Fifth National Report
Convention on Biological Diversity

Germany

31 March 2014

Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Contents

		Page
Foreword	Executive Summary	4
Part I:	**Update on biodiversity status, trends, and threats and implications for human well-being**	8
Q 1:	*Why is biodiversity important for your country?*	8
Q 2:	*What major changes have taken place in the status and trends of biodiversity in your country?*	10
Q 3:	*What are the main threats to biodiversity?* (Or, What are the main causes of the negative changes described in the answer to question two?)	30
Q 4:	*What are the impacts of the changes in biodiversity for ecosystem services and the socio-economic and cultural implications of these impacts?*	31
Part II:	**The national biodiversity strategy and action plan, its implementation, and the mainstreaming of biodiversity**	32
Q 5:	*What are the biodiversity targets set by your country?*	32
Q 6:	*How has your national biodiversity strategy and action plan been updated to incorporate these targets and to serve as an effective instrument to mainstream diversity?*	32
Q 7:	*What actions has your country taken to implement the Convention since the fourth report and what have been the outcomes of these actions?*	47
Q 8:	*How effectively has biodiversity been mainstreamed into relevant sectoral and cross-sectoral strategies, plans and programmes?*	47
Q 9:	*How fully has your national biodiversity strategy and action plan been implemented?*	47
Part III:	**Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Development Goals**	111
Q 10:	*What progress has been made by your country towards the implementation of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets?*	111
Q 11:	*What has been the contribution of actions to implement the Convention towards the achievement of the relevant 2015 targets of the Millennium Development Goals in your country?*	117

Q 12:	*What lessons have been learned from the implementation of the Convention in your country?*	123
Appendix I	Information concerning the reporting Party and preparation of the fifth national report	124
Appendix II	Further sources of information	125

Executive Summary

The Fifth National CBD Report describes how biological diversity has developed in Germany, what efforts Germany has made at national and international level, what successes it has achieved and where there is a need for further action. The report focuses on the National Strategy on Biological Diversity.

It shows that: The National Strategy is being implemented – with a large number of activities not only by the state, but also by numerous dedicated actors in society. The National Strategy is well known and plays an important part in the discussion that needs to be constantly renewed about our readiness to give space to conserving nature and landscapes and safeguarding our natural capital while weighing them against other interests. This lively, dialogue-oriented implementation process continues to win recognition.

Systematic use is being made of the implementation opportunities offered by the proclamation of the UN Decade on Biological Diversity. This has given the implementation of the strategy an additional dimension.

By setting up the Federal Programme for Biological Diversity, the German Government has underpinned its responsibility as an initiator in the implementation of the strategy. Through a process of broad consultation, as envisaged in the coalition agreement for the 17th term of parliament, it has also assured itself of the approval of all groups concerned.

Numerous Länder have followed the federal example and adopted strategies of their own for biological diversity. Many local authorities have signed the declaration on "Biological Diversity in Municipalities" and become members of the alliance "Municipalities for Biological Diversity".

What is the overall situation today regarding implementation of the National Strategy? This report makes it clear that many targets have been achieved or are on schedule. It also shows, however, that there are other targets which will be very difficult to achieve on time. And finally, there are also targets that have not been achieved although the deadline has passed. Here there is a need to continue and redouble our efforts. Since there are wide variations in the importance of the targets and their degree of abstraction, simply assigning figures to these categories makes no sense.

A look at the latest updates of the strategy's indicator set is more informative. This presents a mixed picture. For most of the indicators where it is possible to state the degree of target achievement, the figures are far short of or very far short of the target region. By contrast, the trend analysis for the indicator set shows a largely positive picture. This means that in many areas we are moving in the right direction, but we are still a long way from achieving the strategy's targets. It is clear that given no change in the situation and no special additional efforts it will in all probability not be possible to achieve the targets in force for 2015 or 2020.

It is alarming to note that the central indicator "Species Diversity and Landscape Quality", which is also part of the indicator set of the National Sustainability Strategy, currently displays a trend away from the target figure. However, the most recent figures available date from 2009, so the National Strategy on Biological Diversity which was adopted in late 2007 did not have much time to make a major impact. Nevertheless, special attention must be paid to the future development of the "Species Diversity and Landscape Quality" indicator.

It is generally true to say that while many of the measures set out in the action areas of the National Biodiversity Strategy have been set in motion, in many cases the resulting positive effects have yet to make themselves felt. This is partly due to the fact that it has not proved possible to reduce pressures sufficiently. One major factor, however, is that biotopes and populations of animal and plant species need long periods to regenerate, which means there is a considerable time-lag before results are reflected in the indicator figures.

If we look at results and the need for action in individual areas such as species, habitats and uses, we can say for species as a whole that despite intensive efforts at all political levels the target of halting the decline in the existing diversity of wild species by 2010 was not achieved. For a number of species, however, there are positive developments which may be seen as evidence of the effectiveness of protective measures. Among animal species, improvements in population were noted in species such as otter, beaver, sea eagle and crane. Among plants, the populations of gentian and orchid species, *arnica montana* and wild daffodil were stabilised.

Good progress has also been made towards the targets relating to habitats. The designation of protected areas, which continues to be a very important instrument for conserving endangered and quality habitats, has made further progress. The Natura 2000 areas form the backbone of Germany's network of protected areas. The increase in the area covered by strictly protected areas correlates with the assignment of protected status to Natura 2000 areas. Following the completion of the notification procedure, a large proportion of these areas have been designated as nature conservation areas, and the Länder are preparing further protection procedures for notified areas. Once designated, the protected areas need a well functioning management system that caters not only for the interests of users, but also for those of nature conservation. Management or maintenance and development plans already exist for many of the more than 5000 Natura 2000 areas, and others are in preparation. In recent years an almost nationwide evaluation of protected area management has been undertaken in the approximately 130 national natural landscapes (national parks, biosphere reserves and nature parks), which cover about one third of the country.

The decision to build crossing aids/green bridges under the new Federal Re-networking Programme is a great success for the interlinking of protected areas. This was a case of excellent cooperation between highway construction and nature conservation; the nature conservation concept “habitat corridors” formed the basis for the choice of site. Another success is the long-term safeguarding of 125,000 ha of former federal land as National Natural Heritage. All commercial uses on such areas will be phased out.

For rivers, lakes and groundwater the preparation of the first management plans and programmes of measures in response to the EU Water Framework Directive in 2009 was a step towards improving biological diversity in bodies of water. The aim is good chemical and ecological status of surface waters, and good chemical and quantitative status in the case of groundwater. Good ecological status is defined in terms of the species occurring naturally in a body of water. The aim of the measures planned is to restore bodies of water to a state that is as near natural as possible, ensure their continuity for migratory fish in particular, and reduce nutrient and pollutant inputs from the agricultural sector. Only 18% of rivers and lakes will achieve good status by 2015. Further measures will therefore be needed in forthcoming plans and programmes.

More efforts are still needed to halt the decline in endangered habitat types, significantly improve their status and created a representative and functioning system of interlinked biotopes. The successes in the field of protected areas must not be allowed to obscure the fact that small-scale conservation of species and habitats is not sufficient to maintain biological diversity. There is a need for sustainable forms of land use in the landscape as a whole, limits on emissions, and sparing use of natural resources. The need to look beyond protected areas is a simple consequence of the fact that the main causes of the decline in

biological diversity – which differ by region – are intensive use for agriculture and forestry, landscape fragmentation and urban sprawl, sealing of land surfaces, and inputs of substances (e.g. acidifiers or nutrients). On the human settlement front, adverse impacts arise from loss of near-natural areas and village structures due to building and surface sealing.

In all these fields, progress is only possible if various policy areas work together and the actors concerned are involved. Considerable successes have been achieved with the reduction in nitrogen excesses from farmland, the EU Regulation against illegal felling, and the decline in land take. But mention must also be made of the wide variety of voluntary initiatives on the part of users in many different sectors of the economy, e.g. resource extraction, commerce, finance, tourism and sport. Industrial associations are increasingly turning their attention to the issue of "biological diversity". Nevertheless, the success stories contrast with persistent pressures on biological diversity. Only if we succeed in implementing the successful solutions on a large scale will it be possible to achieve the objectives of the National Strategy on Biological Diversity.

A new challenge for the implementation of the strategy is the decision to transform the energy system in Germany *(Energiewende)* in the wake of the nuclear disaster at the Fukushima plant. The goals of the National Strategy on Biological Diversity, although it was adopted long before the *Energiewende*, cover the two main aspects of the subject: The proportion of renewable energy is to be increased – partly as a contribution to maintaining biological diversity – and the generation and use of renewable energy is not to take place at the expense of biological diversity. Reconciling the two goals will be a major task for the years ahead.

Here too there have been successes, such as the ordinances on the sustainability of bio-energy generation and the revision of relevant assistance provisions in the EEG (Renewable Energy Sources Act), which ruled out assistance for electricity from offshore wind farms in protected areas within the Exclusive Economic Zone, and for free-standing photovoltaic installations on converted land in national parks and nature conservation areas.

Consultations are currently in progress on an ordinance on compensation for encroachments on nature and landscape *(Bundeskompensationsverordnung – BKompV)*. This ordinance is designed to standardise implementation of the encroachment rules for all federal *Länder* and make it more effective. Uniform standards and procedures in the management of encroachments are intended to result in greater transparency, greater certainty for planners, accelerated procedures and comparable conditions for investment.

As well as the decisions on the *Energiewende*, the fundamental decisions in the Common Agricultural Policy and the Common Fisheries Policy of the EU are of special importance for the implementation of the National Strategy on Biological Diversity. In the negotiations on the design of these policies for the period from 2013 onwards, the German Government has played a vigorous role in incorporating the interests of biological diversity. These negotiations are not yet complete, however.

Challenges for the further implementation of the National Strategy on Biological Diversity also arise from international and European policy on biological diversity. The Strategic Plan adopted by the CBD in 2010 for the period to 2020 contains goals which the National Strategy has not yet been able to include in formal terms. However, the National Strategy already takes extensive account of the content these goals. One central point of discussion in the CBD is the financing of biological diversity measures. One very important aspect in this context is the pledge made by the Federal Chancellor, Dr. Angela Merkel, at the 9th Conference of the Parties to the CBD that Germany would provide an additional 500 million EUR for the period 2009-2012 and a regular annual sum of 500 million EUR from 2013 onwards for the conservation of forests and other ecosystems worldwide.

Finally, it must be mentioned at the international level that the 10th COP to the CBD adopted the Nagoya Protocol, which lays down rules for access to genetic resources and fair sharing of the benefits of their use. The implementation of this protocol in the EU and Germany is another current challenge.

The goals of the EU Strategy on Biological Diversity for 2020 presented by the EU Commission in 2011 may also be of great importance for the future implementation of the National Strategy on Biological Diversity. The European Commission is highly committed to the EU Strategy and will urge the Member States to ensure its vigorous implementation.

The EU targets for 2020 and 2050 also include statements on conserving and improving ecosystem services. The EU Strategy uses this term to place biological diversity in an economic context, which also plays an important role in the future implementation of the National Strategy. Intact nature is beautiful, diverse and unique – and at the same time it is an indispensable basis for human well-being and a foundation for the existence of economic activity. The international TEEB study ("The Economics of Ecosystems and Biodiversity") and the national study "Naturkapital Deutschland – TEEB DE" started in 2012 are intended to help raise awareness of the many and varied services and assets of nature and supplement ethical reasons for nature conservation.

After all, this is perhaps the greatest challenge of all for successful implementation of the National Strategy on Biological Diversity: to campaign in society for "life, nature, diversity", to approach people and convince them that supporting biological diversity is worthwhile and contributes to the quality of life. Only if this is successful will the necessary backing exist for giving weight to biological diversity, nature and landscapes in decisions taken in politics, industry and in individual lifestyle preferences, and weighing them against other interests. The wide range of activities triggered by the National Strategy on Biological Diversity will continue to play a part in this.

Part I: Update on biodiversity status, trends, and threats and implications for human well-being.

Q1: Why is biodiversity important for your country?

Importance of biological diversity

Biological diversity is the diversity of life: not only species diversity, but also the diversity of habitats and diversity within species. Together, they all form the natural bases of life for human well-being and, indeed, human existence. Our planet's wealth is still disappearing at an alarming rate. This also means the disappearance of landscapes that we humans love – and which are part of our national heritage. For this reason the loss of biological diversity, along with climate change, is one of the central challenges for humanity and one of the most urgent policy areas. Policy in favour of biological diversity has a long tradition in Germany, going back to well before the Convention on Biological Diversity adopted in Rio de Janeiro in 1992. Germany's legislation on environmental protection and nature conservation contributes to the conservation of biological diversity, and relevant provisions have also been enshrined in other areas of legislation. These efforts over many years have yielded important successes. However, since pressures on biological diversity have also increased in our densely populated and highly industrialised country, where the area of land used for human settlement and transport infrastructure in particular is steadily increasing, there has not yet been any reversal of the trend in loss of biological diversity.

Biological diversity and natural services – natural capital – form the basis for human economic activity and well-being. Alongside human capital and physical capital, nature is an asset that provides valuable services (ecosystem services) – in economic terms as well. However, intact systems do not appear as productive assets in public budgets or company balance sheets.

The spectrum of services provided by nature is broad. Diverse nature has a huge potential for innovation, for example in research for new medicines and industrial raw materials, as a model for technical development (bionics) and, not least, as a genetic resource for safeguarding our food supplies in the long term. Ecosystem services in Germany also include the fixation of greenhouse gases, e.g. in wood and forest soils and in peatland, or the provision of clean groundwater.

Nature also offers various protective functions: natural water meadows reduce the dangers of flooding, and mountain forests provide protection against avalanches. We also make use of the health-related and cultural services of nature: a wide variety of natural spaces help to improve the quality of life and are the basis for employment, especially in a sustainable tourism industry at the coasts, in mountain regions or in natural and cultural landscapes such as national parks, biosphere reserves and nature parks.

These services, however, are only available if the necessary processes and functions are maintained.

Against this background the German Government – like the other parties to the Convention on Biological Diversity – has adopted a National Strategy on Biological Diversity (NBS), which

has received great international recognition. The aim of the Strategy adopted in 2007 is to mobilise all governmental and non-governmental actors and bundle their activities in order to halt the decline in biological diversity in Germany and make the trend positive. The implementation of the Strategy is an important concern of the German Government.

With some 48,000 animal species, Germany is home to about 3.5% of the animal species described worldwide. Vertebrates (fish, amphibians, reptiles, birds and mammals) account for 705 species (approx. 1.2% of global fauna). The total number of plant species in Germany (ferns and flowering plants, mosses and algae) is estimated at some 10,300 species, or about 3% of the plant species described worldwide. Of these, ferns and flowering plants account for 3,865 species (approx. 1.4% of global flora).

Preserving the diversity of plant and animals species presupposes that their specific habitats are safeguarded. It is possible to distinguish approximately 690 biotope types in Germany (excluding purely technical or technologically formed biotopes such as roads or buildings). Their actual characteristics vary greatly in terms of size and regional occurrence.

Germany has a special responsibility for certain biotope types (e.g. the Wadden Sea, beech forests), since the main areas where these biotope types occur are in our country.

Example of extraordinary biological diversity
Beech forests

On 25 June 2011 the UNESCO World Heritage Committee entered five beech forest areas in Germany in the World Heritage list. This adds a German section to the cross-border World Natural Heritage site "Carpathian Primeval Beech Forest" situated in the Slovak Republic and the Ukraine. The World Natural Heritage site is now called "Carpathian Primeval Beech Forests and Germany's Old Beech Forests". The German part consists of selected forest areas of the national parks Hainich in Thuringia, Kellerwald-Edersee in Hesse, Jasmund and Müritz in Mecklenburg/Western Pomerania and the Grumsin forest area in the Schorfheide-Chorin biosphere reserve in Brandenburg. They represent the most valuable relicts of Germany's extensive near-natural beech forests. *The World Heritage status means great recognition for conservation efforts to date and places Germany under an obligation to continue giving top priority to conserving these valuable beech forests as relicts of natural forest*.

Example of extraordinary biological diversity
The Wadden Sea

On 26 June 2009 the UNESCO World Heritage Committee entered the German-Dutch Wadden Sea area in the World Heritage list. In Germany, the World Natural Heritage area comprises the national parks "Lower Saxony Wadden Sea" and "Schleswig-Holstein Wadden Sea". In June 2011 the national park "Hamburg Wadden Sea" was added to the German part. This entry documents the unique character of the geomorphological, ecological and biological processes and the biodiversity of the Wadden Sea.

Q2: What major changes have taken place in the status and trends of biodiversity in your country?

Status and trends of biological diversity in Germany

This section sets out the latest results obtained from monitoring the implementation of the National Strategy on Biological Diversity. It also describes the set of indicators used in the German Government's accountability report. In addition to those described here, there are seven more indicators, and details of these are given in an indicator report. These are the indicators: "Conservation status of Habitats Directive habitats and species", "Invasive species", "Ecological status of water bodies", "Status of water meadows", "Landscape fragmentation", "High nature value farmland", and "Genetic diversity in agriculture".

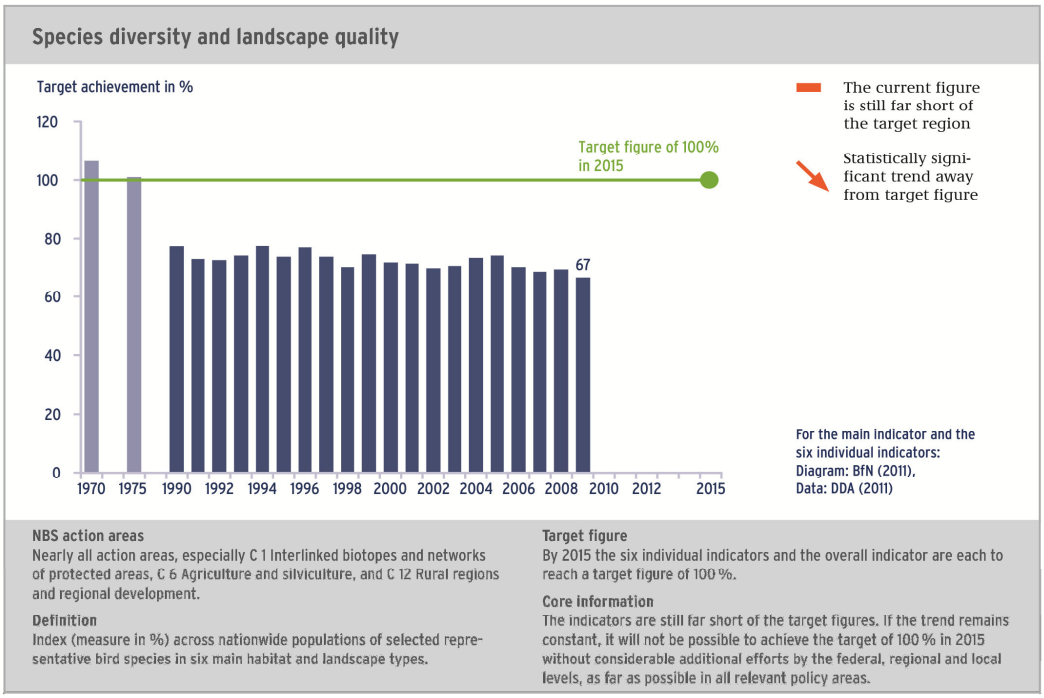
The accountability report can be downloaded from:

http://www.bmub.bund.de/service/publikationen/downloads/details/artikel/bmu-hintergrundpapier/?tx_ttnews%255BbackPid%255D=1892&cHash=78d33f4f0864588d831425e6221302f1

The indicator report can be downloaded from:
http://bfn.de/fileadmin/MDB/documents/themen/monitoring/Indikatorenbericht-2010_NBS_Web.pdf

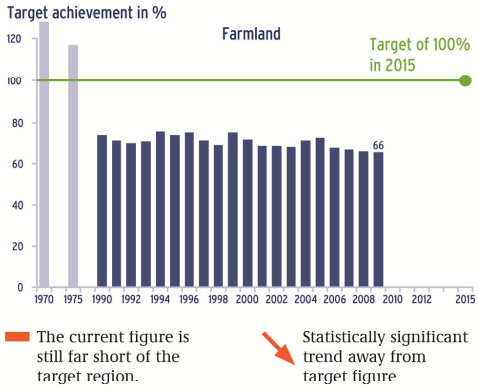
Species diversity and landscape quality

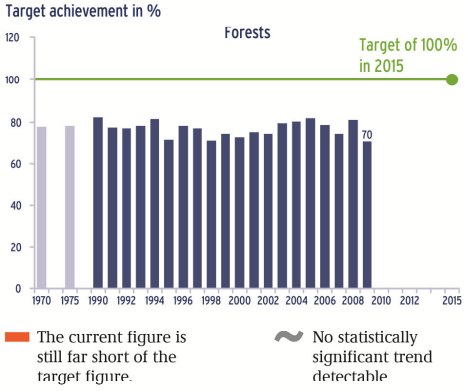
A great diversity of animal and plant species is a major precondition for an efficient natural regime, and forms an important basis for human life. Nature and landscape in Germany have been moulded by centuries of human uses. Small-scale protection of species and habitats is not sufficient to preserve the resulting and naturally occurring diversity. There is a need for sustainable forms of land use in the landscape as a whole, limits on emissions, and sparing use of natural resources.
Calculation of the indicator is based on the development of the populations of 59 bird species representing the main landscape and habitat types in Germany (farmland, forests, settlements, rivers and lakes, coasts/seas and the Alps). The size of the populations (by number of territories or breeding pairs) reflects the suitability of the landscape as a habitat for the selected bird species. Since not only birds, but also other species depend on a many-faceted landscape with intact, sustainably used habitats, the indicator also provides an indirect picture of the development of numerous other species in the landscape and the sustainability of land use.

