current lifestyles and business models. The

pandemic thus offers what may be a one-time opportunity to shape a green and socially just economic recovery. GIZ is helping to operationalise such approaches by implementing pilot measures, such as seconding green recovery advisors to partner ministries, or implementing entire green recovery projects that help in the short term to link immediate economic stimulus measures with long-term transformational measures. Communicating the results achieved can encourage systematic application of the approaches if such role models are incorporated from the outset and the population is afforded scope for actively participating in the design process. Green-recovery narratives translate facts and information into metaphors and arguments, thereby appealing to people's emotions and daily realities. This can serve to move society forward in terms of addressing change options.

Example Bosnia and Herzegovina



GIZ is working in **Bosnia and Herzegovina** to support small and medium-sized enterprises (SMEs) in the timber and metal industries. These sectors have been particularly affected by a drop in demand and supply-chain disruption

resulting from the COVID-19 pandemic. GIZ's advisory services are improving their resource efficiency and cost-effectiveness and safeguarding jobs. This is boosting companies' resilience against future crises.

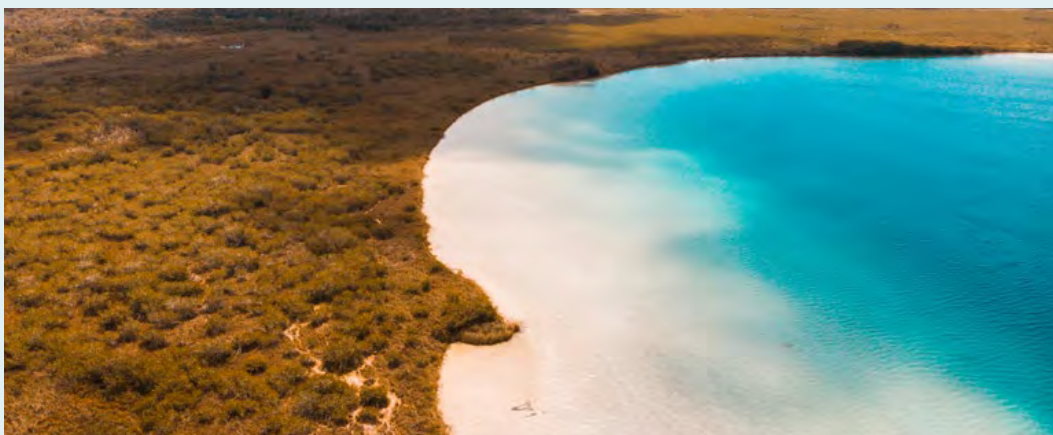


Example Mexico



Mexico's tourism sector has been hit hard by the pandemic. This is also leading to a drop in key revenues for financing protected areas. GIZ is working on behalf of BMU to assist its Mexican partners in establishing a secure

tourism offering in protected areas and promote the conservation of ecosystems. This is also helping to prevent the emergence of other zoonoses.



Create structures that facilitate environmentally friendly behaviour

Incentives, rules and infrastructure guide everyday actions and facilitate or hinder environmentally friendly behaviour. The design of people's physical and social environment is thus a key lever for effective environmental conservation. Many of

the projects implemented by GIZ aim to establish incentives to motivate public- and private-sector stakeholders to engage in more environmentally friendly behaviour and to increase the appeal of sustainable products, services and infrastructure.

Examples China, India, South Africa and South America



In order to develop options for making online platforms such as eBay and Alibaba more sustainable, the global programme 'Emerging Markets Sustainability Dialogues' (EMSD) conducted a study and organised an exchange with representatives of the private sector and the research community from **China, India, South Africa and South America** on the social and environmental sustainability of digital platforms. Although they do not manufacture their own products, these platforms still have a

tremendous influence on people's consumer behaviour. Possibilities for influencing environmentally friendly actions discussed during the dialogues included potential for changing consumer behaviour, for instance, by transparently displaying the carbon footprint of products or using algorithms to nudge consumers. The project subsequently discussed with political decision-makers economic-policy priorities and governance models as they relate to digital platforms.

Improve education for sustainable development

In addition to informal education and communication, it is also necessary to broadly mainstream environmental topics in school education and

vocational training in order to strengthen environmental awareness in the long term. From GIZ's perspective, partnerships with stakeholders from the environmental and education sectors have proven effective.