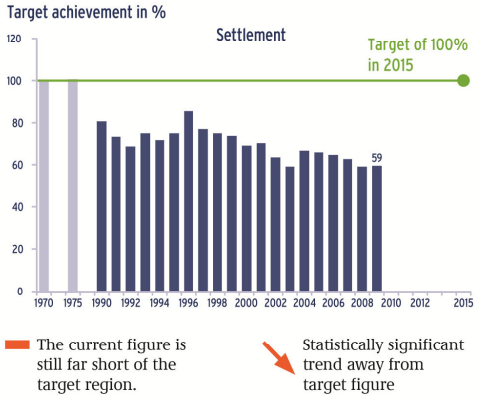


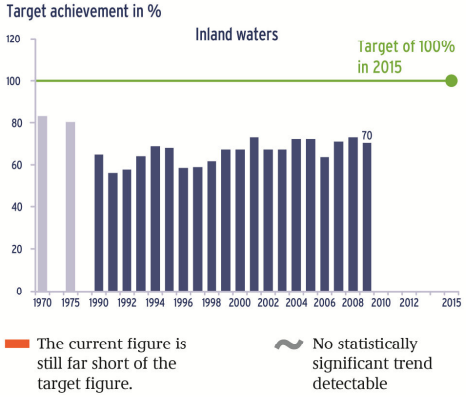
Over the last ten-year observation period (1999-2009) there was a statistically significant deterioration in the indicator. In 2009 it fell to 67%, the lowest figure yet recorded. If the trend remains unchanged, it will not be possible to achieve the target of 100% in 2015 without substantial additional efforts by national, regional and local authorities in as many policy areas as possible relating to nature conservation and landscape protection.

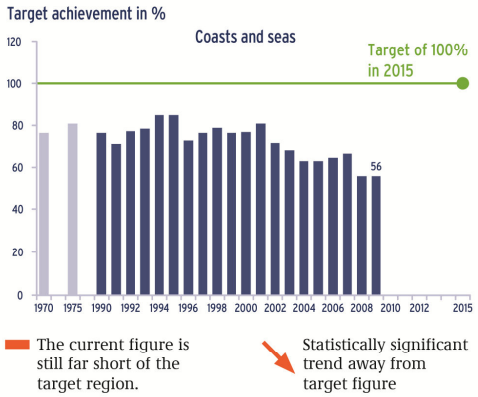
In the ten years to 2009, the indicators for farmland (66% of target in 2009), settlements (59%), coasts and seas (56%) and the Alps (77%) all showed a statistically significant trend away from the target. No statistically significant trend was detectable during the period for forests and inland waters (both 70%). A comparison with the period from 1998 to 2008 shows a deterioration in the situation for the Alps, which did not display any statistically significant trend in this period, and for forests, which in 1998 to 2008 were still showing a statistically significant trend towards the target.

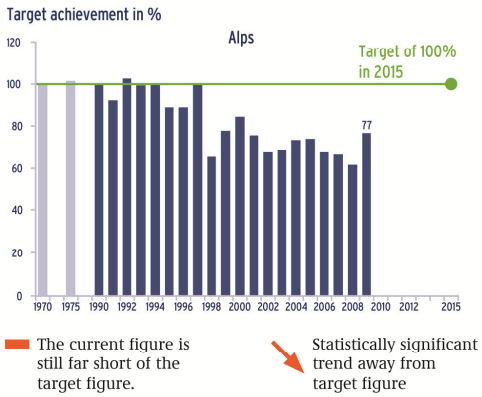

Target achievement in %
Farmland
Target of 100% in 2015
66
The current figure is still far short of the target region.
Statistically significant trend away from target figure


Target achievement in %
Forests
Target of 100% in 2015
70
The current figure is still far short of the target figure.
No statistically significant trend detectable


Target achievement in %
Settlement
Target of 100% in 2015
59
The current figure is still far short of the target region.
Statistically significant trend away from target figure

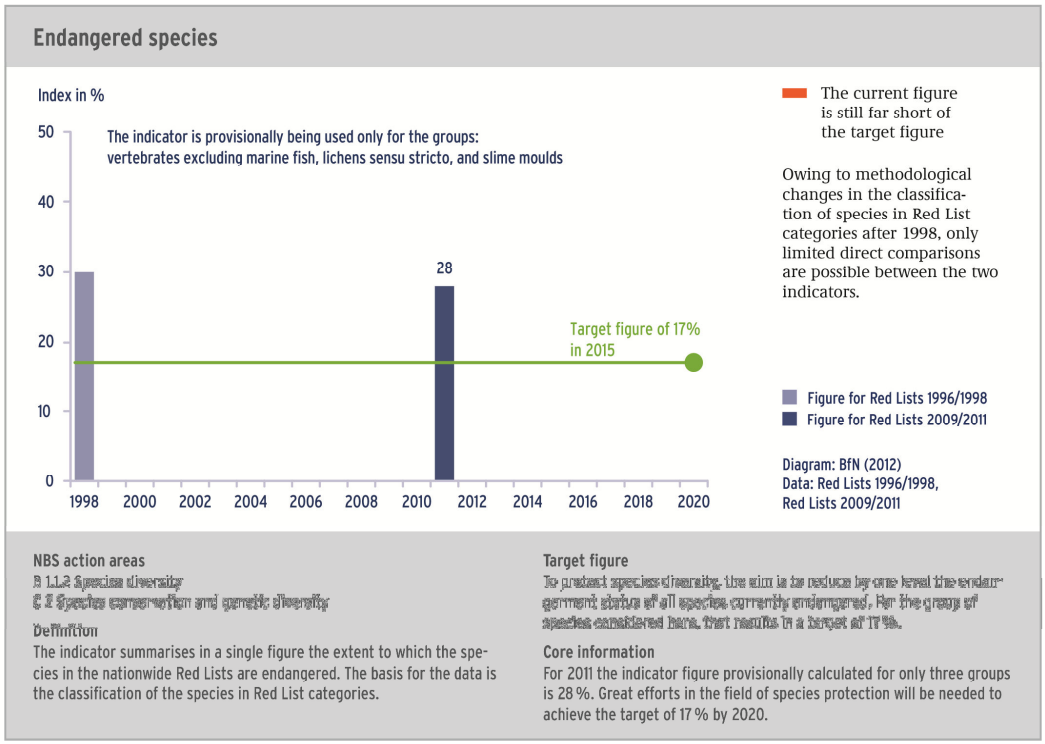

Target achievement in %
Inland waters
Target of 100% in 2015
70
The current figure is still far short of the target figure.
No statistically significant trend detectable


Target achievement in %
Coasts and seas
Target of 100% in 2015
56
The current figure is still far short of the target region.
Statistically significant trend away from target figure


Target achievement in %
Alps
Target of 100% in 2015
77
The current figure is still far short of the target figure.
Statistically significant trend away from target figure

Endangered species

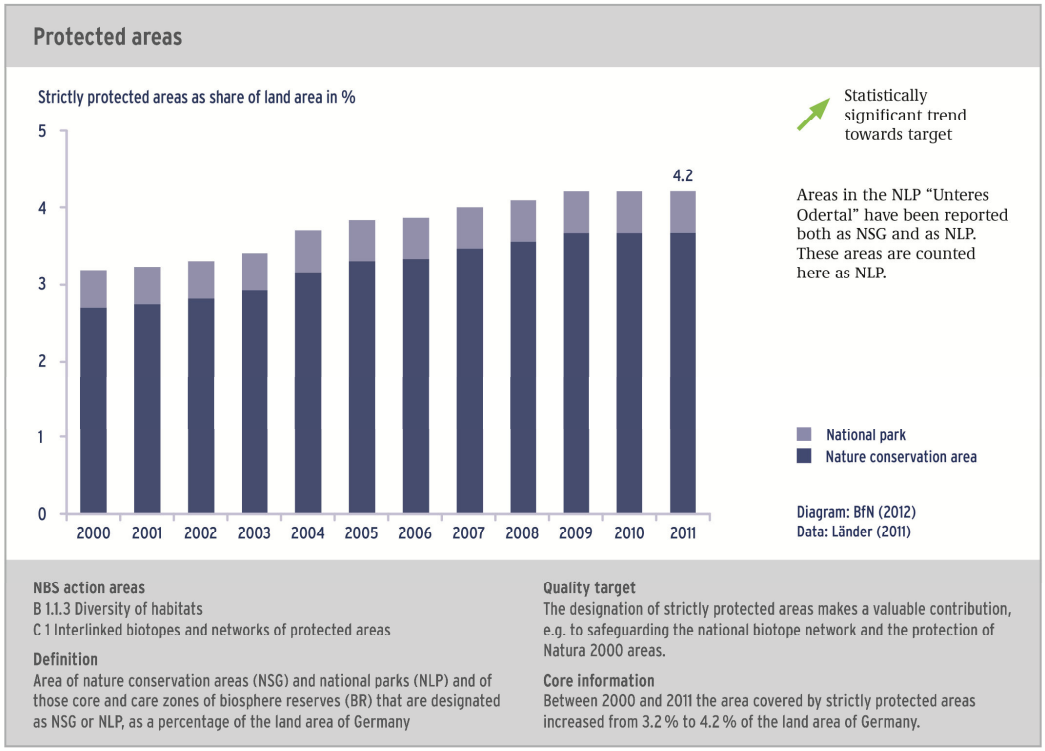
The National Strategy on Biological Diversity seeks to reduce threats to species and halt the decline in biological diversity. Important information on the endangerment situation of the species assessed is contained in Red Lists. Since they were first published nearly 40 years ago, the Red Lists have always been of great importance as a medium for documenting species conservation. The indicator summarises in a single figure the information on threats to endangered species in Germany's nationwide Red Lists. The present value of the indicator is still far short of the target. There is thus an ongoing need for great efforts in the field of species conservation.



Area protection

Placing endangered and high-value areas under protection is one of the most important instruments in nature conservation. In a landscape almost entirely formed by human use, protected areas are indispensable refuges for animals and plants. In the National Strategy on Biological Diversity, the action area "Interlinked biotopes and networks of protected areas" emphasises the importance of designating and linking protected areas for the conservation of biological diversity. Nature conservation areas and national parks are governed by strict rules on protection to ensure the protection and development of rare and endangered species and biotopes. The Länder are responsible for designating protected areas.

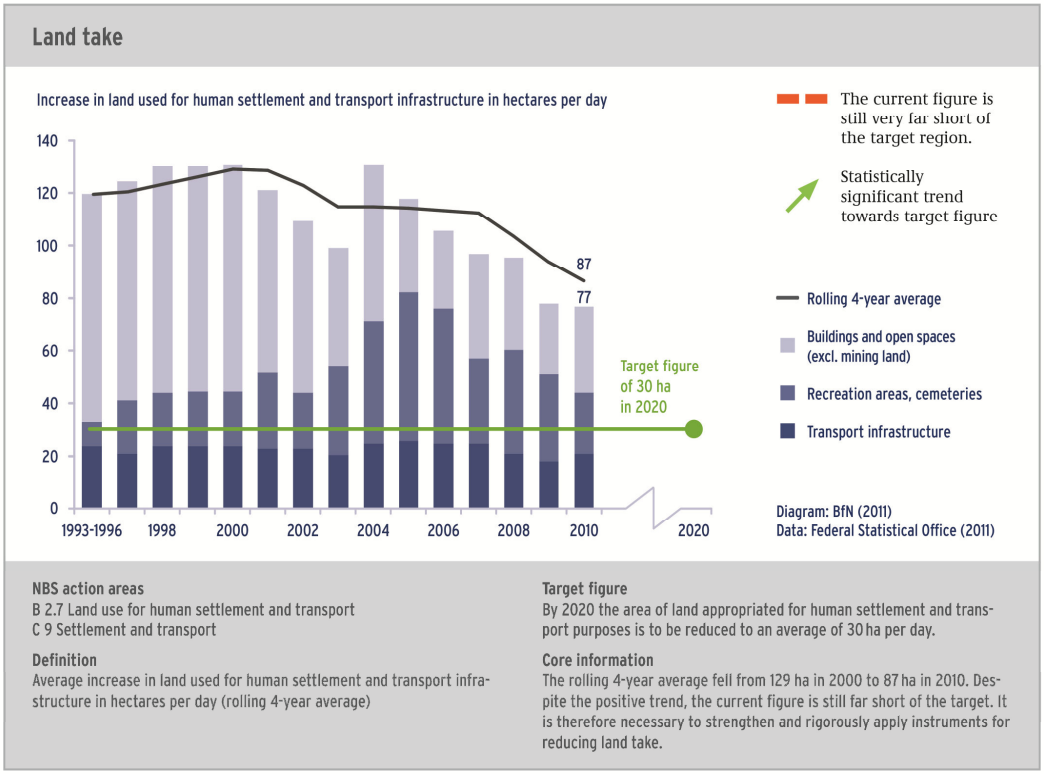
The indicator is a figure for the total area of strictly protected areas in Germany. To this end the percentage share of Germany's total land area is calculated for nature conservation areas (NSG) and national parks (NLP). The area covered by strictly protected areas rose from 1,129,225 ha in 2000 (3.2% of the land area of Germany) to 1,507,687 ha in 2011 (4.2%). Whereas land under nature conservation areas has steadily increased since 2000, the only increase in national parks was between 2003 and 2004 following the establishment of the "Eifel" and "Kellerwald-Edersee" national parks. The increase in land covered by strictly protected areas is due in particular to the implementation of the Natura 2000 network. Since the process of protecting notified Natura 2000 areas in Germany has yet to be completed, the total of strictly protected areas will probably continue to increase.



Land take

Undeveloped land is a finite resource. Apart from nature conservation, competitors for its use include agriculture and forestry, human settlement, transport, raw materials extraction and energy production. The area used for human settlement and transport infrastructure is constantly increasing. Undeveloped land is necessary to safeguard the services of the natural regime as a production and recreation space for humans and to maintain biological diversity. The direct environmental impacts of the increase in land used for settlement and transport include loss of natural soil functions due to surface sealing, loss of fertile farmland or loss of near-natural areas including their biological diversity.

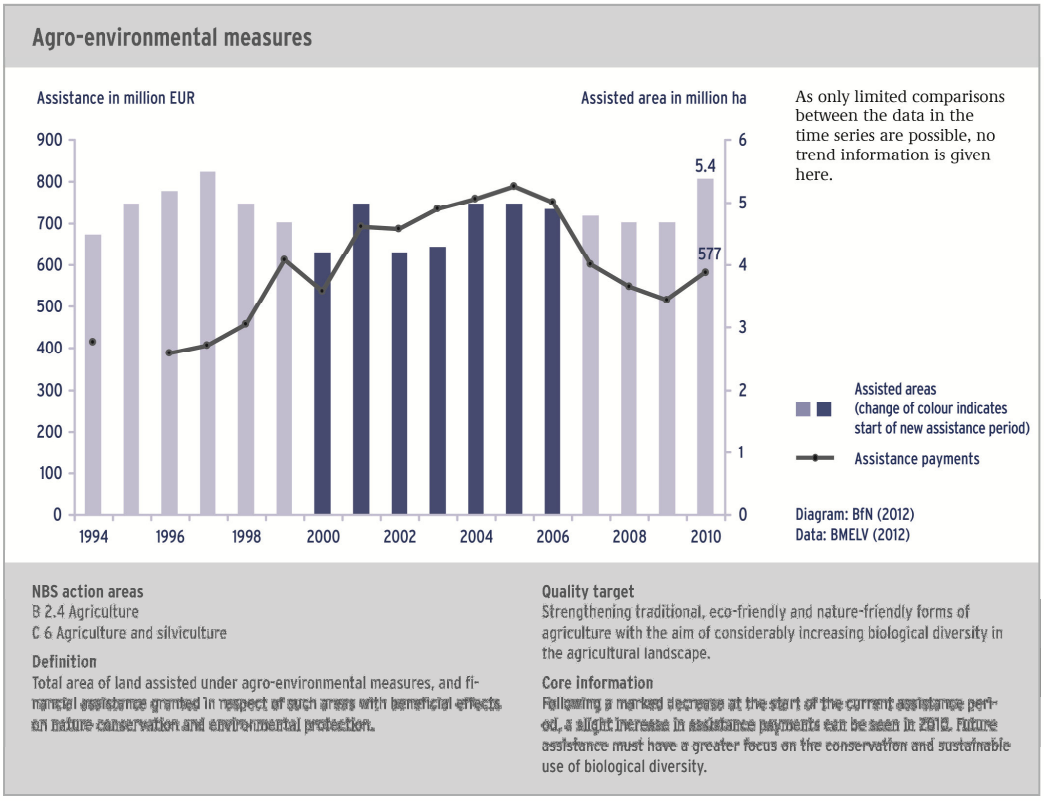
The indicator reflects the average increase in the area used for settlement and transport in Germany in hectares per day. For 2020 the German Government has laid down a target of 30 ha for average daily land take for human settlement and transport infrastructure. In recent years there has been a noticeable slackening of the trend in the growth of settlement and transport. Whereas the rolling four-year average stood at 129 ha per day in 2000, by 2010 it had fallen to 87 ha per day. The latest annual average for 2010 was 77 ha per day. It is therefore necessary to systematically use and refine the existing instruments and measures for reducing land take and supplement them with new instruments. When developing settlements, for example, greater attention should be paid to reusing waste land. Here the aim must be to implement the model of "dual internal development", under which the increase in density is coupled with an improvement in the quality and availability of green elements and open spaces. In future there should also be a reduction in the appropriation of new land for transport purposes.



Agro-environmental measures

Land used for agriculture provides habitats for a wide range of open-country animal and plant species. This presupposes sustainable and nature-friendly forms of land use. A large number of species that are dependent on extensive forms of land use have shown a serious decline in population as a result of – regionally varied – intensification of agriculture and discontinued use of sites with marginal yields. Under the second pillar of the Common Agricultural Policy (CAP) the EU uses resources from the European Agricultural Fund for Rural Development (EAFRD) to co-finance, among other things, agro-environmental measures in the federal Länder. The aim is to reward eco-friendly and nature-friendly forms of agricultural production that go beyond the binding minimum requirements. Furthermore, co-financing by the federal level in Germany is to some extent possible under the "Joint Task of improving Agricultural Structures and Coastal Protection" (GAK).

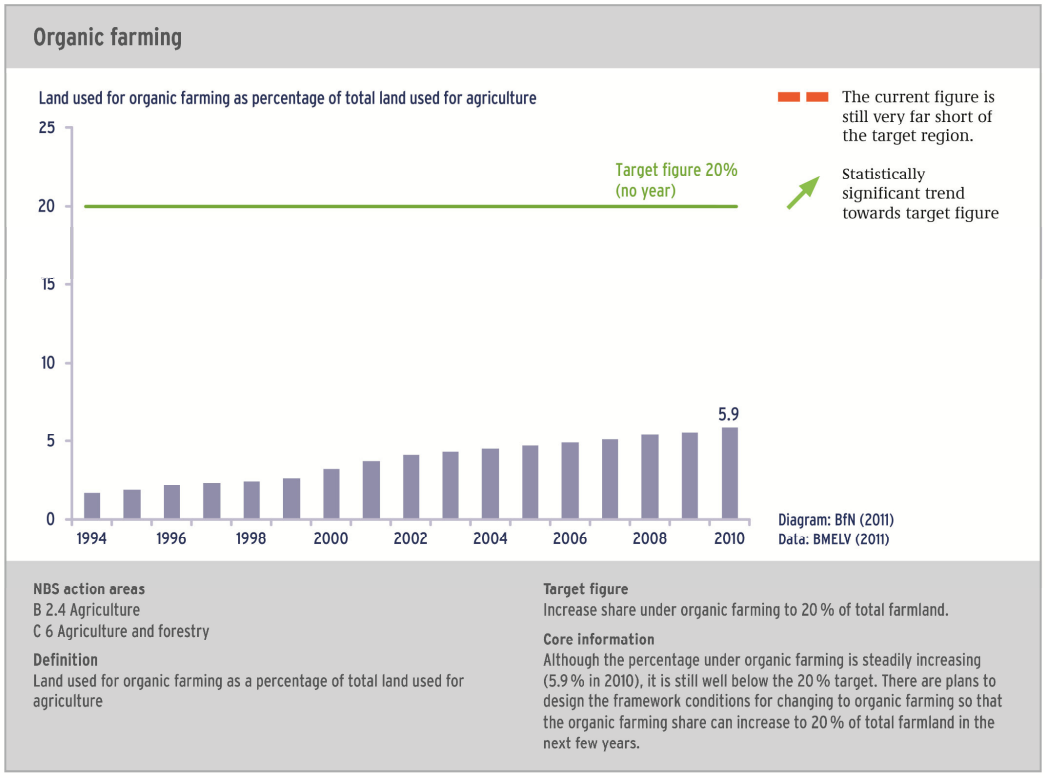
The indicator is an overall figure for the total area of land receiving assistance under agro-environmental measures and the assistance paid for it. Conserving and developing biological diversity in cultural landscapes is a fundamental task of agro-environmental programmes and one goal of the National Strategy on Biological Diversity. To this end there is a need to increase the percentage of land receiving assistance. Financial resources must continue to be provided on an adequate scale. The area receiving assistance was around 5.4 million hectares in 2010, which was almost as high as the previous record level of 5.5 million ha in 1997. During the current assistance period, assistance payments first showed a marked drop from 2007 to 2009, but rose again slightly to 577 million EUR in 2010. Further development of the CAP after 2013 will play a key role in conserving and increasing biological diversity in agricultural landscapes in the context of nature-friendly and eco-friendly agriculture on a nationwide basis.



Organic farming

More than half the land area of Germany is used for agriculture. The biological diversity of this land depends to a great extent on how it is farmed. In the agricultural sector, improvements in the conservation of species and habitats can only be achieved by making farming methods more nature-friendly and eco-friendly. Organic farming makes a special contribution to maintaining biological diversity. Among other things, organic farming results in greater biological activity in the soil, conserves the soil structure and reduces soil losses. The resulting increase in the water storage capacity of the soil also helps to reduce the risk of flooding and erosion. Sparing use of veterinary drugs and non-use of readily soluble mineral fertilisers and synthetic chemical pesticides are good for groundwater and surface waters. The aim of organic farming is a form of agriculture with nutrient cycles that are self-contained as possible, with a view to avoiding environmental pressures and reducing inputs of nutrients into soils and water.

The indicator provides information on the area covered by organic farming operations that are subject to the control procedures of the EU legislation on organic farming. This area has steadily increased since 1994. At the end of 2010 some 22,174 farms with a total area of 990,702 ha were operating in accordance with the provisions on organic farming. This represents 7.3% of farms, on 5.9% of total farmland. The increase is a response to the continuing high level of demand for organic products and also to the increased prices. In spite of the ongoing positive trend and the favourable forecasts for organic farming, the indicator is currently still far short of the target figure.



Genetic engineering in agriculture

The potential environmental consequences of growing genetically modified plants (GMP) are complex and are the subject of controversial discussion in society. All cultivated plants interact with wild plants and animals on the land where they are grown and adjacent areas. In the case of GMPs, however, specific risks may arise, e.g. due to unforeseen results of new properties of the GMP and complex interactions with other organisms in open country. For over 20 years the Federal Ministry of Education and Research *(Bundesministerium für Bildung und Forschung – BMBF)* has therefore helped to fund projects conducting research into the biological safety of genetically modified plants.

The Genetic Engineering Act *(Gentechnikgesetz – GenTG)* also contains provisions aimed at protecting human life and health, conserving the environment with its complex interactions, protecting animals, plants and physical assets against adverse effects of genetic engineering techniques and products, and taking precautions to prevent such risks arising.

The indicator represents the total of all land used for growing GMPs that is listed in the site register of the Federal Office for Consumer Protection and Food Safety *(Bundesamt für Verbraucherschutz und Lebensmittelsicherheit – BVL)*. In the National Strategy on Biological Diversity the German Government has set itself the target of continuing to ensure that genetically modified organisms (GMO) do not present any threat to biological diversity, especially in protected areas. In this context the interests of environment and nature are checked in an environmental risk assessment under the GMO approval procedures carried out at EU level. During the period 2005 to 2008, Bt maize MON 810 was the only genetically modified plant approved for commercial cultivation. Since 2009 the approval of Bt maize in Germany has been suspended in accordance with Section 20(2) of the Genetic Engineering Act *(Gentechnikgesetz – GenTG)* and Art. 34 of EC Regulation 1829/2003. This resulted in the crop area falling to 0% in 2009. In 2010 and 2011 the starch potato Amflora was grown commercially on 15 ha and 2 ha respectively. This variety of potato supplies industrial starch.

Genetic engineering in agriculture

Land used for growing genetically modified plants in Germany (hectares)

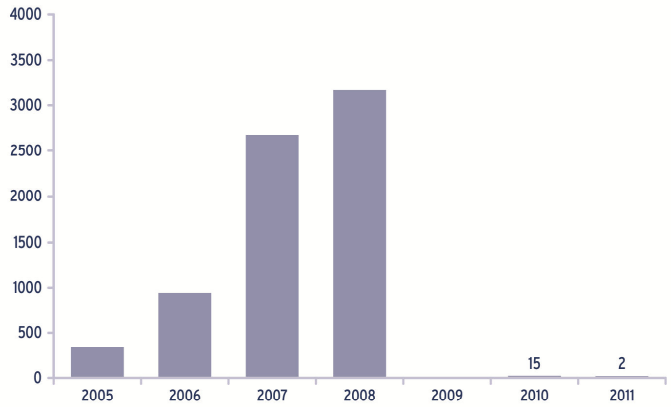


Diagram: BfN (2011)
Data: BVL (2011)

NBS action areas
C 3 Biosafety and prevention of flora and fauna adulteration

Definition
Total area of land registered for growing genetically modified plants

Quality target
There will continue to be no threat to biological diversity from genetically modified organisms (GMO), especially in protected areas. At present it is not possible to set targets or maximum figures for the indicator.

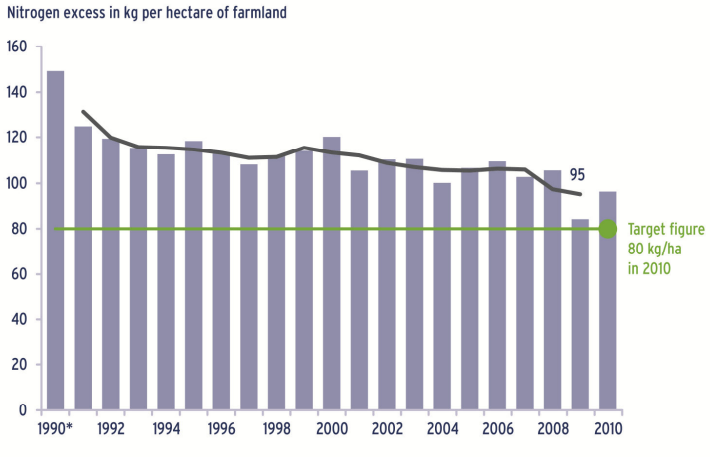
Core information
Following continuous growth between 2005 and 2008, land used for growing genetically modified plants fell to zero again in 2009 with the suspension of approval for Bt maize (variety MON 810). Small quantities of the genetically modified potato variety Amflora have been grown since 2010.

Nitrogen excess in the agricultural sector

Nitrogen compounds are used in agriculture as plant nutrients. Targeted, needs-oriented fertiliser application and crop rotation are used to replace the nutrients removed from the soil during production, in order to safeguard yields, crop quality and soil fertility in the long term. Excessive inputs of nitrogen that cannot be taken up by crops or stored in the soil contribute to the pollution of groundwater, surface waters, seas and terrestrial ecosystems and to the formation of additional greenhouse gases and acidifying air pollutants. On land used for farming, rather less than two thirds of nitrogen inputs are currently due to crop growing, and about one third to livestock production. 5% is due to airborne inputs from the transport, industrial and household sectors.

The indicator makes it possible to draw conclusions about trends in the pollution of environmental media and habitats by nitrogen from the agricultural sector. It is calculated on the principle of a nationwide overall balance for Germany. The degree of aggregation does not permit any conclusions about regional excesses. In the National Strategy on Biological Diversity the German Government set a target of reducing the overall annual balance of nitrogen excesses due to agricultural production to 80 kg per hectare of farmland by 2010. It also seeks to achieve a further reduction by 2015. From 1991 to 2009 the nitrogen excess fell from 131 kg/ha per annum to 95 kg/ha per annum (rolling three-year average). This brought the figure close to the target region for the first time. Analyses of farm data show that high excesses occur particularly in farms with a high livestock density. If there is to be a sustainable reduction in the indicator, it will be necessary to further improve nitrogen efficiency in production and make more effective use of organic manure.

Nitrogen excess in agriculture



NBS action areas
B 2.4 Agriculture
C 6 Agriculture and silviculture
C 10 Acidification and eutrophication

Definition
Difference between nitrogen flows into and out of the agricultural sector (overall balance using farm-gate principle)

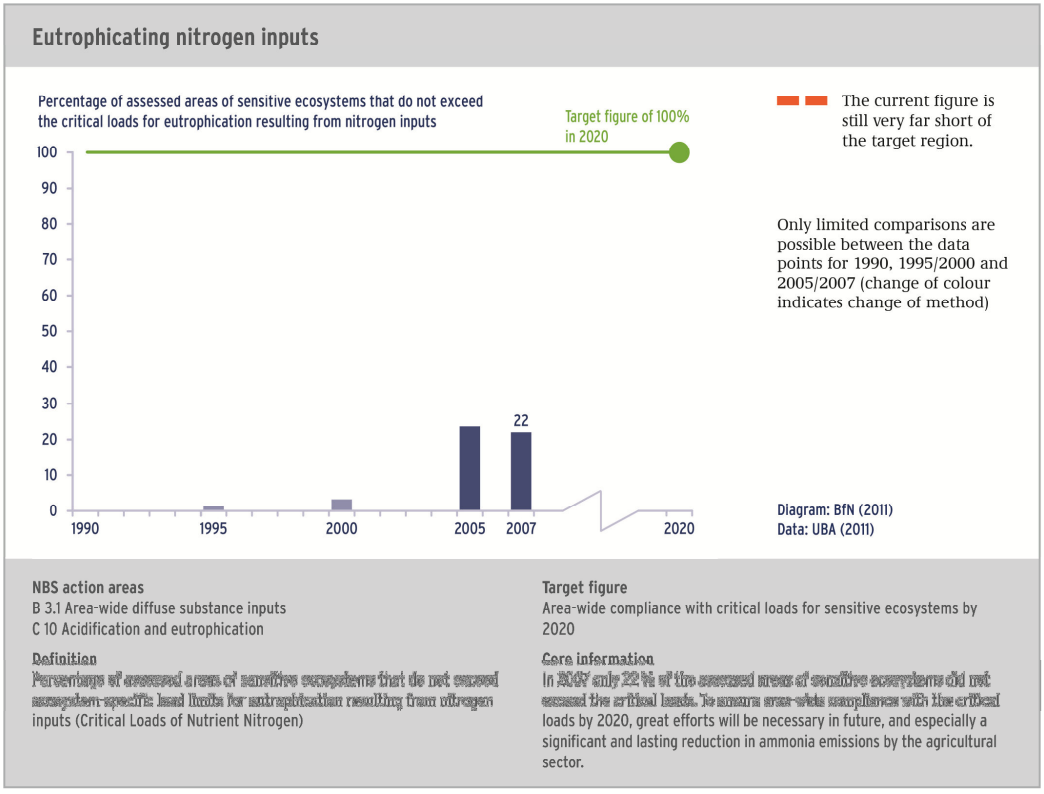
Target figure
By 2010 the overall balance of nitrogen excesses is to be reduced to 80 kg/ha per annum. A further reduction is sought by 2015.

Core information
From 1991 to 2009 the nitrogen excess fell from 131 kg/ha to 95 kg/ha per annum (rolling 3-year average). The current figure is close to the target region.

Eutrophicating nitrogen inputs

Reactive nitrogen compounds enter the atmosphere from various sources in the industrial, transport, household and agricultural sectors. They find their way into ecosystems via a number of pathways: wet deposition (rain, snow), damp deposition (mist, hoar-frost) or dry deposition (gases, particles). Habitats with naturally low nutrient levels, and the plants and animals that occur in them, are affected by the accumulation of nutrients (eutrophication). Present knowledge indicates that if ecosystem-specific load limits for inputs of pollutants or nutrients are complied with, there is no reason to expect either acute or long-term adverse effects on the ecosystems concerned.

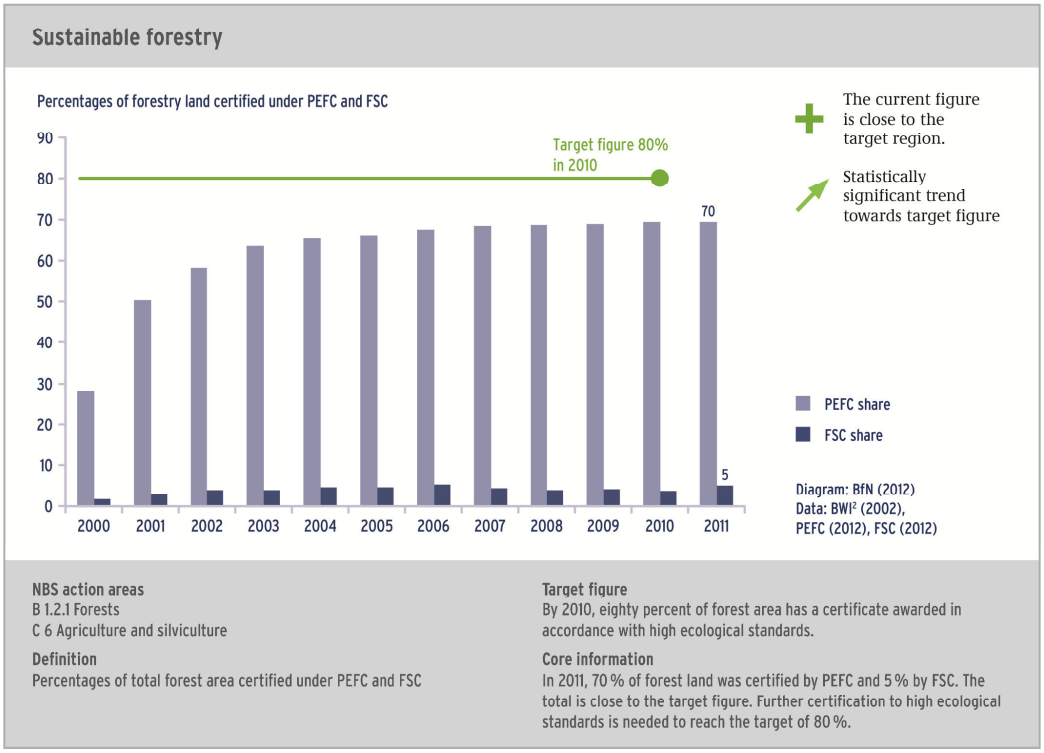
The indicator represents the share of assessed areas accounted for by sensitive ecosystems (e.g. low-nutrient forests, heaths and peatlands) which do not exceed ecosystem-specific load limits for airborne eutrophicating nitrogen inputs. Whereas nitrogen inputs from transport and industry have fallen, ammonia emissions by the agricultural sector no longer display any significant downward trend, following a marked reduction during the period 1990-1992. Great efforts will be needed in future to ensure nationwide compliance with critical loads by 2020, and especially a marked and lasting reduction in ammonia emissions by the agricultural sector.



Sustainable forestry

Nearly one third of the land area of Germany is covered by forest. On most of this land, the structure and function of forests in the landscape balance are dominated by forestry uses. These also play a major part in determining the occurrence and frequency of many animal and plant species in forests. The way in which forests are managed therefore plays a very important role in the conservation of biological diversity. Certification of forest management can be an effective instrument for strengthening the conservation of biological diversity in forests and ensuring environmentally, socially and economically sustainable forest management through appropriate management measures. In terms of area, the most important certification systems in Germany are PEFC (Programme for the Endorsement of Forest Certification Schemes) and FSC (Forest Stewardship Council).

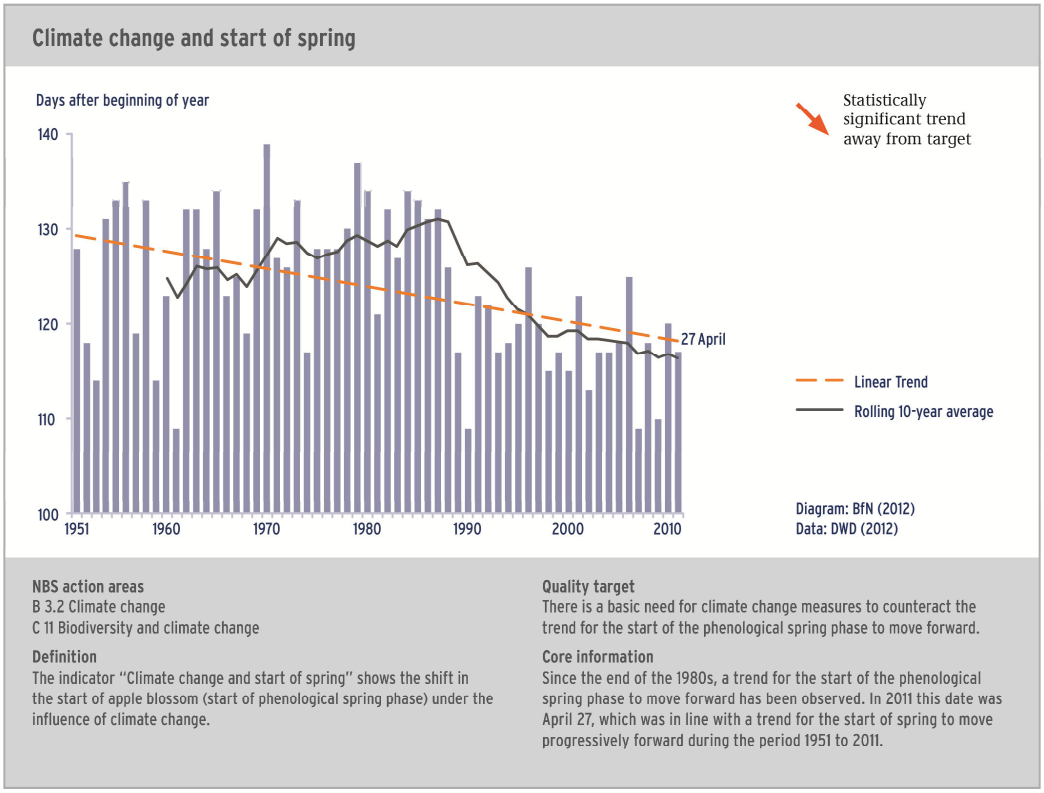
The indicator shows the percentages of Germany's total forest area accounted for by forests certified by PEFC and FSC. In the National Strategy on Biological Diversity the German Government set itself the target that 80% of the total forest area was to be certified to high ecological standards by 2010. Since the scale of any overlap between PEFC and FSC certification is not known, the diagram shows the areas side by side. In 2011, PEFC-certified forests had a share of about 70%, and FSC-certified forests accounted for about 5% of the total forest area in Germany. To achieve the target in the National Strategy on Biological Diversity, public-sector forest owners in particular should be encouraged to live up to their model function by obtaining certification to high ecological standards. Further efforts should be made to raise public awareness of the need for responsible buying of certified timber products.



Climate change and start of spring

Climate change can be expected to result in changes in biological diversity not only around the world, but also in Germany. Such changes can affect the spread and frequency of plants and animals, the composition of communities and the structures and functions of habitats. The development of many organisms is influenced not so much by short-term temperature changes as by temperature trends over long periods of time – such as months or years. That is why recording the seasonal development of plants and animals by means of phenological observations is a suitable way of detecting long-term impacts of climate change on biological diversity.