Example Vietnam



The project on Adaptation to Climate Change Through the Promotion of Biodiversity worked with teachers in Bac Lieu Province in the Mekong Delta of **Vietnam**. Subject-specific working groups worked on adapting the teaching content and on methodological innovations in order to make the topic of climate change more readily understandable for future generations. This is intended to equip teachers and learners to develop their own solutions to the challenges they face. In order to make lessons

illustrative, GIZ presented new and improved livelihood strategies in the aquaculture sector and water-saving innovations in rice-growing, discussed the opportunities offered by alternative energies and shared its experience of coastal protection measures. This content depicted experiences and results from the project's thematic components, which are fed directly back into the environmental education components and used to foster sustainable education.



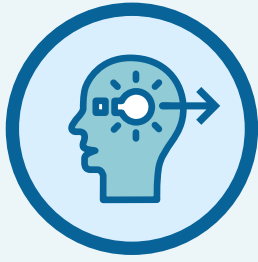
Example Lao PDR



In **Lao PDR**, the Promotion of Climate-Related Environmental Education project conducted a knowledge-attitudes-practices study and on this basis developed a strategy for communication measures at national, district and municipal level. Staff from the Department of Environmental Quality Promotion (DEQP) received training in environmental education and communication methods (e.g. facilitation, production of plays) and a partnership was initiated between the DEQP, a local NGO and the National University of Laos. An environmental education bus visited the target villages in four provinces, encouraging schoolchildren and teachers, municipal decision-makers and local residents to reflect on environmental

problems and find ways to solve them. However, the project found that, despite focusing on environmental communication, it remained difficult to verify results. This would require it to work with partners to define the desired results as precisely as possible from the outset, select the most relevant target groups on this basis and identify specific behaviours that contribute to achieving these results. This should then be followed by a precise target-group analysis and the development of communication formats into which methods for measuring behavioural change are also integrated. This requires corresponding time and financial resources for environmental projects.





3.2.6 How is GIZ driving innovation?

Promote technical, social and institutional innovations

GIZ actively drives the development and dissemination of innovative approaches. This requires close cooperation between bilateral, regional, sector and global projects and programmes. GIZ works with think tanks and specialist innovation and start-up funding organisations, such as impact hubs, and offers innovation calls and accelerator programmes

for start-up firms, along with matchmaking platforms for new, forward-looking solutions. GIZ also collaborates with other state players (such as ministries of industry, economy, digital affairs and environment) and business associations to advise its partners on establishing funding programmes to help realise sustainable and innovative business ideas and roll them out more widely. After all, the establishment of a new product or service on the market ultimately determines when a development becomes an innovation.



Example Ecuador



Innovations are strategically significant for the ecological transformation. Increasing digitalisation and technological developments are the main forces driving this transformation. As part of the Data Powered Positive Deviance (DPPD) initiative launched by GIZ, the GIZ Data Lab, the UNDP Accelerator Labs and the University of Manchester are using extensive data records in order to identify innovative solutions to local challenges developed by individuals or local groups. Satellite data and climate and socio-demographic information were used in **Ecuador** to identify small

agricultural enterprises that were not deforesting the Amazon region through their livestock farming activities. Their experiences serve as a basis for developing strategies that also show other individuals employed in agriculture how to make livestock farming more environmentally friendly. Locally developed solutions are more readily accepted than those transferred from other countries. The DPPD initiative's cooperation with bilateral projects supports local mainstreaming and validation of the approach.

Example Tunisia



Proposals for new projects in North African countries, such as **Tunisia**, focus on supporting the introduction of green hydrogen technologies, by means of which a contribution is made to political agreements, such as the Tunisian-German Hydrogen Alliance. While financial cooperation funds systems that use renewable energy to produce green hydrogen, GIZ will offer advisory services on drafting a national hydrogen strategy. To this end, it will analyse

the availability of renewable energies and water for manufacturing and the potential competition over the direct use of renewable energies to generate electricity. Additionally, GIZ will work with partners to draft a strategy for dealing with international investors, make cooperation potential between local and international companies visible, and define environmental and social standards for investment projects.



Example South-East Asia



The Export Initiative for Green Technologies is a global project that identifies and analyses promising new technologies and concepts that could support the establishment of a circular economy. These include upstream solutions, such as product design, concepts for reducing packaging materials, and the establishment of incentive-based return systems. As part of this, experiences of Germany and other partner

countries are processed and made available to project partners through knowledge transfer. For instance, innovative business models of Thai and German companies for reusable packaging solutions in the food-delivery sector are presented and discussed in specific event series in **South-East Asia** in order to develop them into adapted solutions for the local market.