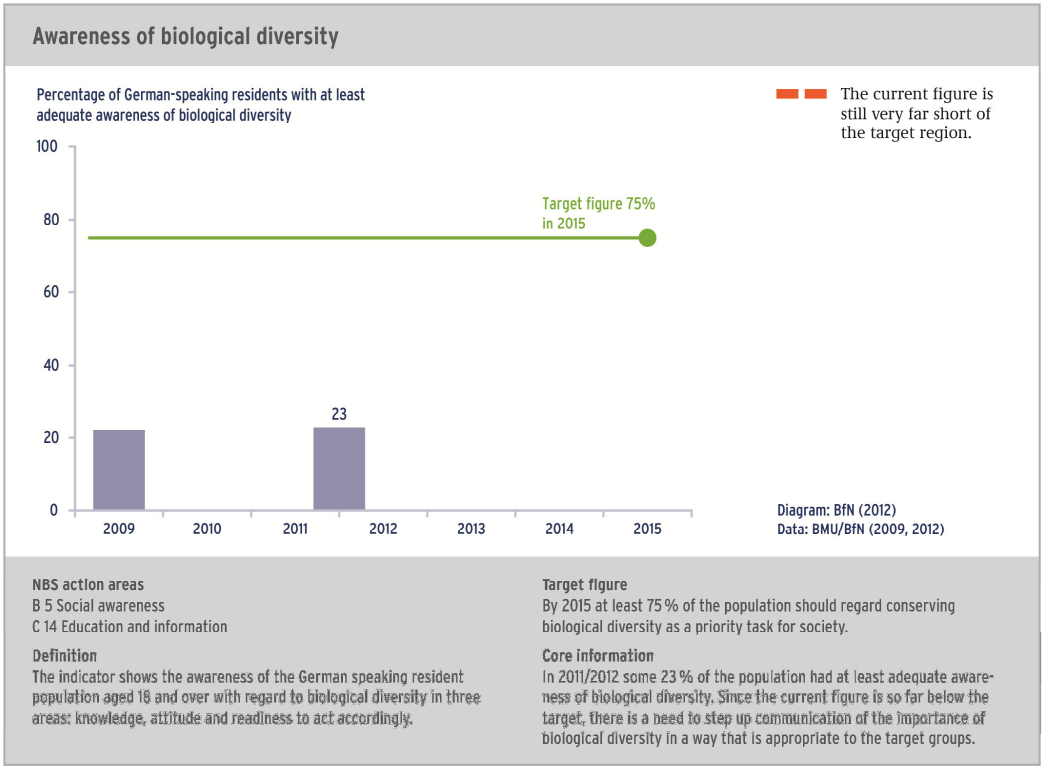
The indicator shows the shift in the start of apple blossom (start of phenological spring phase) in Germany. A look at the 10-year averages for the last 30 years (1981- 2010) reveals that spring has started an average of nearly fours days earlier per decade. This trend is due to the anthropogenic warming of the Earth's atmosphere. Essentially, a rigorous climate policy is needed to prevent the start of spring from shifting even earlier.



Awareness of biological diversity

In order to preserve biological diversity in the long term, there is a need for broad acceptance and engagement in society. People in Germany should be aware that biological diversity comprises not only the diversity of species and ecosystems, but also diversity at genetic level. They should also be convinced of the importance of biological diversity as a basis for the life of present and future generations, and should act accordingly. The indicator represents the awareness of the German-speaking population aged 18 and over with regard to biological diversity. It registers people's awareness of the term "biological diversity" (sub-indicator "Knowledge"), the value they attach to biological diversity (sub-indicator "Attitude") and their readiness to take action to preserve it (sub-indicator "Behaviour"), and combines them to form an overall indicator. The National Strategy on Biological Diversity includes the target that by 2015 at least 75% of the population should regard biological diversity as a priority task for society. This was used to derive the target figure for the overall indicator.

The indicator is based on data from representative population studies of about 2,000 persons. According to the survey results from December 2011 and January 2012, 23% of the respondents had at least an adequate knowledge of biological diversity and a positive attitude to it, and also expressed their readiness to act accordingly. Thus the overall indicator is still far short of the target figure. Although the figure is about one percentage point higher than the result of the first survey in 2009, this increase is still not statistically significant. It is interesting to note, however, that in the latest survey far more of those who were familiar with the term "biological diversity" mentioned not only the diversity of species, but also habitat diversity and genetic diversity as elements of biological diversity. Nevertheless there is still a need to step up measures to inform and educate the public. These measures should be aimed at different target groups and should take differentiated account of their special needs and interests.



Status and trends 2012

On the basis of the latest data available in May 2012, the results for the 19 indicators of the National Strategy on Biological Diversity can be summarised as follows: for a total of 12 indicators with quantitative targets it is possible to state a target achievement (status) based on the difference between the last reported data point and the target figure.

Status	Target achievement	Indicators (status: May 2012)
	≥ 90% The current figure is within the target region.	No indicator
	80% to < 90% The current figure is close to the target region.	2 indicators: • Nitrogen excess in agricultural sector • Sustainable forestry
	50% to < 80% The current figure is still far short of the target region.	5 indicators: • Species diversity and landscape quality • Endangered species • Conservation status of Habitats Directive habitats and species • Status of water meadows • High natural value farmland
	< 50% The current figure is still very far short of the target region.	5 indicators: • Ecological status of waters • Land take • Organic farming • Eutrophicating nitrogen inputs • Awareness of biological diversity
The status of 7 indicators cannot be determined.		

This shows that the figures for 10 indicators with a concrete target are still far short of or very far short of the target region. Only the current figures for the indicators "Nitrogen excess in the agricultural sector" and "Sustainable forestry" are close to the target region. However, the indicator "Sustainable forestry", which was to have been achieved in 2010, fell short of the target in 2011 as well. The other targets, where they are tied to a specific year, apply to 2010, 2015 or 2020. Trend analyses have been performed for seven indicators to date; in the case of 12 indicators the number of data points was not sufficient. Many of the newly developed indicators in particular only have a small number of values as yet, so it will be many years before any reliable information on trends is possible. The trend analysis for the indicator set shows a largely positive picture.

Five indicators show a statistically significant trend towards the target or target figure. By contrast, the indicators "Species diversity and landscape quality" and "Climate change and start of spring" show a statistically significant tend away from the target or target figure. It is clear that given no change in the situation and no special additional efforts it will in all probability not be possible to achieve the targets in force for 2015 or 2020.

Trend	Explanation	Indicators (status: May 2012)
	Statistically significant trend towards target or target figure	5 indicators: • Area protection • Land take • Organic farming • Nitrogen excess in the agricultural sector • Sustainable forestry
	No statistically significant trend detectable (upward or downward trend not significant)	No indicator
	Statistically significant trend away from target or target figure	2 indicators: • Species diversity and landscape quality • Climate change and start of spring
No trend can be determined for 12 indicators.		

Very low levels of target achievement are found for ecological status of water, land take, eutrophicating introgen inputs and awareness of biological diversity. This also applies to organic farming, though in this case no target year is specified. In the case of organic farming and land take, however, there has been a statistically significant trend towards the target figure over the last ten years. In the case of the ecological status of waters it should be noted that the Water Framework Directive allows extensions of deadline to 2021 or 2027, compared with the very ambitious targets of the National Strategy on Biological Diversity.

It is clear that the measures taken to date are not sufficient to achieve all the individual targets laid down in the National Strategy on Biological Diversity. The indicators show that progress towards reversing the trend is very slow. While many of the measures set out in the action areas of the National Biodiversity Strategy have been set in motion, in many cases the resulting positive effects have yet to make themselves felt. This is partly due to the fact that it has not proved possible to reduce pressures sufficiently. One major factor, however, is that biotopes and populations of animal and plant species need long periods to regenerate, which means there is a considerable time-lag before results are reflected in the indicator figures. Another aspect is that some indicators are only updated at relatively long intervals. For other indicators the process of merging the data is very time-consuming, which means that in some cases the most recently reported figures are several years old. For lack of more recent data, the indicators for the conservation status of Habitats Directive habitats and species, landscape fragmentation and eutrophicating nitrogen inputs describe a situation that existed on or before the Cabinet decision on the National Strategy on Biological Diversity in 2007.

The results of the accounting in May 2012 are summarised in the indicator overview on the following pages. The indicators are assigned to the topics "Components of biological diversity", "Settlement and transport", "Economic uses", "Climate change" and "Public awareness".

Indicators for the National Strategy on Biological Diversity (status: May 2012)

Indicator	Measured or observed parameter	Latest reported value	Target/ target figure
Components of biological diversity			
Species diversity and landscape quality	Index (measure in %) of nationwide populations of 59 representative bird species in six main habitat and landscape types	67% (Status: 2009)	100% in 2015
Endangered species	Index (measure in %) of the classification of species in selected species groups in the Red List categories of nationwide Red Lists	28% (Status: 2011)	17% in 2020
Conservation status of Habitats Directive habitats and species	Index (measure in %) of assessment of the conservation status of habitat types in Annex I and the species in Annexes II, IV and V of the Habitats Directive in the biogeographical regions of Germany	48% (Status: 2001-2006)	80% in 2020
Invasive species	Number of species on the Black List of invasive species, separately for the action list and the management list	6 / 40 species (Status: 2010)	No further increase in listed species
Area protection	Strictly protected areas (nature conservation areas, national parks) as percentage of the land area of Germany	4.2% (Status: 2011)	Increase
Ecological status of waters	Water bodies of rivers, streams, lakes, transitional and coastal waters possessing good or very good ecological status, as a percentage of all water bodies assessed	10% (Status: 2009)	100% in 2015
Status of river meadows	Index (measure in %) of the assessed status of 79 river meadows covered by the river meadow status report	19% (Status: 2009)	29% in 2020
Human settlements and transport			
Land take	Average increase in settlement and transport area in hectares per day (rolling four-year average)	87 ha (Status: 2010)	17 ha in 2020
Landscape fragmentation	Unfragmented open spaces ≥ 100 km² as a percentage of Germany's land area, and effective mesh size (M_{eff})	25.4% (Status: 2005)	No change from 2005

The symbols for status and trend are explained in the text of this chapter. Notes on use of the indicators in other indicator systems: NHS = National Sustainability Strategy, KIS = Core indicator system environment, LIKI = Länder initiative core indicators (environment-related sustainability indicators), SEBI = *Streamlining European Biodiversity Indicators*.

Status	Trend	Indicator system	Core information
–		NHS, KIS, LIKI, SEBI	The indicators are still far short of the target figure. If the trend remains unchanged, it will not be possible to achieve the target of 100% in 2015 without substantial additional efforts by national, regional and local authorities in, as far as possible, all relevant policy areas.
–	–	KIS, SEBI	For 2011 the indicator provisionally calculated for only three groups is 28%. Great efforts on the species protection front are necessary to achieve the target figure of 17% by 2020.
–	–	SEBI	For the last reporting period (2001-2006) the indicator stands at 48%. It is still far short of the target figure. For a large proportion of the protected assets, considerable efforts are therefore necessary to improve their conservation status.
–	–	KIS, SEBI	In 2010 biological diversity is threatened by 40 species on the provisional management list of the Black List of invasive species. Emergency measures are to be taken against six species on the provisional action list.
–		KIS, LIKI, SEBI	The share due to strictly protected areas rose from 3.2% of Germany's land area in 2000 to 4.2% in 2011.
– –	–	LIKI, SEBI	In 2009 only 10% of water bodies possessed good or very good ecological status. The most frequent causes of impairment were changes in the structure of the water body and high nutrients inputs by the agricultural sector.
–	–	–	On the whole, the major river meadows in Germany are seriously impaired (indicator for 2009 was 19%). Great efforts will continue to be needed in future to conserve and develop biological diversity in river meadows.
– –		NHS, KIS, LIKI	The rolling four-year average fell from 129 ha per day in 2000 to 87 ha per day in 2010. Despite the positive trend, the current figure is still far short of the target figure. It is therefore necessary to make increased systematic use of the instruments for reducing land take.
–	–	KIS, LIKI, SEBI	The area of unfragmented open spaces ≥ 100 km² fell from 26.5% in 2000 to 25.4% in 2005; the effective mesh size (M_{eff}) fell from 84 km² to 81 km². In future investments are to be focused on the network of existing transport routes.

Indicator	Measured or observed parameter	Latest reported value	Target/ target figure
Economic uses			
Agro-environmental measures	Total area of land assisted under agro-environmental measures, and amount of assistance paid	5.4 mill. ha €577 mill. (Status: 2010)	–
Organic farming	Organic farmland as a proportion of total agricultural land	5.9% (Status: 2010)	20% no target year
High nature value farmland	High nature value (HNV) farmland as percentage of total farmland	13.0% (Status: 2009)	19% in 2015
Genetic diversity in agriculture	Percentage share of endangered domestic animal breeds: horses, cattle, pigs, sheep and goats	83% (Status: 2010)	Reduced danger to domestic breeds
Genetic engineering in agriculture	Land registered for cultivation of genetically modified plants (GMP)	2 ha (Status: 2011)	–
Nitrogen excess in the agricultural sector	Difference between nitrogen flows into and nitrogen flows out of the agricultural sector (overall balance)	95 kg / ha * a (Status: 2009)	80 kg / ha * a in 2010
Eutrophicating nitrogen inputs	Share of land not exceeding ecosystem-specific load limits for eutrophicating nitrogen inputs (*Critical Loads of Nutrient Nitrogen*)	22% (Status: 2007)	100% in 2020
Sustainable forestry	Forest areas certified under PEFC and FSC as percentage of total forest area	70%/5% (Status: 2011)	80% in 2010
Climate change			
Climate change and start of spring	Shift in start of apple blossom as a result of climate change (nationwide average of starting date)	27 April (Status: 2011)	No further shift
Awareness in society			
Awareness of biological diversity	Percentage of German-speaking resident population aged 18 and over who satisfy certain minimum criteria with regard to biological diversity in the three areas: "knowledge", "attitude" and "readiness to act accordingly"	23% (Status: 2011/2012)	75% in 2015

Status	Trend	Indicator system	Core information
–	–	KIS	After a marked reduction during the current assistance period, assistance payments rose again slightly in 2010. In future, assistance must focus more on the conservation and sustainable use of biological diversity.
– –		NHS, KIS, LIKI, SEBI	The area of land used for organic farming is steadily increasing (5.9% in 2010). However, this is still far short of the 20% target. There are plans to design the framework conditions for conversion to organic farming so that the area under organic farming can increase to 20% of total farmland in the years ahead.
–	–	SEBI	In 2009 the shares of total farmland were 2.2% with extremely high nature value, 4.5% with very high nature value and 6.3% with fairly high nature value (*total share due to HNV Farmland* 13.0%). To achieve the target by 2015 it will be necessary to take targeted measures to promote biological diversity in agricultural landscapes.
–	–	SEBI	The share of endangered domestic animal breeds (BEO, ERH, PERH) was very high in 2010, at rather more than 83%. Targeted measures are necessary to reduce the endangerment situation.
–	–	KIS, LIKI	After continuous growth from 2005 to 2008, land under GMP fell to zero again in 2009 following the suspension of approval for Bt maize MON 810. The genetically modified potato variety Amflora has been grown on a small scale since 2010.
+		NHS, KIS, LIKI,	From 1991 to 2009 the nitrogen excess fell from 131 kg/ha per annum to 95 kg/ha per annum (rolling three-year average). The current figure is close to the target region.
– –	–	KIS, SEBI	In 2007 only 22% of the assessed areas of sensitive ecosystems did not exceed the critical loads. Great efforts will be needed in future to ensure nationwide compliance with critical loads by 2020, and especially a marked and lasting reduction in ammonia emissions by the agricultural sector.
+		KIS	In 2011 some 70% of forests were certified by PEFC and 5% by FSC. The total figure is close to the target region. Further certification to high ecological standards will be needed to achieve the target of 80%.
–		KIS, LIKI	Since the end of the 1980s the start of the phenological spring phase has shown a marked shift towards the beginning of the year. In 2011 the date was 27 April, which was thus in line with the trend for the start of spring to move earlier over the period 1951 to 2011.
– –	–	SEBI	In 2011/12 some 23% of the population displayed at least adequate awareness of biological diversity. Since the current figure still falls very far short of the target figure, increased efforts must be made to ensure targeted communication of the importance of biological diversity to specific target groups.

Q3: What are the main threats to biodiversity?

(**Or, what are the main causes of the negative changes described in the answer to question two?**)

Answer

Despite intensive efforts at all political levels, it has not yet proved possible to make sufficient reductions in all adverse effects on species and their habitats in Germany, especially outside the protected areas.
The main causes of the decline in species diversity – which differ by region – are intensive use for agriculture and forestry, landscape fragmentation and urban sprawl, sealing of land surfaces, and inputs of substances (acidifiers or nutrients). On the human settlement front, adverse impacts arise from loss of near-natural areas and village structures due to building and surface sealing. Climate change and land-use changes, especially in the form of land take for human settlement and transport infrastructure – but also as a result of the transformation of the energy supply system – can potentially create new risks. Preventing adverse effects on species diversity as far as possible therefore remains a challenge for the future. At the same time systematic use should also be made of opportunities to promote biological diversity in measures to transform the energy supply system.

The main reasons for the changes described in question two are described there in greater detail.

Q4: What are the impacts of the changes in biodiversity for ecosystem services and the socio-economic and cultural implications of these impacts?

The impacts of changes in biological diversity on ecosystem services in Germany and the socio-economic and cultural implications of such impacts have yet to be covered by a systematic and comprehensive investigation. The project "Natural Capital Germany – TEEB DE" launched in 2012 will contribute to this.

"Natural Capital Germany – TEEB DE" is the German follow-up project to the international TEEB study, which analysed with the aid of case studies at global level the interactions between natural services (e.g. soil fertility, provision of food, clean water or medicines, flood control, carbon storage, recreation), value added by economic activity, and human well-being. On the basis of existing studies and with the aid of examples, the project "Natural Capital Germany" currently in progress is intended to raise awareness of the diverse natural services and assets in Germany, describe these services and, where possible, compile information on their economic value.

To this end, several sectoral reports and brochures with contributions by scientists, experts and stakeholders will be published and presented with considerable publicity. Although the project is related to the central concept of ecosystem services, it is not a national ecosystem assessment.

The principal aim is "mainstreaming", i.e establishing a broad base in circles outside the nature conservation sector, especially at the level of decision makers in politics and administration, and also in industry and among the interested public, for the idea that nature represents assets which provide valuable services. Another concern is to create a network of scientists, nature users, affected parties and practical experts in Germany.

Further details can be found on the website

http://www.naturkapital-teeb.de/en/about-teeb-de/overview.html.

Part II: The national biodiversity strategy and action plan, its implementation, and the mainstreaming of biodiversity

Q5: What are the biodiversity targets set by your country?

and

Q6: How has your national biodiversity strategy and action plan been updated to incorporate these targets and to serve as an effective instrument to mainstream diversity?

In November 2007 the German Government adopted the National Strategy on Biological Diversity. The main focus of the strategy is on the actions needed in Germany. However, the strategy also takes account of Germany's contribution to the conservation of biological diversity around the world.

The National Strategy on Biological Diversity indicates the direction in which Germany needs to develop, and how this should be done, in order to conserve biological diversity for present and future generations. In doing so, it follows the concept of sustainable development developed in the National Sustainability Strategy and takes equal account of environmental, economic and social aspects. The strategy is an ambitious programme for society as a whole, with

- future-oriented visions (models)
- over 300 concrete targets and over 400 different measures
- an indicator set of 19 indicators for progress checking, and
- 10 exemplary lighthouse projects.

The visions describe the medium to long-term ideal situation for all biodiversity-relevant topics, e.g. the species, the various habitats or the various uses. They cater for the environmental load limits and for human needs.

The visions are given concrete shape in the form of targets, many of which are quantified and assigned a specific target year. These targets provide a more detailed description of the status aspired to in the long term (quality targets) or contain specific actions aimed at achieving such status (action targets). The time-line ranges from immediate to the year 2020. Achievement of these targets is intended to halt the decline in biological diversity in Germany and then reverse the trend so that it becomes positive.

For the visions to become reality and the targets of the strategy to be achieved, they have to be fleshed out with concrete measures. A selection of more than 400 short-term measures is described in the strategy's action fields. They take account of the various political fields of action, protected assets, load factors and their originators, and various fields of use.

The National Strategy on Biological Diversity addresses society as a whole. The measures in the fields of action are therefore addressed not only to governmental actors such as the EU and the German federal, regional and local authorities, but also to non-governmental actors such as nature conservation and user associations, specific user groups, industry, universities

or schools. The central actors were approached as part of the dialogue process and integrated in the implementation process.

Even though the National Strategy on Biological Diversity was adopted before the Aichi Targets and the Strategic Plan of the CBD were decided, it covers the content of these two documents to a very large extent. There was therefore no need to update the National Strategy to bring it into line with the CBD targets. This is clear from the following table, which compares the CBD targets with those of the National Strategy:

Target as worded in the new Strategic Plan of the CBD	*Chapter of corresponding NBS target*	*Corresponding target in German National Strategy on Biological Diversity*
Strategic goal A ***Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society***		
Target 1 By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Chapter B 5 Chapter B 2.1	Chapter B 5 “Public awareness” contains numerous corresponding quality targets (QT) and action targets (AT), e.g.: By 2015, at least 75 per cent of the population regard the conservation of biological diversity as one of the priority tasks of society. The importance of biological diversity is firmly embedded in public awareness. The way people act is increasingly geared to this and results in a marked reduction in pressures on biological diversity (B_5_QT_1). Chapter B 2.1 “Eco-friendly economic activity” also contains corresponding targets, e.g.: Products and services that take the pressure off biodiversity, like economic activities which promote biodiversity, are becoming increasingly easy for people to identify (B_2_1_QT_1).
Target 2 By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	Chapter B 2.3	Chapter B 2.3 “Impacts of German activities on worldwide biodiversity” contains numerous corresponding targets, e.g.: In all relevant sectors, German development cooperation caters for conserving and maintaining biological diversity (B_2_3_QT_7).

Target 3 By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant national obligations, taking into account national socio-economic conditions.	Chapter B 2.1	Chapter B 2.1 “Eco-friendly economic activity” also contains numerous corresponding targets, e.g.: Gear taxation and assistance policy more closely to conservation of biological diversity (B_2_1_AT_4) Step up reduction in ecologically counter-productive transfer payments (B_2_1_AT_5)
Target 4 By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	Chapter B 2.1 Chapter B 2.3	Chapter B 2.1 “Eco-friendly economic activity” also contains numerous corresponding targets, e.g.: By 2020, biodiversity aspects are fully integrated in the world trading system (B_2_1_QT_5) Improve target group specific information for consumers, and raise awareness of the need for nature-friendly and sustainable consumption (B_2_1_AT_1) Ensure better provision for and communication of biological diversity in environmental management and certification systems (B_2_1_AT_2) More corresponding targets can be found in other chapters of the NBS, e.g. Develop an EU action programme by 2010 for increasing the proportion of imports due to products certified in accordance with environmental criteria, and implement it by 2020 (B_2_3_AT_1)
Strategic goal B ***Reduce the direct pressures on biodiversity and promote sustainable use***		
Target 5 By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	Chapter B 1.1.3 Chapter B 1.2.1	Corresponding targets can be found in various chapters of the NBS: Chapter B 1.1.3 “Habitat diversity”, e.g.: By 2010, the decline in endangered habitat types has been halted. Thereafter, those biotope types which are under threat of complete destruction or severely endangered according to the Red Lists will increase again in terms of their area and number, degradations have been halted, and regeneration has begun (B_1_1_3_QT_3) Draw up a comprehensive concept for minimising fragmentation effects by 2010 (B_1_1_3_AT_2) Chapter B 1.2.1 “Forests”, e.g.: By 2020 the conditions for typical forest communities have improved (diversity of structure and dynamics). Rejuvenation of the trees and shrubs in the natural forest community is largely natural. Natural processes for strengthening ecological functions are being used under near-natural management forms. Mature timber and dead wood are present in adequate quantity and quality (B_1_2_1_QT_1)

Target 6 By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	Chapter B 1.2.2 Chapter B 1.2.3 Chapter B 1.2.4	Chapters B 1.2.2 “Coast and seas”, B 1.2.3 “Lakes, ponds, pools and lagoons” and B 1.2.4 “Rivers and water meadows” contain numerous corresponding targets, especially with regard to fishing, e.g.: In the sea: Sustainable and ecosystem-friendly design of fisheries by 2010 (B_1_2_2_AT_4) In still waters: Wide-area application of good professional practice in inland fishing (B_1_2_3_AT_4) Creating an ecological certification system for aquaculture products from inland fishing by 2010 (B_1_2_3_AT_5) In flowing waters: The stock of the fish fauna characteristic of the individual river is safeguarded in the long term (B_1_2_4_QT_5) The stock of all species of importance from a fishing point of view is safeguarded in the long term (B_1_2_4_QT_6)
Target 7 By 2020 all areas used for agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Chapter B 1.2.1 Chapter B 1.3.2 Chapter B 2.4	The chapters B 1.2.1 “Forests”, B 1.3.2 “Cultural landscapes” and B 2.4 “Agriculture” contain numerous corresponding targets, e.g.: For forests: Certification of 80 per cent of forest area to high ecological standards by 2010 (B_1_2_1_AT_7) For cultural landscapes: Sustainable use catering for the needs of nature conservation and landscape maintenance increases the biological diversity of cultural landscapes by 2020 and safeguards their diversity, beauty and typical regional characteristics (B_1_3_2_QT_1) For agriculture: By 2015 the populations of most species (especially wild species) typical of cultural landscapes used for agriculture are safeguarded and are starting to increase again (B_2_4_QT_2) By 2015 the area accounted for by agricultural biotopes of high nature conservation value (high-grade pasture, meadow orchards) has been increased by at least 10% compared with 2005 (B_2_4_QT_3) Draw up an integrating strategy for increasing agrobiodiversity by 2010 and establish suitable consulting, financing and monitoring instruments by 2015 (B_2_4_AT_4). A corresponding strategy “Agrobiodiversity” was drawn up to supplement the National Strategy 2007. The corresponding targets for fishing can be used for the “Aquaculture” mentioned in the Strategic Plan.

Target 8 By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	Chapter B 3.1	Chapter B 3.1 “Wide-area diffuse substance inputs” contains numerous relevant targets, especially: By 2020 the critical loads and levels for acidification, heavy metal and nutrient inputs (eutrophication) and ozone are complied with, thereby ensuring sustainable protection for sensitive ecosystems (B_3_1_QT_1) Chapter B_2_4_AT_6 includes the concrete target “Reducing nitrogen excess”. Appropriate measures have already been set in motion.
Target 9 By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	Chapter B 1.1.2 Chapter B 1.2.2 Chapter B 1.2.3	The problem of invasive species is discussed at various points in the NBS: By 2020, management plans are to take account of the problem of species known to be invasive (B_1_1_2_AT_4) Avoiding the introduction of invasive alien species and continuing to release and make commercial use of only such transgenic organisms as are not expected to present any threat to marine and coastal ecosystems, having regard to the special conditions of these ecosystems (B_1_2_2_AT_6) Avoiding the introduction of invasive alien species and continuing to release and make commercial use of only such transgenic organisms as are not expected to present any threat to lakes, ponds, pools and lagoons, having regard to the special conditions of these ecosystems (B_1_2_2_AT_6)
Target 10 By 2015, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	Chapter B 3.2	Germany does not have any coral reefs or open ocean areas, but only coastal seas. Climate targets can be found in Chapter B 3.2 “Climate change”, these also serve the interests of conserving the ecosystems mentioned in the Strategic Plan.

Strategic goal C ***Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity***		
Target 11 By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	Chapter B 1.1.3 Chapter B 1.2.2 Chapter B 1.2.6	Chapters B 1.1.3 “Habitat diversity”, B 1.2.2 “Coasts and seas” and B 1.2.6 “Mountains” contain specific protected area targets, in some cases with area details: By 2010, Germany has a representative and functional system of interlinked biotopes covering 10 per cent of its territory. This network lends itself to permanently protecting the habitats of wild species and is an integral component of a European system of interlinked biotopes (B_1_1_2_QT_2) By 2020 a well-functioning management system for all large protected areas and Natura 2000 areas has been established (B_1_1_2_QT_5) Implement a functionally oriented interlinked biotope system across Länder boundaries on at least 10% of the land area at all levels by 2010 (B_1_1_2_AT_1) Implement a joint OSPAR-/HELCOM network of well managed coastal and marine protected areas that include core zones of natural development by 2010, and integrate it in international networks (B_1_2_2_AT_2) Implement an international interlinked biotope system in the Alps and the higher regions of the central uplands by 2020, especially by designating rest zones and wilderness areas (B_1_2_6_AT_1)
Target 12 By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	Chapter B 1.1.2	Chapter B 1.1.2 “Species diversity” also contains corresponding targets: By 2010 the decline in the diversity of wild species that exists today has been halted. After that, the trend is reversed, leading to greater diversity of domestic species over large areas (B_1_1_2_QT_1) By 2020, species where Germany has a special responsibility for their conservation have achieved populations capable of survival (B_1_1_2_QT_3) By 2020 the endangerment status of the majority of Red List species has been improved by one step (B_1_1_2_QT_4) and the associated action targets.
Target 13 By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other species of high socio-economic and cultural value, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	Chapter B 1.1.4	Chapter B 1.1.4 “Genetic diversity of wild and domesticated species” contains numerous corresponding targets. Special support in relation to this target is provided by the "Agrobiodiversity" sectoral strategy of the BMEL, which supplements the National Strategy on Biological Diversity.

Strategic goal D ***Enhance the benefits to all from biodiversity and ecosystem services***		
Target 14 By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	NBS in general	The importance of ecosystem services is discussed at various points in the National Strategy. Similarly, various population groups such as women, children and people with migrant backgrounds are explicitly mentioned in various NBS targets.
Target 15 By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	Chapter B 1.2.1 Chapter B 1.2.5 Chapter B 3.2	Several corresponding targets can be found in Chapters B 1.2.1 “Forests”, B 1.2.5 “Peatlands” and B 3.2 “Climate change”: Forests: Adapt forests to challenges of climate change, e.g. by growing mixed stands of maximum diversity (B_1_2_1_AT_9) Peatlands, e.g.: Natural upland moors still in existence today are safeguarded by 2010 and are developing naturally (B_1_2_5_QT_1) The regeneration of slightly damaged upland moors is started by 2010 with the aim of achieving intact hydrological conditions and an oligotrophic nutrient situation typical of peatland (B_1_2_5_QT_2) Peat depletion in regenerable lowland moors is significantly reduced (B_1_2_5_QT_3) Peatlands act as sinks for nutrients and CO2 (B_1_2_5_QT_4) Draw up peatland development concepts in all federal Länder by 2010 and implement them by 2025 (B_1_2_5_AT_1) Climate change, e.g.: By 2020 the natural CO2 storage capacity of terrestrial habitats has been increased by 10% (e.g. by rehydration and renaturing of peatlands and the increase in near-natural forests) (B_3_2_QT_4) The Strategic Plan target for combating desertification is not relevant to Germany.
Target 16 By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.		Chapter B 4.1 “Access to genetic resources and benefit sharing” contains numerous targets relating to ABS. Signing, ratifying and implementing ABS Protocol is a new task and is therefore not yet included in the National Strategy.

Strategic goal E ***Enhance implementation through participatory planning, knowledge management and capacity building***		
Target 17 By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	NBS as a whole	In November 2007 Germany adopted a comprehensive National Strategy on Biological Diversity, and in December 2007 it embarked on an ongoing implementation and dialogue process.
Target 18 By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	Chapter B 1.1.2 Chapter B 1.2.6 Chapter B 2.4	At various places in the National Strategy there are targets aimed at conserving and improving knowledge – including traditional knowledge – about biological diversity: Improve knowledge about the occurrence and distribution of native species of animals, plants and fungi (B_1_1_2_AT_6) Create incentive systems to stabilise traditional farming methods including the use of mountain-specific domestic animal breeds (B_1_2_6_AT_4) Conserve existing traditional knowledge about wild, medicinal and herbal plants (B_2_4_AT_12)
Target 19 By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred[1], and applied.	Chapter B 1.1.1 Chapter B 4.2	There is a corresponding target in Chapter B 1.1.1 “Biodiversity as a whole” and several targets in Chapter B 4.2 “Conservation and sustainable use of genetic resources (in situ, ex situ, on farm)”. Improve the basic data on the status and development of biological diversity in Germany (B_1_1_1_AT_2) By 2010, create or expand the national inventories on genetic resources and expand information and conservation networks (which may if appropriate be organised on a decentralised basis but centrally coordinated), making use of the coordination structures of the national sectoral programmes for the conservation and sustainable use of genetic resources for food, agriculture, forestry and fisheries, and involve the interested public (B_4_2_AT_1) and other targets in Chapter B 4.2.

[1] The technical justification includes a reference to Article 16 of the Convention.

Target 20 By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed a reported by Parties.		The National Strategy on Biological Diversity naturally contains no relevant target for this, as it was adopted by the German Government in November 2007.

Links with strategies at various levels of government

EU Strategy on Biological Diversity for 2020

In 2010, following the failure to achieve the EU target of 2001, namely halting the loss of biological diversity by 2010, the EU environment ministers adopted new long-term targets for 2020 and 2050. The aim is that by 2050, biological diversity in the EU and the associated ecosystem services should be protected, valued and appropriately restored. The interim target for 2020 envisages halting the loss of biological diversity and the deterioration in ecosystem services in the EU by 2020 and restoring biological diversity and ecosystem services as far as possible. The decision also calls for a greater contribution by the EU to averting the global loss of biological diversity.

The new EU strategy ("Our life insurance, our natural capital: an EU biodiversity strategy to 2020") presented by the European Commission in May 2011 is intended to implement these targets. It focuses on six priority areas:

1. Conserving and restoring nature (implementing EU nature conservation legislation)
2. Maintaining and enhancing ecosystems and their services
3. Ensuring the sustainability of agriculture and forestry
4. Contribution of fisheries to conservation of biological diversity
5. Combating invasive alien species and
6. EU contribution to global conservation of biodiversity.

These topics are allocated an individual target each and a total of 20 actions (37 detailed measures).

In the National Strategy on Biological Diversity and its implementation process, Germany already has a firm foundation for its national contribution to achieving the EU biodiversity targets.
http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/comm_2011_244/1_DE_ACT_part1_v2.pdf

Strategies at federal level

At the federal level the National Sustainability Strategy constitutes the framework for the National Strategy on Biological Diversity, while various sectoral strategies flesh out and supplement the National Strategy on Biological Diversity for individual key topics.

National Sustainability Strategy
In March 2002 the German Government adopted the National Sustainability Strategy under the title of "Perspectives for Germany".

The strategy is based on the vision of sustainable development. This means that here and now we should not live at the expense of people in other parts of the world and at the expense of future generations. The National Sustainability Strategy sets out guidelines for sustainable development in four fields: inter-generation equity, quality of life, social solidarity and international responsibility. On the basis of these guidelines it puts forward 21 mostly quantitative targets for the 21st century. These targets are key indicators of sustainable development which are intended to show how far these targets have been achieved and where further action is needed. Also, lists of concrete measures were set out in 2002 for the action fields: energy and climate, transport, agriculture and global responsibility.

The German Government drew up the National Sustainability Strategy for Germany in a broad process of dialogue and consultation with the various social groups (including industry). The strategy is an action programme that is being implemented jointly by state and society. Sustainability has thus become established as a central principle in politics and society.

Within the German Government, the National Sustainability Strategy is regarded as an interministerial action programme for all policy areas. It was thus a mandatory requirement for the National Strategy on Biological Diversity adopted in 2007. The "Quality of life" section of the National Sustainability Strategy includes the topic "Protect the environment – enjoy nature", and in this context it stresses the importance of nature and the conservation of biodiversity. The 21 targets include "Environmentally sound production of healthy food" (with the two sub-targets "Organic farming" and "Reducing nitrogen excess"), "Reducing land take to 30 ha/day by 2020" and "Conserving species – protecting habitats". These targets and the associated indicators were taken up in the National Strategy on Biological Diversity.

The National Sustainability Strategy is constantly updated in a dialogue with society. Progress reports were published in autumn 2004, October 2008 and February 2012. The progress reports on the National Sustainability Strategy are supplemented by an indicator report published every two years, which is prepared by the Federal Statistical Office. This describes the progress made with implementing the political strategy on the basis of 21 key indicators.

http://www.bundesregierung.de/Webs/Breg/DE/Themen/Nachhaltigkeitsstrategie/1-die-nationale-nachhaltigkeitsstrategie/nachhaltigkeitsstrategie/_node.html

http://www.destatis.de/DE/Publikationen/Thematisch/UmweltoekonomischeGesamtrechnungen/Umweltindikatoren/IndikatorenPDF_0230001.pdf

German Strategy for Adaptation to Climate Change
In December 2008 the Federal Cabinet adopted the German Strategy for Adaptation to Climate Change which had been put forward by the Federal Environment Ministry. The aim of the strategy is to create a nationwide action framework to avert risks to the population, natural habitats and the economy. As well as the state of knowledge about expected climate changes (worldwide and for Germany) and the potential resulting impacts, it outlines possible climate impacts and action options for 15 action areas, including "Biological Diversity", and for selected regions. It also provides an overview of the international context and Germany's contribution to adaptation in other parts of the world, and describes the forthcoming steps in the continuing development of the German Strategy for Adaptation to Climate Change. The strategy primarily represents the contribution of the German Government and thus provides guidance for other actors.

In August 2011 the strategy was underpinned by the "Adaptation Action Plan", which essentially covers activities by the federal ministries but was drawn up in close consultation with the Länder. The action plan – directly based on the adaptation strategy – sets out to make progress with the task of integrating and considering factors relevant to climate change and extreme weather situations in all political, technical, business and private planning and decision processes as a matter of course, in order to mitigate negative impacts of climate change and take advantage of any opportunities it offers. The action plan also lists measures and activities in the field of adaptation to climate change that are to be planned and implemented, for example, under the National Strategy on Biological Diversity.

By the end of 2014 an evaluation report on the German Adaptation Strategy and the Action Plan is to be produced, and proposals put forward for updating and refining them.

http://www.bmub.bund.de/en/service/publications/downloads/details/artikel/bmu-brochure-combating-climate-change/
http://www.bmub.bund.de/fileadmin/Daten_BMU/Pools/Broschueren/Aktionsplan_Anpassung_de_bf.pdf

National Marine Strategy

In October 2008 the German Cabinet adopted the National Strategy for Sustainable Use and Protection of the Seas ("National Marine Strategy") put forward by the Federal Environment Ministry.

The National Marine Strategy sets out for the first time a balanced overall concept that focuses on special interests and competencies and defines national policy objectives. The strategy builds on the relevant targets of the National Strategy on Biological Diversity to protect marine biodiversity and sees the latter in the context of viewing the seas as ecosystems exposed to a wide variety of uses. It indicates ways of achieving the targets and sets out specific action proposals, some of which are associated with a time scale for implementation. The ecosystem approach calls for comprehensive integrated management of all human activities that affect the status of the seas. This is the aim of integrated coastal zone management (ICZM) on the basis of the ICZM strategy adopted by the German Government in March 2006. ICZM is intended to help develop and maintain the coastal zone as an ecologically intact and economically prosperous living space for man.

On 15 July 2008 the European Marine Strategy Framework Directive (MSFD) entered into force, the object of which is to facilitate not only the conservation and restoration of European seas, but also their sustainable use. It obliges the member states to draw up strategies for their marine regions.

In mid-2012 various reports for the North Sea and the Baltic Sea were submitted to the European Commission under the MSFD (initial assessments, determination of good environmental status, and formulating environmental objectives). These reflected the marine biodiversity conservation objectives laid down in the National Strategy on Biological Diversity and the National Marine Strategy. In 2010, the International Year of Biodiversity, major steps were taken towards creating a network of marine protected areas in the North East Atlantic and the Baltic Sea.

Agrobiodiversity Strategy

In November 2007 the German Ministry of Agriculture *(Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz)* put forward an agrobiodiversity strategy under the title "Conservation of Agricultural Biodiversity, Development and Sustainable Use of its

Potentials in Agriculture, Forestry and Fisheries". As a sectoral strategy, it supports and supplements the National Strategy on Biological Diversity. The strategy was developed with the participation of bodies such as associations, Länder, advisory councils, etc. Its principal objectives are long-term conservation and broader use of genetic resources for the food sector and in agriculture, forestry and fisheries, and efforts to achieve better reconciliation of the use and protection interests of biological diversity with the aim of halting the loss of biological diversity in Germany.

Major aspects of the Agrobiodiversity Strategy for the conservation and sustainable use of agrobiodiversity-relevant genetic resources are implemented with the aid of national sectoral programmes.

Furthermore, with financial assistance from the EU, it contributes to more eco-friendly agriculture and forestry and the conservation of genetic resources in agriculture. In addition to Länder resources, funds from the "Joint agreement on improving agricultural structures and coastal protection" are made available to co-finance these measures. In this way, each of the Länder is put in a position to offer assistance options geared to regional needs. Agro-environmental programmes are an important instrument for conserving biodiversity in agricultural ecosystems. Among other things, they reward efforts to maintain varied crop rotation, conserve regionally adapted varieties and breeds, and extensify pasture. They also promote the conversion of monocultures and non-native stocks into stable deciduous and mixed stocks.
At the same time, implementation of the following measures and activities under this strategy is to be expedited to achieve the objectives of the Agrobiodiversity Strategy:

- Further development of agrarian use systems, partly by gearing agro-environmental measures to the conservation and sustainable use of biological diversity
- Promotion of set-aside or buffer strips, e.g. managed fallow strips with ecological greening, green protective strips to prevent erosion, extensive pasture, organic farming and genetic resources
- Development of new instruments to compensate for encroachments on or impairment of nature and landscape, in order to upgrade ecosystems, enrich their (agro)biodiversity and reduce land use conflicts
- Expansion of the agrobiodiversity research network, among other things in the interests of long-term conservation and innovative use of genetic resources
- Communication strategy on agrobiodiversity that also includes use and consumer aspects.

http://www.bmelv.de/cae/servlet/contentblob/384104/publicationFile/23380/StrategiepapierAgrobiodiversitaet.pdf
http://www.genres.de/?L=3

Forest Strategy 2020
In September 2011 the German Government adopted the Forest Strategy 2020 put forward by the Federal Ministry of Agriculture. The strategy was drawn up with the participation of actors in the fields of science, forestry and timber industry, nature conservation, hunting and tourism.