Drive innovations and absorb the cost of change

In order to drive the ecological transformation, GIZ is advising its partners on developing politically defined deadlines for the phase-out of outdated

technologies. This provides incentives for change, which also offer direction and planning security at the same time. Supported in this way, structural change transforms entire regions, business models and lifestyles.

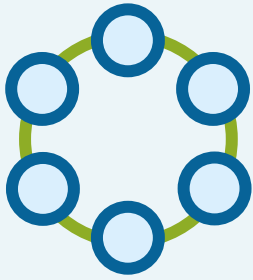
Example China



The role of structural programmes that promote exnovation is clearly illustrated, for instance, by projects in the People's Republic of **China**. They assist partners in developing a low-emission, resource- and energy-efficient economic structure and an ecological civilisation. These goals have been in place since the 12th five-year plan (2011–2015); the green transformation is also at the heart of the current 14th development plan (2021–2025). Several Sino-German cooperation projects promoted dialogue on transformation areas with the relevant partner institutions at national, provincial and city level in each case. The activities of the different projects intertwined with one another in such a way that relevant stakeholders could familiarise themselves with the topic from their respective perspectives and with the corresponding responsibilities. The low carbon economy strategy was driven forward in this way, as the ministries developed their strategies such that they underscored the measures of other ministries. In mining towns and cities dependent on raw materials, municipal learning partnerships with German cities that had undergone structural transformation showed the

Chinese towns and cities new development goals. The mainstreaming of green economy concepts in Jiangxi Province supported measures for increasing resource efficiency and developing the circular economy. At national level, the Sino-German environmental partnership supported the development of legislation and regulations, e.g. through technical-level dialogue on air pollution control and integrated environmental approval processes for industrial enterprises. GIZ also supported an interministerial working group within the China Council for International Cooperation on Environment and Development that developed research-based policy recommendations in order to ensure that key criteria for the green transformation are also incorporated to a greater extent in China's international cooperation activities. Long-term, needs-based cooperation is the most effective kind when working with China. Even small results achieved in policy dialogue and as a result of changing general conditions have a considerable catalytic effect on overall development and this offers great emissions reduction potential, even if such results do not always emerge immediately.





3.2.7 Promote links between different environmental-policy strategy elements for across-the-board environmental-policy effectiveness

The strategy elements as a whole are relevant when it comes to effective environmental policy. Context- and situation-specific priorities mean that not all of these elements must be used in environmental policy practice. Nonetheless, addressing as many strategy elements as possible and leveraging the synergies between them is a key factor in the success of GIZ's environmental-policy advisory services. With a holistic advisory approach, projects help to develop sustainable solutions that take account of the complexity of today's environmental-policy challenges. Synergies can be leveraged both within individual projects, and through cooperation between several projects within one country or between bilaterally agreed and global projects.

GIZ's portfolio in Peru is geared to contributing to the achievement of Peru's environmental and climate change mitigation goals. This applies to all projects, not only in the priority area of the environment, but also in the priority areas of sustainable urban development and governance. Support has been provided to the Peruvian Ministry of Environment since its inception in 2008, particularly in terms of developing its coordinating role in the implementation of the conventions on climate change and biodiversity (environmental cluster, BMZ and BMU). The specific contributions to achieving the NDCs are made in the sectors. Consequently, GIZ advises, for instance, on the climate-friendly transformation of urban mobility

and on energy efficiency in building renovation. GIZ is supporting adaptation to climate change in the water sector (sustainable urban development cluster). Gearing the portfolio in this way to an overarching objective (protection of the global public goods of climate and biodiversity) makes it possible to shape a versatile environmental-policy advisory service, work on several fronts at once and join these up.

Operationally speaking, it is essential to gear advisory services to overarching processes. The desired OECD accession plays an especially key role in Peru, alongside the SDGs and the international conventions (UNFCCC, CBD). Based on an environmental performance audit conducted by the OECD and the United Nations Economic Commission for Latin America and the Caribbean (CEPAL) which drafted 66 recommendations for action on environmental conservation measures, a multi-sectoral commission at deputy minister level produced a plan of measures for implementing these recommendations ([↗ overcome a silo mentality for environmental sustainability](#)). GIZ advised the commission on this process. The plan now serves as a central point of reference for environmental policy advice which sees several projects conducted by GIZ intermeshing with one another.

GIZ is providing advice on overarching environmental policy processes as part of the BMZ-financed programme on Contribution to the Environmental Objectives of Peru. There are two challenges that persist when it comes to updating the national environmental policy. The first concerns bringing together the different international processes (UNFCCC – NDC, UNCBD – Aichi Targets, SDGs, OECD) and the second involves bringing together traditional (that is, with a largely mono-sectoral orientation) and modern (that is, transformative) environmental agendas. The interaction between ProAmbiente and the NDC Peru (BMU) project had a positive impact on integration. At the same time, NDC Peru advised on the drafting of implementation regulations for the national climate-change legislation.

In the area of nature conservation too, two projects are mutually reinforcing each other's results. The objective of ProAmbiente II is to integrate aspects of biodiversity into existing funding programmes and thus promote start-ups in the area of sustainable use of biodiversity. In this way, ProAmbiente II contributes to establishing a critical mass of companies that have growth potential and at the same time make a key contribution to the environment. These companies are also the target group of the BioInvest project (BMU), which focuses on mobilising private investment, developing financial instruments for scalable, biodiversity-friendly companies, advising on their investment readiness, and helping them to match-make with impact investors.

ProAmbiente itself also aligned its advisory lines synergistically within the project, for instance, with the line of action 'mainstreaming biodiversity' and the improved use of strategic environmental assessments ([↗implement environmental agendas together](#)). A focus was placed on the topic of biodiversity when creating a regional development plan that was preceded by a strategic environmental assessment.

One key challenge that remains in Peru is that a great deal of time and considerable financial resources (not least as part of international cooperation projects) are often invested in planning processes. This has resulted in progressive policies and implementation plans. However, implementation often continues to be neglected, for instance, in terms of a failure to take sufficient account of the necessary financial resources during the planning process. Consequently, a key element of GIZ's environmental policy advice was and remains the involvement of the Ministry of Economy and Finance (MEF) in the aforementioned planning processes, as well as the development of capacity at national and regional level for using existing budgetary programmes ([↗set green economic framework](#)). The MEF and the forestry authority were advised, for instance, on improving a results-based budgetary programme to reduce deforestation. After the catastrophic El Niño event of 2017, the MEF was also advised on integrating the natural infrastructure for reconstruction into the budget planning processes. Care was taken here to bear in mind biodiversity and aspects of climate change mitigation.



3.3 Further development of GIZ's advisory approaches

The previous section provided examples of advisory approaches from GIZ's practical work that are crucial to the provision of forward-looking and effective environmental policy advice. The environmental and climate-policy opportunities and challenges make ambitious approaches appear not only necessary but also possible and necessitate the ongoing development of advisory services. The depictions provide pointers as to how GIZ can tackle the new challenges and make environmental policy advice even more effective. Strengthening local environmental conservation in partner countries and making an effective contribution to the transformation to a sustainable, environmentally and climate-friendly society and economy are both central activities in this context. Key elements comprise the integration and systematic use of the entire breath of advisory approaches and the creation of new concepts and refinement of existing ones.

The following ideas show how the strategy elements can be leveraged to an even greater extent in the design of the portfolio and international environmental-policy initiatives, and in the planning and implementation of GIZ's environmental policy advisory services.

Dialogue with clients and partners on designing the portfolio and environmental-policy initiatives:

- **Integrated cross-sectoral policy approaches:** Far-reaching environmental conservation measures intervene in other policy areas and are virtually impossible to implement by means of mono-sectoral approaches. There is a need for systemic approaches, which bring about changes across several different sectors. Moreover, any transformation can only be realised if economic, social and environmental goals are pursued on an integrated basis and account is taken of interactions from the outset. Despite funding pledges and executing agency structures that have been primarily limited to individual sectors to date (e.g. energy, agriculture, health, environment), environmental policy projects must cross sectoral boundaries with their objectives systems, areas of action and implementation partners. Cross-sectoral work can be simplified in dialogue with partners if the projects are based at superordinate institutions, such as the president's office, the finance ministry or a superordinate planning ministry. Additionally, effective integration of German development cooperation projects commissioned by different ministries or as part of EU Joint Programming is

important. Proactive use should be made of donor dialogues in the partner countries and interministerial dialogues of the clients and commissioning parties.