A strategy for the forest as a space for nature and economic activity, the Forest Strategy 2020 seeks to develop an appropriate, viable balance between the growing demands on forests and their sustainable functioning that will meet future requirements. The basis for this is attaching equal importance to the three dimensions of sustainability (environmental, economic and social aspects), because the goal of sustainable use of forests calls for combining economic performance in equal measure with ecological responsibility and social

equity. In nine action areas (including climate change, ownership, resources, biodiversity, silviculture, hunting, recreation, research) the strategy sets out challenges and opportunities, analyses possible conflicts of objectives, and offers appropriate solutions.

The Forest Strategy addresses all relevant actors at federal and Länder level. Based on the recommendations of the Forest Strategy, suitable measures are being developed or improved to make a direct contribution to achieving the objectives of the Forest Strategy 2020 or to supply missing information for decisions needed to resolve existing conflicts.

http://www.bmelv.de/SharedDocs/Downloads/Broschueren/Waldstrategie2020.pdf;jsessionid=51A478E600B9981331DE9D2DF15C8638.2_cid296

Strategies and programmes at Länder level

The action fields of the National Strategy on Biological Diversity contain a large number of measures that are addressed to the Länder. Implementation of these measures is voluntary and is the responsibility of the Länder. Following the example of the German Federal Government, a number of Länder have drawn up their own Länder strategies, programmes and action plans. These each cover a varied spectrum of topics. The following list provides a brief overview.

Saar
As the first of the Länder strategies – even before the National Strategy on Biological Diversity – the "Saar Nature Conservation Strategy" was published in May 2007 by the Saar State Office for the Environment and Occupational Safety. It is a sectoral concept with two key areas: the first focuses on the animal and plant species for which the Saar has a special responsibility. Protection is to be provided in particular for species which are especially worth conserving from the point of view of their geographical spread, and also for species which represent the region's natural ecosystems. The second key area is conserving existing biotopes and ecosystem types and an ecologically intact cultural landscape. On the basis of Red Lists, concrete targets and measures were formulated for 16 vascular plants, 2 mosses, 3 mammals, 1 bird species, 3 amphibians and one butterfly species, plus various ecosystem types such as forests, flowing waters, rocks and peatlands. All measures relate to a period ending in 2012.

Bavaria
One year later, in April 2008, the Bavarian Council of Ministers adopted a strategy for conserving biological diversity ("Bavarian Biodiversity Strategy"). The strategy contains a vision for the future development of biological diversity in Bavaria. To put this vision into practice it names four central objectives/key action areas of the strategy: 1. safeguarding the diversity of species and varieties, 2. conserving the diversity of habitats, 3. improving the network of interlinked biotopes, and 4. communicating and intensifying knowledge about the environment. Each of these headings lists examples of other targets and measures with a time-scale ranging up to 2020. An interministerial steering group and three other interministerial working groups define the framework for implementing the strategy in various fields of nature conservation and draw up and monitor pilot projects and lighthouse projects. The implementation of the biodiversity strategy is supported by the "Bayern Arche" ("Bavarian Ark") initiative of the Bavarian State Ministry of Health and the Environment. This ministry focuses biodiversity conservation activities and makes information available to educate the public on the subject.

Saxony

In May 2009 the "Programme for Biological Diversity" was published by the Saxony State Ministry for Agriculture and the Environment. The principal objective is the conservation and sustainable use of biological diversity in the fields of nature conservation, agriculture, forestry, fisheries and hunting. Another objective of the strategy in Saxony is to inform and educate the public to promote acceptance of nature conservation measures.

A 12-point programme for the period to 2020 was drawn up to implement the individual objectives. This includes instruments like the Natura 2000 environmental network, draws attention to assistance programmes and encourages research. Every two years the State Ministry of Agriculture and the Environment intends to present an action plan setting out targets and responsibilities for specific measures. An implementation report is to ensure surveillance, adaptation and transparent description of individual actions.

Saxony-Anhalt

In May 2010 the state government adopted the "Saxony-Anhalt State Strategy for the Conservation of Biological Diversity". This strategy covers all policy areas and hence also the competencies of all ministries. The objectives are summarised in 12 action areas, which set out concrete targets and measures for achieving them. The strategy contains 214 targets, which are to be implemented accordingly. These include, for example, restrictions on land take, the system of interlinked biotopes, improvements in water quality, and safeguards for animal and plant genetic resources. All social forces are to be focused on implementing these measures.

Part of the strategy is an indicator set (16 indicators) for verifying achievement of the state strategy. It was and will continue to be developed and modified in line with the federal indicators, to improve information about the effectiveness and success of the strategy.

A concrete project plan is being drawn up for implementing the biodiversity conservation strategy. The aim of the action plan is to step up joint efforts to conserve biological diversity in all areas.

Baden-Württemberg

A year later, in March 2011, the State Council of Ministers adopted the "Nature Conservation Strategy Baden-Württemberg 2020". In addition to nature conservation it encompasses state and regional planning, local authority physical development planning, agriculture and forestry, water resources management, and highways and transport. The action areas include monitoring, management of protected areas, species conservation, wide-area protection strategies, research, promotion of agriculture and biodiversity.

In the interests of conserving biological diversity, it lays down specific measures for the individual action areas. The measures include timely implementation of Natura 2000 as a mandatory task, the planning and implementation of a system of interlinked biotopes on 10 per cent of the land area, increased nature conservation advisory services for agriculture and forestry, and improvements in communication and public relations work for nature conservation. Four working groups documented the initial situation, defined targets, identified the associated options and resources, and disclosed the costs of the projects.

Thuringia

In October 2011 the state government adopted the "Thuringia Strategy for the Conservation of Biological Diversity". It contains four overarching objectives: 1. safeguarding species diversity, 2. conserving habitat and landscape diversity and (re-)networking habitats, 3. integrating biodiversity interest in land use, such as safeguarding the diversity of breeds

and varieties, and 4. actively involving the people of Thuringia in the conservation of biological diversity. These objectives comprise 30 individual targets for the period up to 2020. Concrete measures for their implementation are set out in 10 action areas. Other existing strategies such as "Agriculture 2020" are used to support this implementation.

Berlin

In March 2012 the Berlin Senate adopted the "Berlin Strategy on Biological Diversity". This contains 38 overarching strategic objectives, arranged under four headings: 1. species and habitats, 2. genetic diversity, 3. urban diversity, and 4. society. The strategy is for the period to 2020. To give further concrete shape to the strategic objectives, action targets are to be drawn up and appropriate measures worked out. The further refinement of the strategy will include the development of indicators for verifying target achievement and the success of the measures.

Mecklenburg-West Pomerania

In December 2012 the State Ministry of Agriculture, Environment and Consumer Protection published its concept for "Conservation and Development of Biological Diversity in Mecklenburg-West Pomerania". The aim of the concept is to draw up a strategy and concrete targets for the fields of nature conservation, agriculture, forestry, fisheries and water resources management, and to bundle resources, programmes and necessary measures and thereby directly integrate partners such as land user groups from the areas mentioned and many others in the efforts to conserve and develop biological diversity in Mecklenburg-West Pomerania.

The concept is designed to implement the German Government's National Strategy. To this end it identifies 13 concrete action areas on the basis of the existing obligations and special responsibilities of Mecklenburg-West Pomerania. Among other things, these address species conservation; marine and coastal habitats; lakes, peatlands and rivers; habitats in the agricultural sector; forests; genetic resources; interlinked biotopes and protected areas; environmental education and education for sustainable development. The concept also puts forward possible instruments and partnerships. Lighthouse projects provide example of implementation in the field and are intended to communicate suggestions. Indicators from ongoing monitoring programmes are designed to make it possible to report on progress with implementing the concept in 2020. It is planned to use them to keep the strategy concept updated.

North-Rhine/Westphalia

Since mid-2011, North-Rhine/Westphalia has been developing a state-wide biodiversity strategy on the basis of the National Strategy on Biological Diversity. This strategy sets out concrete visions, targets, actions and time schedules for permanent conservation of the state's valuable natural heritage. Suitable indicators are to be used to continuously monitor the implementation of the strategy and take corrective action if necessary.

Q7: What actions has your country taken to implement the Convention since the fourth report and what have been the outcomes of these actions?

and

Q8: How effectively has biodiversity been mainstreamed into relevant sectoral and cross-sectoral strategies, plans and programmes?

and

Q9: How fully has your national biodiversity strategy and action plan been implemented?

The implementation process: Individual steps from strategy to implementation

While the National Strategy on Biological Diversity makes reference to classic nature conservation policy, its content goes far beyond this. Political and social framework conditions need to offer incentives for the conservation and sustainable use of biological diversity. Conflicts which may arise between the individual protection objectives must be resolved by coherent action approaches.

However, implementation of the strategy's objectives and measures cannot be achieved by compulsion. It depends to a large extent on convincing the various actors about the urgency of achieving the objectives and implementing the measures. It cannot be simply a matter of obtaining confirmation of the need for action from those who are already convinced, but above all of recruiting those who have shown little or no commitment to nature and biological diversity.

That is why it is so important to ensure dialogue and communication to mobilise the interest and engagement of actors in society. It goes without saying that such fundamental conflicts of objectives cannot be made to disappear simply by invoking the strategy. It would be asking too much to expect the strategy to resolve highly controversial and deadlocked conflicts. However, the implementation of the strategy to date has shown that it has successfully demonstrated the need for action and resulted in concrete activities even in the case of numerous less visible items.

The effectiveness of the strategy also depends to a large extent on effective progress reviews. Only if continuous checks are made to see whether objectives are achieved, or at least that the trend is moving in the right direction, is it possible to identify clearly where there is a need for further action. In general it is true to say that there are no simple linear and quick connections between nature-specific measures and the development of nature. Ecosystems are living systems made up of many different components involving complex and diverse interrelationships. This calls for equally complex and diverse interactive measures. Unlike in the technical sector, therefore, one cannot expect an individual measure to produce a fundamental change in the system on its own. Moreover, biotopes and stocks of animal and plant species need long periods to regenerate. This means that even if large numbers of appropriate measures are taken, it will take time before they can be seen to be successful.

1. Social dialogue

1.1 Principles of dialogue

At the end of 2007 the Federal Environment Ministry (BMUB) put in place a comprehensive, dialogue-oriented process for implementing the National Strategy on Biological Diversity. This includes all governmental and non-governmental actors concerned. This process is designed to ensure participation, transparency, continuity and permanence. The central information hub is the website www.biologischevielfalt.de, which provides extensive information about the implementation process and includes brief documentation on all events.

One important principle is to take account the participants' concerns and cater for them when designing the dialogue, e.g. by means of or as part of online surveys in the lead up to events. Thus the process is a learning process that actively takes up topics of importance for the conservation of biological diversity and the strategy.

1.2 Elements of the dialogue process

Events organised up to the end of December 2012 included 4 national forums (one per year), 7 regional forums on key areas of the National Strategy on Biological Diversity, 3 Länder-level forums on biological diversity (six-monthly), a separate process for communication with local authorities, a separate youth dialogue process and congress, and more than 30 dialogue forums with specific groups of actors. The results of these individual forums can be found on the website

http://www.biologischevielfalt.de/ums_dialog.html.

- **National forums**

National forums with around 200 participants are held once a year on a different key topic. The aim is to network the actors involved in implementing the National Strategy on Biological Diversity, to review progress with implementation, and to jointly address new topical themes. The themes to date have been:

12/2007: Information, collecting wishes and ideas on the implementation process
01/2009: From knowledge to action – biological diversity as a responsibility for society as a whole: communication, industry, science and research
05/2010: Designing the Federal Programme for Biological Diversity
09/2011: Kick-off for the UN Decade on Biological Diversity

The 5th National Forum on 5 March 2013 served as the kick-off event for the long-term dialogue and action programme "Unternehmen Biologische Vielfalt 2020" (Enterprise Biological Diversity 2020).

- **Länder forums**

The Länder are indispensable partners in the implementation of the National Strategy on Biological Diversity. At the special conference of environment ministers on biodiversity in May 2008 the Länder stated in the "Declaration of Mainz" their willingness to support the implementation of the National Strategy on Biological Diversity.

The Federal and Regional Working Group on Nature Conservation, Landscape Maintenance and Recreation (LANA) regularly discusses the implementation of the National Strategy on Biological Diversity, and since September 2008 the Joint Water Commission of the Federal States (LAWA) has been concerned with the

implementation of the strategy. Moreover, numerous Länder have drawn up or are preparing their own biodiversity strategies or programmes.

Since 2010, Länder biodiversity forums have been held at six-monthly intervals to foster the sharing of information and experience on biodiversity strategies and programmes at federal and Länder level, consultation on assistance programmes for implementing the NBS, and joint design of the UN Decade on Biological Diversity 2011-2020.

- **Regional forums**

In the period from January to June 2008 a total of seven regional forums were held in various regions of Germany on topics of importance for the National Strategy on Biological Diversity:

01/2008 – Biodiversity and climate change. Region: Lower Saxony and Saxony-Anhalt
03/2008 – Biodiversity in urban areas. Region: North-Rhine/Westphalia
04/2008 – Biodiversity, innovation and nature-friendly economic activities. Region: Baden-Württemberg
04/2008 – Coasts and marine biodiversity. Region: Bremen, Hamburg, Mecklenburg-West Pomerania and Schleswig-Holstein
05/2008 – Biodiversity and wilderness. Region: Bavaria
06/2008 – Biodiversity in rural areas and nature-friendly regional development. Region: Berlin, Brandenburg, Saxony and Thuringia
06/2008 – International dimension of the National Strategy on Biological Diversity. Region: Hesse, Rhineland-Palatinate and Saar.

The series of regional forums has now ended.

- **Dialogue forums**

Dialogue forums for specific actor groups have been held since 2008. This series is continuing. Actor groups currently selected are:

- Nature conservation
- Sustainable use of nature (agriculture and rural areas, forestry, tourism and sport)
- Industry and business
- Science and research
- Public awareness (communication and media, ethics, religious groups).

The aim of the dialogue forums is to hold discussions with specific actor groups about ways and means of implementing targets and measures of the National Strategy on Biological Diversity, to facilitate the establishment of alliances, and to work out concrete steps for implementing targets and measures. The dialogue with industry and business will acquire a new quality with the project "Enterprise Biological Diversity 2020" launched at the fifth national forum on 5 March 2013. This is a dynamic dialogue and working platform that focuses on cooperation between industry and nature conservation and on initiatives by businesses themselves.

- **"Municipalities for Biological Diversity" alliance**

As a result of the dialogue forum "Biological diversity in municipalities", the declaration "Biological diversity in municipalities" was published on 22 May 2010. Since then it has been signed by some 220 cities and municipalities of widely varying size. In it, a sizeable number of municipalities have declared their readiness to pay greater attention in future to conserving biological diversity as the basis for sustainable urban and local development, and to take concrete action to conserve and strengthen biological diversity at local level. The declaration also includes the signatories' declaration of intent to join forces in an alliance for biological diversity. On 1 February

2012, some 60 municipalities established this alliance in the form of an association at the congress on "Biological diversity in municipalities" in Frankfurt am Main. The alliance "Kommunen für biologische Vielfalt e.V." (Municipalities for Biological Diversity) provides a platform for cooperation between municipalities, sharing information and experience, and nationwide dissemination and initiation of good examples of ways to implement the National Strategy on Biological Diversity. Moreover, it is designed to offer committed municipalities an opportunity to jointly explain to the outside world their interest in conserving biodiversity. The Federal Environment Ministry (BMUB) and the Federal Agency for Nature Conservation (BfN) are providing technical and financial support for the start-up phase of the alliance for a period of 4 years as part of a research and development project.

http://www.biologischevielfalt.de/ums_dialog.html

- **Youth congress and dialogue**

In 2010 a dialogue was also started with an important target group – "Youth" – to motivate young people, as the adults of tomorrow, to take an interest in conservation and sustainable use of biological diversity. The youth congress "Youth - Future - Diversity" with 200 young people aged 16 to 25 was held in May 2011. It was based on the experience, wishes and vision of young people who play an active role in the conservation of biological diversity, and initiated a creative exchange of information on activities and projects to date and on young people's visions of how to safeguard biological diversity in the future. The youth congress led on to an ongoing youth dialogue process with its own workshops and dialogue forums.

http://www.jugend-zukunft-vielfalt.de/

2 Organisation of the implementation process within the Federal Government

Within the portfolio of the Federal Environment Ministry (BMUB), the process of implementing the National Strategy on Biological Diversity is organised on a cross-sectional basis and includes all relevant spheres of activity of the BMUB, the Federal Agency for Nature Conservation (BfN) and the Federal Environment Agency (UBA). A central steering committee coordinates and steers the process. It is the interface for implementing the National Strategy on Biological Diversity with other governmental actors (e.g. interministerial working group on implementing the National Strategy on Biological Diversity (IMA NBS)), with joint Federal/Länder working groups, other strategy processes (e.g. National Sustainability Strategy) and the process of implementation and dialogue with non-governmental actors.

The interministerial working group on implementing the National Strategy on Biological Diversity (IMA NBS) was set up to coordinate the work of the ministries. It comprises a total of 11 ministries, lead-managed by the BMUB. The other ministries make sure that the relevant objectives and measures of the National Strategy on Biological Diversity are integrated in the ministry's individual activities. They ensure the implementation of the National Strategy and their own sectoral strategies. They also monitor the execution of the strategy's lighthouse projects that are relevant to them, and propose new lighthouse projects as necessary. It is also the responsibility of the other ministries to initiate implementation processes at Länder and local level and by non-governmental actors, especially where sectoral strategies exist.

3 International Year and UN Decade of Biological Diversity 2010

3.1 International Year of Biological Diversity 2010

The United Nations proclaimed 2010 as the International Year of Biodiversity. The aim was to raise public awareness of "Biological Diversity", draw attention to the importance of diversity and call for sparing and responsible use of natural resources. This goal was supported by federal, regional and local authorities, associations, botanical gardens, zoos, museums, nature parks and many other actors in Germany. Some 1,500 events, covering a wide variety of lectures, workshops, excursions and wilderness camps run by more than 300 different organisers, offered something for everyone: for experts, friends of nature and families with children. The interactive event calendar set up on the internet by the Federal Environment Ministry provided all interested parties with a rapid overview of this broad spectrum of events.

During the International Year, the Federal Ministry of Food and Agriculture (BMEL) sought to raise public awareness of agrobiodiversity by launching the initiative "Conserving and using biological diversity" under the motto "Conserving by using". A large number of events, activities, competitions and other measures were held to inform consumers. These included an experience tour for schools "Diversity on Tour: Mobile education in the Tour Bus" at some 60 locations, a school competition, and the preparation of a "Diversity Map" on the internet.

To mark International Biodiversity Day on 22 May 2010, the Federal Environment Ministry (BMUB) and the Federal Ministry for Economic Cooperation and Development (BMZ), in cooperation with the magazine GEO and other partners, held global action days in 37 countries simultaneously on "Biodiversity and Development". Members of the public from various social groups (e.g. communities, schools, environmental groups, businesses) in each participating country investigated an ecosystem to find out what services it provided for human well-being.

3.2 UN Decade on Biological Diversity 2011-2020

In December 2010, to emphasise the urgent need for a reversal of the trend in global loss of biological diversity, the United Nations proclaimed the ten years from 2011 to 2020 as the UN Decade on Biological Diversity. In terms of content, the Decade is particularly concerned with implementing the Convention on Biological Diversity's Strategic Plan adopted in 2010, with its targets extending to 2020. The UN Decade is intended to mobilise the global public to support the worldwide efforts to achieve these targets.

In Germany the many and various activities relating to the UN Decade are closely linked to the implementation of the National Strategy and also sectoral strategies such as the Agrobiodiversity Strategy. The intensive dialogue with social actors, ministries, Länder and municipalities under the strategy forms the foundation for the activities of the UN Decade, in which the focus is on additional communication measures. The idea is to use the attention that a UN Decade attracts to communicate "biological diversity" to a broad public. Prominent Decade ambassadors and youth ambassadors also contribute to this. Germany is giving shape to the Decade with key topics that are easy for many people to understand and which focus on bringing people into contact with nature and biological diversity. In 2012 the key topic was "Enjoying diversity – Nature time as leisure time", and in 2013/2014 the activities are being run under the heading of "Using diversity – What nature has to offer".