- **Longer project terms and more flexible planning:** Social change takes time. This is all the more true of transformations. Advisory projects that promote and support transformational processes are more effective when they have longer terms. It is also important to have sufficient flexibility for adapting approaches, objectives and indicators as needed to changed general conditions and priorities in the partner system. With an aspiration to promote green transformation, many states are entering uncharted territory, which makes reliable, long-term planning more difficult. An adaptive management approach makes it possible to work with partners here to experiment and explore which approaches are most effective for redesigning institutional, economic and social structures. Development cooperation measures increasingly require this flexibility in order to support the partners in these processes. Commissioned research can effectively supplement the transformative processes.
- **Strengthen the link between local environmental conservation and global environmental and climate goals:** In many cases, environmental and climate change mitigation goals agreed with partners as part of development cooperation, while they are geared to fulfilling international agendas,

are not always sufficiently oriented to the needs of the population in relation to massscale environmental pollution and destruction, and can potentially give rise to a conflict of objectives due to necessary restrictions on utilisation. Closely linking the two objectives levels in the foundational agreements is essential when it comes to preventing and ideally resolving conflicts of interest.

- **Ambitious and consistent mainstreaming of environment and climate in all areas of development cooperation action:** With the environmental and climate assessment, GIZ has an effective instrument for preventing any unintended negative impacts on the environment and climate in projects in all sectors and systematically leveraging potential (co-benefits) to promote environmental and climate goals. In order for environmental policy to be transformative, it is important to take account of potential positive impacts and the prevention of negative impacts of projects at a very early stage in the design process. From GIZ's perspective, the initial trajectory is already set with the political funding pledges. Consequently, consideration should be given during programming by the commissioning party or client to the potential and risks for the environment and climate arising from both technical and financial cooperation projects. BMZ's planned quality criterion for the environmental and climate impact assessment is giving rise to new opportunities in this regard.



At the same time, policy dialogue, e.g. during intergovernmental negotiations, can have a positive impact on environmental policy advisory services forming part of practical development cooperation measures.

- **Needs-based approaches despite a focus on standardised results collection:** Clients are expressing a growing interest in recording standardised results and gearing reporting processes to relevant indicators. This frequently rigid framework often limits flexibility to respond appropriately to general conditions and needs. Consequently, an agreement should be reached as to how the client's wish for greater standardisation can be met and at the same time GIZ's advisory approaches can be individually selected and developed in accordance with specific partner needs and based on different political, institutional, social and economic contexts. After all, this flexibility has emerged as a success factor for environmental policy advice in many cases. The arguments for setting respective priorities should be explored in the process.

In the planning and implementation of advisory projects:

- **make results models more systemic and geared to the medium term:** Those involved in designing projects should have an overview of impetus for supporting ambitious transformation processes. Account should be taken in the planning process of the additional expenditure required for producing a systemic results model that translates this transformation impetus into medium-term outcomes and impacts, and for process changes and adjustments that may be necessary in the course of a transformation.
- **Dovetail projects and approaches to a greater extent:** The aspiration to a transformative effect requires particular efforts to be made to coordinate and dovetail the individual projects more effectively with one another in the portfolio design process. This applies to different projects within one country, including those of different clients, and to regional and global projects. Options for systematic coordination are as follows: A long-term strategic planning process relating to a particular country or region that focuses on environmental and climate goals and explores options for financing different inter-linked measures; systematic survey of partners' advisory needs; coordination in country planning processes with the involvement of global projects and programmes; regular dialogue in cluster structures on needs not yet covered and untapped synergies between projects.



- **Leverage the potential of digitalisation to a greater extent and make the digitalisation process sustainable:** GIZ must give greater consideration to digital change in its advisory services in order to better leverage its transformative potential. In order to do so, the company must further expand its digital service offering. In partner countries, it is necessary to step up efforts to promote digital innovations and green start-ups that contribute to achieving environmental and climate goals, further develop the digital skills of partners, and connect these digital environmental data to a greater extent and make them more widely available. Ensuring the sustainability of digital solutions is central to these endeavours in order to reduce the carbon foot-print and prevent rebound effects.
- **Make established participation formats more effective, take account of new groups of stakeholders:** Effective participation involves taking account of all interest groups, potentially working in new groups of stakeholders, and at the same time facilitating lean and effective decision-making processes. Civil-society and private-sector stakeholders that are not conventional development cooperation partners (such as Fridays for Future, youth movements, consumer protection groups, renowned professors) can serve as key drivers of change, which is why they should play an increasingly important role in the partner structure alongside state partners. It will become increasingly important to design dialogue forums for conflicts over use and socially just restrictions on use, and to promote alternative modes of use and compensation measures in order to reduce the risk of resource conflicts.
- **Promote social equity:** Measures for achieving social equity and a just transition, such as payments to low-income individuals to compensate for the greater burden of carbon pricing, should be integrated to a greater extent in projects than previously. The societal impacts of ecological

change processes must be systematically incorporated into the planning and implementation of partnerships.

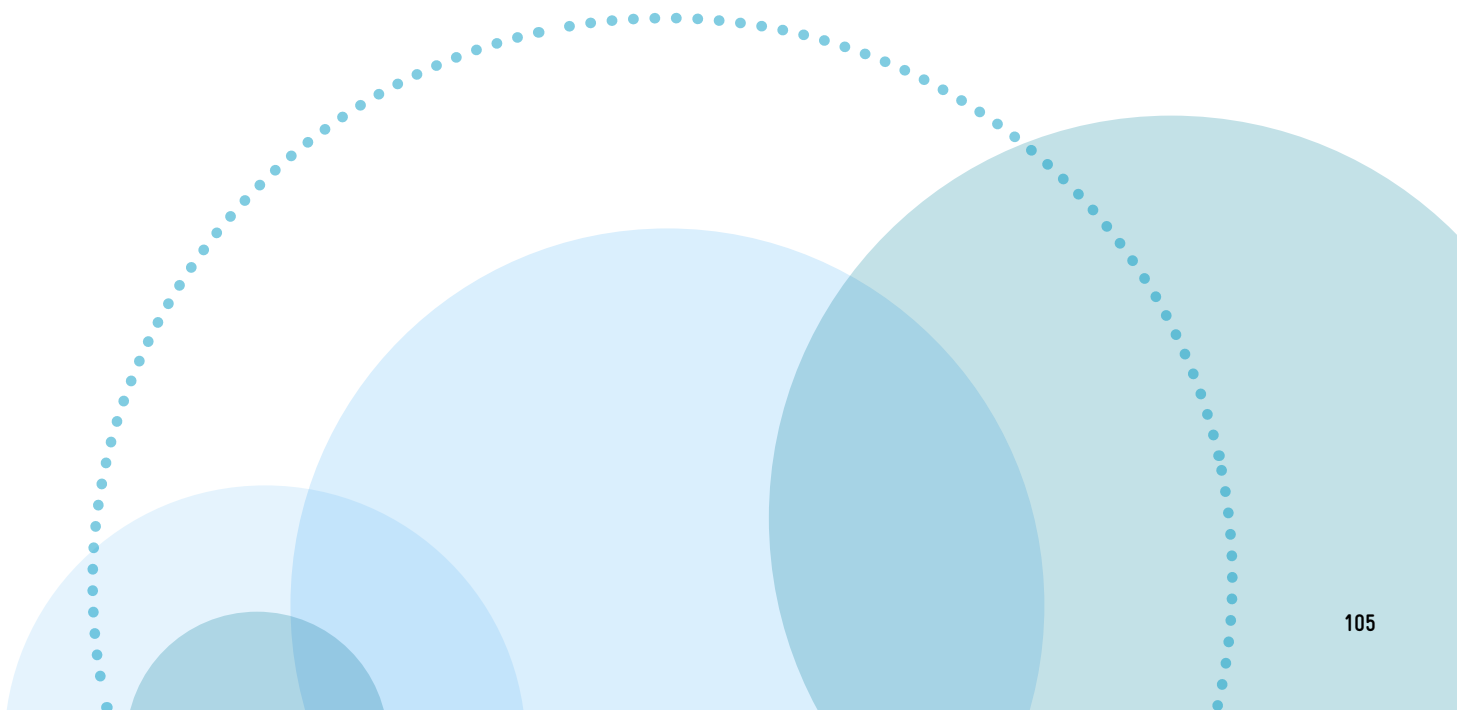
- **Strengthen communication as a component in projects and transformation processes:** Transformation requires all stakeholders to make changes. GIZ should thus step up its communication activities and efforts to monitor and leverage societal discourses. Analyses of barriers to behavioural change should be used to a greater extent as the basis for designing communication measures. Wider use should be made of approaches such as citizen science and bottom-up communication.
- **Promote and leverage social innovations:** More attention should be paid to societal trends and social innovations. Advisors should observe more carefully where new practices and lifestyles are emerging that could be promoted with the help of suitable partner organisations. Overarching concepts such as the inclusive green economy and the just transition also support the social transformation.