In 2011/12 a nationwide competition for local Decade projects was started, as was a photo competition on biological diversity, and the major exhibition "Wild Wonders of Europe" was shown in Berlin. The UN Decade office is located at the Environmental Communication Centre of the German Federal Foundation for the Environment (DBU). The central information hub is the website

http://www.un-dekade-biologische-vielfalt.de

3.3 International Year of Forests 2011

The United Nations, making reference to the Convention on Biological Diversity, the UN Framework Convention on Climate Change, and the UN Convention to Combat Desertification, declared 2011 as the International Year of Forests. The aim was to show what valuable contributions forests and sustainable forest management could make to sustainable development, poverty alleviation and achieving the internationally agreed development goals, including the millennium development goals. To this end awareness should be raised by concerted and targeted action at all levels to strengthen the sustainable management, conservation and sustainable development of all kinds of forests for the benefit of present and future generations.

This goal was supported by numerous activities run by federal, regional and local authorities, industry, associations, museums, nature parks and many other actors in Germany. Some 6,300 events, covering a wide variety of lectures, workshops, actions, competitions and other events run by more than 1,000 different organisers, offered something for everyone: for experts, friends of nature and families with children. The interactive event calendar set up on the internet by the Federal Ministry of Food and Agriculture (BMEL) provided all interested parties with a rapid overview of this broad spectrum of events.

4 Financial assistance

4.1 Federal Biological Diversity Programme

Since the beginning of 2011 the Federal Environment Ministry has been assisting the implementation of the National Strategy on Biological Diversity under a new assistance programme. The preparation of this programme had been laid down in the coalition agreement for the 17th term of parliament. Relevant stakeholders were involved in developing the federal programme and its key assistance areas. To this end an intensive dialogue process was conducted with numerous groups, including actors from nature conservation, agriculture, representatives of industry, and federal ministries, Länder and local authorities. The assistance arrangements are set out in the BMUB guidelines on assistance for measures under the Federal Biological Diversity Programme of 26 January 2011, as published in the Federal Gazette, No. 25 of 15th February 2011. The assistance programme is not subject to a time limit. The financial plan provided for annual assistance of €15m.

Assistance is available in four key areas:
1. Species for which Germany has a special responsibility
2. Hotspots of biological diversity
3. Safeguarding ecosystem services
4. Further measures of special representative importance for the strategy.

The authority responsible for approval is the Federal Agency for Nature Conservation (BfN), which since December 2011 has supported by a programme office in the project executing agency at the German Aerospace Centre (DLR). Some 155 project outlines were submitted between the start of the programme and the end of 2012. Of these, 26 project outlines are at the first appraisal phase of the two-stage approval procedure or undergoing revision. 87 project outlines were rejected or withdrawn. After positive assessment of the project outlines, 42 projects were invited to submit applications. By the end of December 2012, fifteen of these projects were approved, and nine more project applications are in the hands of the BfN/programme office.

4.2 Research promotion by BMBF/BMUB

In December 2011, the Federal Ministry of Education and Research (BMBF) and the Federal Environment Ministry (BMUB) jointly launched a further initiative to supplement the Federal Biological Diversity Programme, in order to create better links between research and practical measures for the conservation and sustainable use of biological diversity. The announcement of 30 November 2011 about assistance for research projects for implementing the National Strategy on Biological Diversity, which was published in the Federal Gazette, No. 185 of 8 December 2011, is based on the Federal Biological Diversity Programme. On the basis of the four key assistance areas of the federal programme, it sets out important research questions to be tackled in joint projects by researchers and practitioners. The Federal Research Ministry has earmarked some €30 million for such research activities, which are to receive assistance for a period of six years. The Federal Environment Ministry is providing assistance for the practitioners with funds from the Federal Biological Diversity Programme. By 15 April 2012 a total of 97 project outlines had been submitted to the assistance programme. Following appraisal by independent experts, the BMBF and BMUB selected 23 of these project outlines for the preparation of concrete applications.

http://www.pt-dlr-klimaundumwelt.de/en/1042.php

4.3 Further assistance from other ministries

Sustainable Land Management and Ecosystem Services (BMBF)

Demands on land use are very varied and are characterised by different and often conflicting interests. The aim of the research assistance provided by the Federal Ministry of Education and Research (BMBF) is to develop viable solutions that contribute to reconciling the different interests and at the same time conserving biological diversity as a basis for life. Scientists and regional actors work together in the regional projects to develop and implement the relevant knowledge.

The projects carried out in model regions are intended to provide regional actors from local authorities, businesses and politics with the necessary basis of knowledge and facts for making decisions on sustainable land management and appropriate action strategies, technologies and system solutions. The projects in the "Sustainable Land Management" assistance programme started up in 2010.

http://nachhaltiges-landmanagement.de/en/

Conservation and sustainable use of agrobiodiversity (BMEL)

The Federal Ministry of Food and Agriculture (BMEL) considers it has a special responsibility for the conservation and sustainable use of agrobiodiversity and genetic

resources, which among other things provide the basis for agriculture, forestry, fisheries and the food industry. Since 2005, therefore, the BMEL has been assisting model and demonstration projects in the field of food and innovative, sustainable use of biodiversity in agriculture, forestry, fisheries and the food industry, and also inventories and non-scientific surveys in the field of biological diversity. Moreover, the goals of the National Strategy on Biological Diversity are supported by other BMEL programmes, and especially, for example, the "Federal programme for organic farming and other forms of sustainable agriculture" (BÖLN).

http://www.ble.de/DE/03_Forschungsfoerderung/04_BiologischeVielfalt/BiologischeVielfalt_node.html)
http://www.bundesprogramm.de/index.php

5 Communication concept – Publicising biological diversity

Modern, target group oriented communication is of central importance to achieving the biodiversity conservation targets and successfully implementing a strategy as complex and ambitious as the National Strategy on Biological Diversity. The activities of the UN Decade on Biological Diversity in Germany, which are an integral part of the strategy's implementation, are of special importance here. The communication concept adopted for this purpose makes use of the following elements:

- Corporate design with logo and key visuals: This provides a single-glance overview of all elements of importance to the National Strategy on Biological Diversity. Under the heading **life.nature.diversity**, the current subheadings **Strategy**, **Federal Programme**, **Walking Day**, **UN Decade** indicate which element is concerned.
- Internetseite www.biologischevielfalt.de: This is the central barrier-free information hub with all information and documentation relating to the National Strategy on Biological Diversity.
- Brochures and flyers: These, as classic print products, supplement the internet. Great importance is attached here to target group oriented communication, implementation of the latest findings of communication research, closeness to the realities of people's life, and presentation of action options.
- Exhibitions: These can reach very large sections of the population. The BMUB's central event for the UN Decade on Biological Diversity in 2012 was the outdoor exhibition "Wild Wonders of Europe" outside the Central Station in Berlin, which met with very great interest.
- Competitions: These mobilise non-governmental actors and make their main impact felt at local and regional level. In the decade competition which started at the end of 2011, an independent jury makes awards to local projects relating to the UN Decade on Biological Diversity. The first awards for UN Decade projects were presented by Federal Environment Minister Altmaier at the Environment Week on 6 June 2012. In May 2012 a photo competition was announced to accompany the "Wild Wonders of Europe" exhibition.
- Prominent ambassadors and youth ambassadors: For the UN Decade on Biological Diversity, the Federal Environment Minister appointed prominent personalities as Decade ambassadors, and committed and eloquent young people as youth ambassadors. They are to communicate the topic of biological diversity to people who do not know much about it as yet. In a realistic, graphic and authentic manner, the ambassadors present the aspects they are particularly interested in.

- Social media and Web 2.0: Using these media for the under-30 generation in particular is a challenge, and is being tested in the context of the UN Decade on Biological Diversity.

6 Progress with implementation: Key aspects of implementation

This part of the report describes the progress made on implementing the individual topics set out in Section B "Concrete Visions" of the strategy. The strategy contains more than 300 targets. In view of this large number, this report cannot discuss the progress made with implementing every single one of these targets. The section below therefore discusses the progress towards implementing selected individual targets from the various groups of topics covered by the strategy. For each group of topics it also presents an overall summary, which also looks at the implementation of other targets of the strategy.

The selected targets are mainly those which the German Government considers to be of priority importance for the implementation of the strategy, and for which a wide range of activities have already been carried out or set in motion. With few exceptions the Federal Government does not bear sole responsibility for implementing these targets, as they are to a large extent the responsibility of the Länder. Moreover, successful implementation of most targets also involves cooperation between governmental and non-governmental actors.

Some of the selected targets have already been achieved. In other cases there is still a need for action which is described in the overall summaries for the groups of topics. For most groups of topics, examples of measures are provided for illustration in addition to the selected targets. The overview of these measures demonstrates the broad spectrum of actors working to implement the strategy in Germany.

6.1 Conserving biological diversity

6.1.1 Biodiversity

With some 48,000 animal species, Germany is home to about 3.5% of the animal species described worldwide. Vertebrates (fish, amphibians, reptiles, birds and mammals) account for 705 species (approx. 1.2% of global fauna). The total number of plant species in Germany (ferns and flowering plants, mosses and algae) is estimated at some 10,300 species, or about 3% of the plant species described worldwide. Of these, ferns and flowering plants account for 3,865 species (approx. 1.4% of global flora).

Today numerous animal and plant species are endangered, and a number of species have already become extinct at regional or national level. The Red Lists describe the endangerment status of the animal and plant species in our country. They are updated at intervals of about 10 to 15 years. The current Red List dating from 1996, which is still valid, indicates that of the roughly 3,000 species of endemic ferns and flowering plants assessed, 26.8 per cent are endangered and 1.6% extinct or lost. The new Red Lists of vertebrates published in 2009 show that 28 per cent (132 species and

subspecies (taxa)) of the 478 taxa assessed are endangered and 8 per cent (37 taxa) are extinct or lost.

NBS target

By 2020 the endangerment status of the majority of Red List species has been improved by one step.

Numerous measures have been taken in Germany to improve the endangerment status of species. The short-term population trends (last 10 to 25 years) for 99 invertebrate species (25% of the species assessed for which both trends are known) show evidence of a stabilisation of populations (e.g. pine marten, white stork, common wall lizard) compared with the long-term population trends (last 50 to 150 years). An increase in population was found for 44 species (11% of the species assessed), e.g. otter, beaver, sea eagle and crane.

Large predators such as wolf and lynx have become established again in some parts of Germany. Measures to protect old near-natural forests with a large proportion of dead wood and progressive conversion of non-autochthonous monocultures into species-rich mixed forests are having an influence on the existing spectrum of species and creating new opportunities, e.g. for endangered species as well. The implementation of application rules under Section 41 of the Federal Nature Conservation Act (Bundesnaturschutzgesetz – BNatSchG) to prevent birds being injured by electric shocks from medium-voltage overhead lines will also help to further reduce losses of certain endangered bird species in future.

For many animal species, however, the trend is still negative and indicates the need for further action (e.g. aquatic warbler, ruff, fire-bellied toad). For example, the current figure for the indicator "Endangered species", which quantifies the extent of the threat to invertebrates (excluding marine fish), shows that great efforts are still needed in the field of species protection.

In the plant sector, targeted maintenance measures such as contract-based nature conservation (e.g. bush removal, extensive mowing and grazing) have in certain regions resulted in stabilisation of the populations of rough grazing plants such as gentian and orchid species, *arnica montana* or wild daffodil, for example. On a nationwide scale, however, there has not yet been any general easing of the endangerment situation for plants either.

NBS targets

By 2020, species where Germany has a special responsibility for their conservation have achieved populations capable of survival.

Restoring and safeguarding the habitats of species for which Germany bears a special responsibility.

Sections 1 and 37 of the Federal Nature Conservation Act (BNatSchG) require, among other things, that viable populations of wild plants and animals in Germany be conserved. A special responsibility exists for the conservation of species that occur mainly or exclusively in Germany, because the global conservation situation of these species depends on the populations here in Germany. The Federal Agency for Nature Conservation (BfN) has produced a responsibility assessment for a number of groups of animals and for ferns and flowering plants. There is also a need for action, mainly in relation to species that are already endangered.

The German Government has included a key assistance area "Species for which Germany has a special responsibility" in the new Federal Biodiversity Programme. This makes it possible to provide targeted assistance for 40 selected special responsibility species. The measures in this key assistance area are also intended to contribute to the conservation and renaturing of their

habitats, in order to ensure viable populations of these species in the long term. To date 6 projects have been approved in this key assistance area. A further seven projects are in the approval pipeline.

Overall summary

Although in overall terms there is an alarming loss of biological diversity in Germany, a number of species show positive trends which are taken as evidence of the success of conservation measures. With overall trends in the populations of its endemic plants and animals still unsatisfactory, Germany – like all other countries – has failed to achieve the EU's 2010 target of halting the decline in biological diversity. Despite intensive efforts at all political levels, it has not yet proved possible to make sufficient reductions in all adverse effects on species and their habitats in Germany, especially outside the protected areas.

The main causes of the decline in species diversity – which differ by region – are intensive use for agriculture and forestry, landscape fragmentation and urban sprawl, sealing of land surfaces, and inputs of substances (acidifiers or nutrients). On the human settlement front, adverse impacts arise from loss of near-natural areas and village structures due to building and surface sealing. Climate change and land-use changes, especially in the form of land take for human settlement and transport infrastructure – but also as a result of the transformation of the energy supply system – can potentially create new risks. Preventing adverse effects on species diversity as far as possible therefore remains a challenge for the future. At the same time systematic use should also be made of opportunities to promote biological diversity in measures to transform the energy supply system.

6.1.2 Habitat diversity

Preserving the diversity of plant and animals species presupposes that their specific habitats are safeguarded. It is possible to distinguish approximately 690 biotope types in Germany (excluding purely technical or technologically formed biotopes such as roads or buildings). Their actual characteristics vary greatly in terms of size and regional occurrence. Of these, 500 biotope types (72.5%) are classified as endangered according to the Red List of endangered biotope types published by the Federal Agency for Nature Conservation (BfN), and 2 biotope types no longer exist at all. The great majority of biotope types not classified as endangered on present knowledge (including the early warning stage) belong to the group of "types not in need of special protection" (18.8%). Only 6.2 per cent of biotopes worthy of protection were classified as not endangered.

Germany has a special responsibility for certain biotope types (e.g. Wadden Sea biotopes, beech forests), since the main areas of occurrence of these biotope types are in our country.

To permit genetic interchange between populations, animal migration and natural distribution and resettlement processes, there is a need to conserve and develop systems of interlinked biotopes.

NBS target

By 2010, Germany has a representative and functional system of interlinked biotopes covering 10 per cent of its territory. This network lends itself to permanently protecting the habitats of wild species and is an integral component of a European system of interlinked biotopes.

Under the Federal Nature Conservation Act the Länder have an obligation to create a system of interlinked biotopes which is to cover at least 10% of their land area. The biotope network consists of core areas, connecting areas and connecting elements.

During the period 2004 to 2010, the Federal Agency for Nature Conservation (BfN) drew up proposals for a concept and a spatial setting for the cross-border biotope network for the whole of Germany with the aid of various research and development projects awarded by the BMUB/BfN, partly on the basis of biotope mapping by the Länder. The proposals designate land of supra-regional importance for the system of interlinked biotopes, land with a high development potential, and habitat corridors of national and international importance, in each case broken down into forest, wet and dry open country, and aquatic ecosystems. According to these proposals the areas of supra-regional importance for the biotope network should come to about 6.1 per cent of the land area of Germany. Of these, about 57 per cent would already enjoy permanent protection as national parks, nature conservation areas or Habitats Directive areas (approx. 3.5% of Germany's land area). The connecting areas and connecting elements of regional importance are currently being developed by the Länder under their Land planning processes. The federal authorities do not yet have any information about the size of these areas or the legal safeguards envisaged for them.

Under the assistance programme "Opportunities for nature – Federal assistance for nature conservation", and thanks to the transfer of 125,000 hectares of the National Natural Heritage, the federal level can help to safeguard valuable core areas of the national biotope network. The National Natural Heritage comprises federal land of special nature conservation value that is excluded from privatisation and is transferred free of charge to the German Federal Foundation for the Environment (DBU), the Länder or nature conservation organisations to guarantee long-term safeguarding of these areas. The Natural Heritage also includes some 9,000 hectares of the "Green Strip", the former border strip running through Germany.

In February 2012 the German Government adopted the Federal Re-networking Programme, which seeks to minimise fragmentation of habitats by the existing system of federal highways.The aim is to reduce the adverse impacts of federal infrastructure measures on the functioning of habitat corridors.

In addition, the federal authorities are providing assistance for research projects which help people to understand what effects biotope systems have on the conservation of biological diversity, and supporting the ongoing development of the European Green Belt initiative.

NBS target

By 2010, the development of the European Natura 2000 network is complete.

The "Natura 2000" network of protected areas is being built up throughout the EU to implement the Habitats Directive and the Birds Directive. It is designed to conserve and develop habitats and species that are particularly worth conserving, and with 26,000 areas and 18 per cent of the land area of the EU it is the world's largest network of protected areas.

The Natura 2000 areas form the backbone of Germany's network of protected areas. In Germany the notification of areas was completed in October 2009. It comprises nearly 5300 areas and covers about 15.4 per cent of Germany's land area and about 45 per cent of German marine waters. The process of protecting notified Natura 2000 areas is also far advanced. For example, a large proportion of the areas are protected by Land-level ordinance or designated as nature conservation areas.

In the German Exclusive Economic Zone (EEZ, 12-200 nautical miles) of the North Sea and Baltic Sea, the federal authorities are responsible for the Natura 2000 areas. As long ago as May 2004, Germany notified eight Habitats Directive areas and two Birds Directive areas to the European Commission. In September 2005 the Birds Directive areas were designated as nature conservation areas. At the end of 2007 the Habitats Directive areas were recognised by the EU as areas of Community significance, and the nature conservation area ordinances are currently under revision.

NBS target

By 2020 a well-functioning management system for all major protected areas and Natura 2000 areas has been established.

A well functioning management for all major protected areas and notified Natura 2000 areas is an important foundation for safeguarding the habitat diversity typical of the natural region and for conserving and restoring a favourable conservation status. The efforts to conserve and develop protected areas frequently involve restrictions on use. To ensure continued acceptance of nature conservation measures by society, especially among those who own or manage land, there is a need for a well functioning management system drawn up in close cooperation with local users to cater not only for users' interests, but also for those of nature conservation. There is also a need for willingness to compensate, if necessary, for restrictions on use.

Designation and management of the protected areas – with the exception of the protected areas in the EEZ (12-200 nautical miles) – are the responsibility of the federal Länder. Some of them have set up special bodies for this purpose, such as national park administrations or biological stations, or have these tasks performed by the lower or upper higher nature conservation authorities. To some extent other management bodies, such as forestry or agricultural agencies, are involved in the management of protected areas.

In the period up to 2010 the federal authorities, as part of a research and development project, drew up and adopted suitable methods, standards, quality criteria and indicators for the assessment of protected area management in the national natural landscapes (=major protected areas: national parks, biosphere reserves and nature parks). By 2011 area management plans existed for the majority of Germany's national parks and biosphere reserves. Management quality audits have been performed in all 14 national parks (voluntary evaluation by EUROPARC Germany), all 15 UNESCO biosphere reserves (evaluation by the German MAB National Committee) and 82 of the 104 nature parks (evaluation under the quality offensive run by the Association of Nature Parks (VDN)). Development work is currently in progress on the model introduction of long-term monitoring systems for verifying target achievement in major protected areas.

Management or maintenance and development plans also exist for many of the more than 5000 Natura 2000 areas, and others are in preparation. The necessary maintenance and development measures are being implemented in many areas, e.g. as part of agro-environmental measures.

The ten Natura 2000 areas in the EEZ are managed by the federal authorities. Management plans setting out the necessary conservation measures are currently being drawn up for these areas.

Overall summary

The National Strategy on Biological Diversity includes a vision of the future which ensures long-term conservation of a diversity of habitats characteristic of the individual regions. In this vision, the habitats and their communities are integrated in a functioning ecological network and have a favourable conservation status. We have

already come a long way towards this goal. The designation of protected areas, which continues to be a very important instrument for conserving endangered and high-value habitats, has made further progress, as shown by the "Area protection" indicator. The increase in the area covered by strictly protected areas correlates with the protection of Natura 2000 areas, which form the backbone of Germany's network of protected areas. Following the completion of the notification procedure, a large proportion of these areas have been designated as nature conservation areas, and the Länder are preparing further protection procedures for notified areas. However, more efforts are still needed to halt the decline in endangered habitat types, significantly improve their status and create a representative and functioning system of interlinked biotopes.

For the German Natura 2000 areas in marine waters it is crucial that fishery activities be designed to be compatible with the protection objectives in these areas. Protected area ordinances and appropriate management plans are under development for the Natura 2000 areas in the Exclusive Economic Zone.