As a general rule, all participants must get involved in order to systematically develop environmental policy advisory services that provide appropriate support for overcoming current challenges. Political decision-makers from the commissioning institutions, GIZ's strategic management team, planning officers involved in the preparation phase and advisors involved in the implementation process must all check to what extent advisory measures bear in mind the level to which objectives are to be achieved, address strategy elements and fit into the international and national context.

The following list of questions should then indicate how greater consideration could be given to key aspects in the portfolio design, the project design or the project's implementation in order to ensure the effectiveness of environmental policy advisory services.

Questions regarding portfolio design and for dialogue with clients and commissioning parties	Tips and instruments
<p>To what extent is the partner government willing to pursue ambitious environmental goals and embrace change? What is the political mandate for transformative measures in development cooperation?</p>	<p>Intergovernmental negotiations BMZ country strategy BMZ sector strategy Funding criteria for IKI/NAMA Facility National strategy</p>
<p>What can be done to safeguard the interfaces between different topics, despite the requirements for allocation to BMZ core areas, etc.? How can projects in the overall portfolio of German development cooperation feed to a greater extent into the environmental and climate goals of the partner country?</p>	<p>Facilitate allocation to several core areas Check overall portfolio during programming for consistency with international environmental goals, e.g. using BMZ's quality criterion of the environmental and climate impact assessment</p>
<p>Which mechanisms are used to coordinate and dovetail the individual projects more effectively with one another?</p>	<p>Donor coordination at country level, interministerial dialogue between BMZ and other ministries on country strategies, intergovernmental negotiations Addressing of needs and gaps in country planning, regular enquiries with officers responsible for commissions Systematic involvement of portfolio managers and cluster coordinators in the planning of new bilateral and global projects</p>
<p>To what extent can longer project terms be planned in order to ensure support for longer-term transformation processes?</p>	<p>Coordination with clients and commissioning parties</p>
<p>How can flexibility be retained in objectives and indicators in order to take account of the changing priorities of partners?</p>	<p>Process-oriented indicators Flexible adaptation as part of modification offers</p>

Questions in project design	Tips and instruments
<p>To what extent have transformational change processes and role models with potential for linking with advisory approaches been examined and evaluated in the project preparation process?</p>	<p>GIZ Transformation Guidance 'Getting Ready for Transformational Projects'</p> <p>Project appraisals and integration of measures for linking with the methodological approach of the project</p>
<p>To what extent do the project design measures feed into or to what extent are they consistent with the 2030 Agenda, NDCs, national long-term objectives and other conventions?</p>	<p>Towards Policy Coherence toolkit</p>
<p>To what extent have environmental and climate impact assessments been conducted jointly with partners in order to prevent potentially negative impacts on the environment and climate and tap additional potential for environmental conservation and climate change mitigation?</p>	<p>Working aid for environmental and climate impact assessments</p> <p>Sectoral working aids</p>
<p>To what extent is analysis conducted in the project design of approaches, tools, studies and processes that have been successfully used in other projects (including those of other donors or in other countries), and to what extent do the services in the project design build on these?</p>	<p>Internal knowledge management, GIZ TOPICs</p> <p>Donor coordination and networks</p>
<p>To what extent is account taken in the project preparation process of digital instruments and what is the relationship between their transformative potential and potential environmental risks?</p>	<p>WBGU report Towards our common digital future</p> <p>BMU strategy Digital Policy Agenda for the Environment</p>



<p>When identifying partner organisations, to what extent has the option of working with ministries and stakeholders outside of the environmental sector been examined as a way of exerting an even greater influence on environmental changes in other sectors through GIZ's advisory services?</p>	<p>Cooperation with other sector ministries, audit institutions, business associations, etc.</p>
<p>How can communication measures aimed at changing the behaviour of specific target groups be incorporated to a greater extent into the project design?</p>	<p>Publication 'Environmental Education and Communication and the Agenda 2030'</p>
<p>How can measures for achieving social equity be incorporated to a greater extent into the project design?</p>	<p>Consistent alignment with national 2030 Agenda processes and development strategies</p> <p>Selection of partners</p> <p>Provision of advice on transparent use of revenue from environmentally friendly supply chains</p> <p>Guiding Framework Human Rights in Biodiversity Conservation</p> <p>Compensation measures in market mechanisms and tax relief for poorer households</p>
<p>What approaches and platforms can be used to promote dialogue on new models of prosperity and societal progress to a greater extent within projects?</p>	<p>Concepts of green GDP, natural capital and economy for the common good</p> <p>Future Labs</p>

Questions for implementation	Tips and instruments
To what extent does the project encourage the combination of different environmental-policy strategy elements?	Case studies in this document
How does the project identify potential windows of opportunity and exploit them to position more ambitious environmental-policy initiatives?	Context analyses of national, regional or international processes Coordination with global projects
Does the project regularly ensure that partners buy into the changes politically? Is the political mandate still in place for the agreed changes? Is there sufficient flexibility for responding to potential changes on the partner side?	Policy dialogue Mid-term evaluations
Which approaches and instruments does the project use to promote a paradigm shift and raise the ambition level in partner systems?	Develop role models, e.g. for the agricultural or energy transitions Leverage international platforms for positioning purposes
How much potential do demonstration measures and approaches offer for up-scaling/transfer to the mainstream? What advisory measures could be used to increase this potential?	Scaling up publication Broader groups of stakeholders Link with complementary interventions
Does the project involve suitable partners and support the establishment of the systems needed to make data usable for policymaking and policy implementation?	Research networks, applied research projects, research-to-use workshops – NOPA Toolbox
Which instruments does the project use for citizen science and bottom-up communication?	App solutions, social media

<p>Does the project identify desired behavioural changes? Does it invest the necessary resources for this and monitor these resources?</p>	<p>Knowledge, attitude and practice surveys</p>
<p>How can the project bring influential stakeholders on board, especially those from civil society and the private sector?</p>	<p>Strategic communication based on stakeholder analyses</p>
<p>What instruments does the project use in order to encourage coordination with other sectors?</p>	<p>Inter-ministerial working groups and reporting processes</p> <p>Multi-stakeholder partnerships and strategy processes</p> <p>Policy-field analyses</p> <p>Towards Policy Coherence toolkit</p> <p>GIZ submission to CPCB on Capacity Development for coherent implementation</p>
<p>Which economic concepts does the project use in its advisory services in order to promote new approaches for a green economic framework?</p>	<p>Green finance reform, natural capital accounting, payment for environmental services, Integrating Ecosystem Services into Development Planning guide, Sustainable Industrial Areas, Green Recovery for Practitioners publication</p>
<p>Which instruments does the project use to help establish these concepts?</p>	<p>Scenarios and impact-analyses</p> <p>Dialogue formats</p> <p>Legal advice</p>
<p>Which partners, addressees and instruments could be integrated to a greater extent in the project implementation process in order to strengthen social compensation measures?</p>	<p>Stakeholder analyses (case study)</p>
<p>How does the project help to disseminate technological innovations for environmental conservation and climate change mitigation?</p> <p>How does the project leverage the potential of digitalisation?</p>	<p>Innovation scouting</p> <p>Cooperation with innovation hubs, start-up-funding institutions</p> <p>Innovations in the Digitalisation Toolkit</p>
<p>How does the project identify social innovations and social trends, and mechanisms for their effective dissemination?</p>	<p>Positive deviance approach</p> <p>GIZ Data Lab</p>



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As a federal enterprise, GIZ supports the German Federal Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
Registered offices
Bonn and Eschborn, Germany

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A great many individuals have contributed to this paper as part of a multi-year process. Dr Klaus Jacob, Anna-Lena Guske and Lisa Graaf (Environmental Policy Research Centre (FFU) of the Freie Universität Berlin), Prof. Imme Scholz (German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE)), Kathrin Heidbrink, Alfred Eberhardt and Julia Krüger advised on the production of the paper or worked on earlier drafts. Text versions of the paper were commented upon by GIZ experts in two comprehensive stages and submitted for discussion at a GIZ conference in 2018. The core statements of the paper were presented at a virtual event in 2021 attended by external experts and representatives from the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Those responsible for this publication would like to thank the contributors for their wide-ranging input, without which this paper could not have been produced.

Proofread by

Kathrin Heidbrink

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Design

EYES-OPEN, Berlin

October 2021

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Internationale Zusammenarbeit (GIZ) GmbH

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