To achieve a significant improvement in the conservation status of all Habitats Directive habitat types, there is a general need to continue the process of management planning and implementation for Natura 2000, while taking account of specific concerns and findings from scientific and practical sources.

Appropriate plans must also be drawn up for those areas of the national natural landscapes (national parks, nature parks and biosphere reserves) which do not yet have area management plans.

The Länder have started to establish a representative and functioning system of interlinked biotopes. To this end the BMUB/BfN have put forward proposals in the sectoral concept which was presented in 2010 for a cross-border system of interlinked biotopes. In the years ahead, the Federal Re-networking Programme, which will have to be carried out with the cooperation of the Länder, municipalities and associations, and which needs to take account of specific scientific and practical concerns and findings in order to ensure acceptance, will be a step towards the establishment of a functioning system of interlinked biotopes.

6.1.3 Genetic diversity

The greater the natural genetic diversity within individual species, the better their prospects of adapting to changing environmental conditions and surviving. This intra-species variation is therefore of crucial importance, especially in view of the climate change that is already in progress. Intra-species variation is also essential for conserving potential uses in pharmacy, agriculture or plant breeding.

The genetic diversity of cultivated plants and domestic animals, as reflected in the great diversity of animal breeds and plant varieties in use, is the basis for preserving future use options and opportunities for adapting to changing conditions and consumer wishes. This means that intra-species variation is also of great importance in dealing with global challenges such as food security or climate change.

NBS target

The natural genetic diversity of the wild populations is protected from harmful effects due to invasive alien species and breeding varieties.

In order to achieve this target, the joint working group of the federal and Länder authorities and associations on "Region-specific trees and shrubs" drew up recommendations for nationwide implementation of the provisions of Section 40(4) of the Federal Nature Conservation Act (BNatSchG). This consensus was published as "Guidelines for using region-specific trees and shrubs", to ensure a high level of awareness in the relevant bodies and operating units. The aim is to achieve a substantial increase in the availability of region-specific varieties in tree nurseries.

NBS target

Regionally adapted crop varieties threatened by genetic erosion, so-called farmyard and field varieties, and endangered livestock species have been safeguarded by in-situ or on-farm and ex-situ conservation.

As long ago as 2008 the introduction of assistance for the "conservation of genetic resources in agriculture" in the "Joint agreement on improving agricultural structures and coastal protection" made a major contribution to achieving this target of the National Strategy on Biological Diversity.

Moreover, the Federal Ministry of Food and Agriculture (BMEL) makes €2 million available every year for model and demonstration projects, to support the development and implementation of innovative concepts of model character and reduce deficits in the conservation and use of genetic resources.

The BMEL also provides a further €1.5 million per annum for inventories, surveys and similar activities in the field of biological diversity. The aim is to register, inventorise and document genetic resources, monitor population trends and draw up other basic information. Among other things, this supports the creation and reinforcement of conservation infrastructures and networks.

Considerable progress has also been made in recent years with safeguarding and expanding ex-situ conservation structures. In addition to the "German Gene Bank for Agricultural and Horticultural Cultivated Plants at the Leibniz Institute of Plant Genetics and Crop Plant Research", which is one the oldest and most important ex-situ collections in the world, the "German Gene Bank for Fruit" and the "German Gene Bank for Ornamental Plants" were founded in 2009 and the German Gene Bank for Vines in 2012. The "German Gene Bank for Agricultural Animals" is under construction. To facilitate the use and marketing of seed and propagating material of varieties that seem worth conserving as a genetic resource, the Conservation Varieties Ordinance (Erhaltungssortenverordnung) was enacted in 2009 (Ordinance on the approval of conservation varieties and the marketing of seed and propagating material of conservation varieties).

NBS target

Prevent the genetic diversity of wild fauna and flora from being adulterated by the introduction and propagation of non-endemic animal and plant species

Section 40 of the Federal Nature Conservation Act (BNatSchG) sets out rules for dealing with alien and invasive species to prevent biotopes and naturally occurring species from being threatened by invasive alien species. For example, the introduction of alien species into nature requires approval under Section 40(4) BNatSchG. This excludes the cultivation of plants in agriculture and forestry. The act also sets out observation and control requirements for invasive alien species. The control measures do not apply to plants grown in the agricultural and forestry sectors.

The Federal Agency for Nature Conservation (BfN) draws up lists which assess the potential threat arising from alien species in the various groups of species and which can be used as aids to implementing Section 40 BNatSchG in the Länder.

To promote the use of region-specific seed, the relevant legal basis for conserving the natural environment was created by Commission Directive 2010/60/EU of 30 August 2010, with exceptions for the marketing of fodder crop seed blends. The directive makes it easier to market seed that contributes to conserving plant genetic resources. It was transposed into national law by the Ordinance on the marketing of conservation mixture seed (Erhaltungsmischungverordnung) of 6 December 2011. This means that seed of the wild forms of grasses and herbs, provided they are covered by the Seed Trading Act (Saatgutverkehrsgesetz – SaatG), may now be offered for sale and marketed in conservation mixtures. This had not been possible previously, as seed of the species covered by the Seed Trading Act could only be marketed if the relevant plant variety had received approval.

The American Bullfrog (Rana catesbeiana) is one of the most problematic invasive amphibians in Central Europe. It has no natural enemies and is able to rapidly displace endemic species of toad and decimate small fry and young fish. In the past it has been introduced in various places, including the Rhine flood plain. The nature conservation authorities of the relevant Länder took concentrated control measures at an early stage in the spread of the species and succeeded in warding off the invasion.

Since 2007, as a contribution to controlling the invasive alien species "Ambrosia", the Julius Kühn Institute has established the Ambrosia Action Programme, which sets out to inform local authorities and the public about the threat presented by Ambrosia and to prevent it spreading any further. Existing occurrences are to be reduced. Ambrosia has impacts on human health and other harmful effects on cultivated plants and the natural regime.

Overall summary

The German Government has already made considerable efforts to safeguard the genetic diversity of wild populations and of endangered cultivated plant varieties and domestic animal breeds, and these are beginning to show results. The approaches vary considerably: The legal basis for the use of propagating materials and seed of region-specific origin has been substantially improved and practical recommendations for its implementation have been drawn up. The range of certified tree nursery material and regional seed available currently shows a positive trend. There has been an overall increase in the number of invitations to tender that explicitly specify seed and propagating material of region-specific origin.

To conserve genetic resources in agriculture, eligibility principles were created in the "Joint agreement on improving agricultural structures and coastal protection", and in the BMEL budget. Targeted expansion of ex-situ conservation structures has taken place in line with the requirements of the Agrobiodiversity Strategy and the national sectoral programmes.

However, the introduction of alien and invasive species continues to be a problem as a result of the increase in passenger and freight traffic and the impacts of climate change. Accordingly, major improvements were made to the legal basis in the Federal Nature Conservation Act in 2009, and observation and control requirements were created for newly occurring organisms. Invasive alien species that have harmful effects on plants are also covered by plant protection legislation, and are subject to international coverage under the International Plant Protection Convention (IPPC). Suitable measures exist at EU level in the field of phytosanitary rules and need to be given more precise form.

Here there is a need for a pan-European approach to potentially invasive species, to prevent further introduction of dangerous organisms and/or permit control at an early

stage, unless concrete steps are taken, for example, on the basis of the phytosanitary rules during the forthcoming restructuring of plant protection legislation at EU level.

http://www.bmub.bund.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/leitfaden_gehoelze_bf.pdf
http://www.genres.de/en/agrobiodiversity/

6.1.4 Individual habitats

6.1.4.1. Forests

Forests are an important habitat for many rare, endangered and protected animal and plant species. At the same time they are also valuable carbon sinks, recreation areas and a significant source of raw materials.

Without human influence, Germany today would largely be covered by deciduous forest. Heavy clearance and overuse have substantially reduced and seriously degraded the areas under forest, especially from the Middle Ages to the 19th century.

With the introduction of sustainable forestry combined with strict legislation on forests, there has since been a marked increase in the area under forest in Germany. About 77 per cent of the forests in Germany stand on land which has been continuously under forest for at least 200 years.

Today about one third of Germany's land area (11.1 million ha) consists of forest. However, in view of Germany's settlement history, its high population density and the use of the forests down the centuries, there are hardly any primeval forests left in Germany. Forest stands exposed to little human influence only exist in fragments. They can be found particularly in natural forest reserves and in core zones of national parks and biosphere reserves.

The greater part of our forests is characterised by forestry uses. Compared with other forms of land use, forest management is extensive, which supports the conservation and development of forest-typical biological diversity.

On the whole, the ecological status of forest stands in Germany has improved in recent decades, mainly as a result of near-natural forest management, increased conversion of spruce monocultures to mixed deciduous forest, and targeted assistance measures (e.g. contract-based nature conservation). This has also been supported by a growing understanding of ecosystem relationships and increasing awareness of the importance of biological diversity among politicians, forest owners and the public.

NBS target

By 2020 the conditions for typical forest communities have improved (diversity of structure and dynamics). Rejuvenation of the trees and shrubs in the natural forest community is largely natural. Natural processes for strengthening ecological functions are being used under near-natural management forms. Mature timber and dead wood are present in adequate quantity.

In recent decades Germany has made successful progress with establishing varied and stable mixed forests with tree species endemic to the location. This is to be systematically continued, especially since such stands can adapt better to climate change than large-scale coniferous

monocultures. Although the share of conifers in old stands is still around 62 per cent, in new stands it is only about 29 per cent. About 80 per cent of young stands are the result of natural rejuvenation. The proportion of dead wood, an indicator of the nature conservation quality of forests, has increased by 19 per cent to 14.7 m3/ha in the last six years – with the aid of dead wood programmes for targeted biotope and habitat maintenance.

On 25 June 2011 the UNESCO World Heritage Committee entered five beech forest areas in Germany in the World Heritage list. These comprise selected forest areas of the national parks Hainich in Thuringia, Kellerwald-Edersee in Hesse, Jasmund and Müritz in Mecklenburg/Western Pomerania and the Grumsin forest area in the Schorfheide-Chorin biosphere reserve in Brandenburg. They represent the most valuable relicts of Germany's extensive near-natural beech forests. The World Heritage status means great recognition for conservation efforts to date and places us under an obligation to continue giving top priority to conserving these valuable beech forests as remains of natural forest.

NBS target

Certification of 80% of forest area to high ecological standards by 2010

Certification is a voluntary undertaking on the part of forestry operations to go beyond the minimum legal requirements and comply with additional minimum standards in environmental, economic and social fields. This system of market-based incentives promotes demand for sustainably produced timber and supports sustainably forestry, including the conservation of biological diversity.

In Germany there are currently three certification systems that play a part in forest management: PEFC (Programme for the Endorsement of Forest Certification Schemes), FSC (Forest Stewardship Council) and "Naturland". As shown by the "Sustainably forestry" indicator, at the end of 2011 some 70% of Germany's forest area was certified under PEFC and about 5% under FSC (incl. approx. 0.5% Naturland). The total figure is close to the target figure of 80 per cent.

The German government has set a positive example here. Since 2007 it has only procured timber products from stands that are certified under PEFC, FSC or comparable certification systems, or which furnish individual evidence of compliance with comparable standards. This rule has been adopted by several Länder, numerous cities and municipalities, and individual companies.

Overall summary

When it comes to the conservation and development of forests as habitats for animal and plant species, the German forestry sector has many synergies with the goals of nature conservation, especially if the principles of near-natural forest management are observed. As a rule, measures to conserve and protect biological diversity are integrated in forest use, in other words there is basically no division into 100% economic forests and 100% protected forests. Examples of exceptions are the core zones of national parks and biosphere reserves, which also include the forests of European beech recently recognised as World Natural Heritage sites. The existing mosaic of near-natural economic forests with their embedded nature conservation, Habitats Directive and Birds Directive areas, statutorily protected biotopes (under Section 30 BNatSchG) and deliberately preserved special structures (e.g. habitat groups and old tree groups, dead wood etc.) offers – in conjunction with unused forest areas (e.g. in national parks) – a wide variety of habitats, connecting elements, and special habitats and refuges for endangered and rare plant and animal species.

The Forest Strategy 2020 envisages further improvements in the already high level of biological diversity in forests in line with the targets of the National Strategy on

Biological Diversity, e.g. by leaving areas unmanaged, increasing the percentage of dead wood, creating more small cells of natural forest, and implementing and networking Natura 2000 areas in forests. Forests owned by the public sector, and especially state forests, can play a model role here.

In recent years a total of around 100,000 hectares of federal land have been transferred to the Länder and nature conservation associations and foundations as National Natural Heritage. Preparations have been made for transferring a further 25,000 hectares. Two thirds of the natural heritage areas consist of forest.

No precise figures are yet available on the percentage area with natural forest development. It is therefore impossible at present to state the extent to which the target in the National Strategy on Biological Diversity of increasing the percentage of forests with natural forest development to 5 per cent has been achieved. A research and development project commissioned by the BMUB/BfN in 2010 is to provide more information on this point.

The proportion of forest areas certified to high ecological standards (PEFC, FSC) has steadily grown. What matters now is to raise public awareness of the importance of certified forest stands. On the basis of this awareness, measures can be taken to win people's trust in the certificates in order to encourage responsible buying of timber and timber products and thereby increase demand for certified timber.

6.1.4.2. Coasts and seas

Despite the size of the seas, their resources are limited, as is their capacity to absorb human influences. Increasing use of the seas, climate change and land-based pollution have already caused major changes in the natural dynamics and the status of the ecosystems in our seas. These factors also present threats to the diversity of species and habitats. According to the 2006 Red List of endangered biotope types, 133 of the 153 marine biotope types in the German North Sea and Baltic Sea (87%) are endangered to a greater or lesser extent. When it comes to the management of stocks, a large number of commercially used fish stocks are found to have been overfished for many years. The yardstick here is the "maximum sustainable yield" (MSY), i.e. the quantity of fish that can be caught on a long-term basis without endangering the fish populations.

In 2012 an assessment of the stock situation in the North-East Atlantic was only possible for about 35 per cent of stocks. This low percentage applies to the whole of Europe. In most cases this is due to lack of catch information, incomplete surveys or faulty sampling.

Of the 38 stocks that it was possible to assess in the North East Atlantic and adjacent waters in 2012, the International Council for the Exploration of the Sea (ICES) rated 18 as overfished, and the remaining 20 as sustainably fished. This means the positive trend of recent years in the North East Atlantic has been maintained: in the third of stocks that were assessed, the share of non-sustainably fished stocks fell from 94% (2005) to 47% (2012).

In the Baltic Sea, according to the Johann Heinrich von Thünen Institute (vTI), 4 out of 14 known commercially used fish stocks were overfished, 5 stocks were sustainably fished, and no assessment was possible for 5 stocks. In the Mediterranean Sea, some 80 per cent of stocks are overfished.

NBS target

By 2015 the sturgeon and other marine species that have become extinct in Germany are once again present

The last sturgeon population existed in the Eider until 1969. Since then, sturgeons have been regarded as extinct or lost in German waters. The causes are pollution, obstruction of waters, and drastic overfishing.

A lighthouse project to reintroduce the sturgeon is in progress and showing first signs of success.

Other German efforts in an international context focus on re-establishing the dogfish and mackerel shark populations in the North Sea and supporting stocks of the basking shark in EU waters. This is an area where success can only be achieved in close cooperation with the EU and other countries. Under CITES and the Bonn Convention (CMS), Germany has supported the conservation of the species mentioned above, and in November 2011 it acceded to the Memorandum of Understanding (MoU) on Sharks. This is an instrument agreed under the CMS for the conservation of seven species of shark, including the three mentioned above. At the meeting of the signatory states in Bonn in September 2012, an action plan was adopted for the conservation and stock management of the species in question.

Overall summary

Marine ecosystems are exposed to growing pressures as a result of increasing use of the seas, land-based pollution and climate change. Both the HELCOM Baltic Sea Action Plan (BSAP) of 2007 and the Strategy for 2010-2020 of the OSPAR Commission for the protection of the marine environment of the North-East Atlantic confirm the polluter-pays principle and the precautionary principle as fundamental requirements for cooperation to protect the marine environment in the relevant regions.

With regard to the NBS target of achieving good environmental status for marine waters by 2021, substantial progress has already been achieved in the North Sea and Baltic Sea on reducing inputs of nutrients and hazardous substances. There has also been a reduction in pollution resulting from gas and oil production. Despite the input reductions already achieved, however, it is still not possible to give the "all clear" with regard to pollutant loads and impacts. In future greater attention is also to be paid to preventing oil pollution from exploration wells.

In 2010 the Baltic Sea region was the first marine region worldwide to succeed in achieving the target laid down by the Convention on Biological Diversity of designating at least 10% of the sea area as marine protected areas. In the same year the members of the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR) designated the world's first network of protected areas on the high seas in the North-East Atlantic.

Further progress has also been made with implementing integrated coastal zone management (ICZM) since the adoption of the National ICZM Strategy in 2006. The aim of ICZM is to help develop and maintain the coastal region as an ecologically intact and economically flourishing habitat. A wide variety of activities undertaken in the coastal Länder and at federal level show that applying the ICZM approach to concrete plans or projects can help to avoid, reduce or find unbureaucratic solutions to conflicts by means of timely informal participation (National ICZM Report of March 2011).

A major challenge for the future is the NBS target of achieving a significant improvement in conservation status by 2020 for all species and habitats in the marine and coastal region. This also depends to a very large extent on what form fisheries take in the future. As yet there has not been sufficient success with organising fisheries

on a sustainable and ecosystem-friendly basis, something which – according to the strategy – should have been achieved by the end of 2010.

The existing practice of overfishing must be halted. With this end in view, the EU has adopted multi-year management plans ("restocking plans") and is implementing them with the member states. This should reduce fishery-induced mortality for all stocks sufficiently to keep the stocks above the level needed to permit the maximum sustainable yield (MSY). In the interests of ecosystem-friendly fisheries, there is also a need to drastically reduce by-catches of bottom-dwelling species, sea birds and marine mammals, minimise discards and develop alternatives to existing environmentally harmful fishing techniques.

It is also necessary to draw up spatially structured use concepts. The intensively used coastal seas in particular can no longer be regarded as genuine natural spaces. Zoning into various use and protection areas on the basis of a sound scientific foundation is indispensable, on similar lines to terrestrial spatial planning. The development of a sustainable and ecosystem-friendly fisheries management system also plays an important role. The latter applies especially to the Natura 2000 areas in marine and coastal waters, for which a fisheries management system geared to the protection objectives needs to be developed. In view of the EU's exclusive competence for fisheries, the necessary fishing restrictions can only be decided at European level. The Federal Environment Ministry (BMUB) and the Federal Ministry of Food and Agriculture (BMEL) are currently working on a joint submission to the Commission.

In future the implementation of the Marine Strategy Framework Directive (MFSD) will make a major contribution to achieving the NBS targets, as its overarching objective is to achieve good status for the marine environment by 2020.

http://www.helcom.fi/baltic-sea-action-plan

http://www.ospar.org/html_documents/ospar/html/10-03e_nea_environment_strategy.pdf#BDC

http://www.ikzm-strategie.de/

6.1.4.3. Lakes, ponds and pools

Lakes, ponds and pools including their littoral and silting-up zones are valuable areas for species and biotope conservation. Large bodies of still water are also important for fisheries and recreation uses. They also play an important role in supra-regional bird migration as resting and breeding places. Good water quality is an important requirement for performing these different functions.

The EU Water Framework Directive (WFD) basically aims to achieve good ecological and chemical status in all bodies of water by 2015. For bodies of still water, like lakes or ponds, good ecological and chemical status means that limit values for certain pollutants must be complied with and, above all, that the animal and plant communities living in these waters display the diversity and frequency typical of such water bodies. The Directive permits extensions of the deadline for achieving these targets until 2027 at the latest, and also other exceptions. All EU states have taken advantage of this, including Germany.

NBS target

At least good ecological and chemical status (WFD) has been achieved by 2015, and the conservation status of Natura 2000 areas is significantly improved.

In Germany, the chemical status of 92 per cent of lakes is good according to the Water Framework Directive. By contrast, only 39 per cent of lakes have a good or very good ecological status. It is now the task of the Länder to take suitable measures to improve ecological status in particular, as they are responsible for the practical implementation of this directive. For still waters in the Schlei-Trave river basin in Schleswig-Holstein, for example, there are plans to take action to improve habitats along the banks, e.g. by developing suitable woody shrubs, or to reduce diffuse pollution by nutrient inputs, especially from agriculture, e.g. by extensifying agriculture on land close these waters.

Many bodies of water in Germany at the same time wholly or partially form part of Natura 2000 areas. Improving their status thus helps to protect and conserve these areas.

Overall summary

In the past 25 years, pollutant levels in lakes have been steadily reduced, with the result that today as many as 92 per cent of lakes have a good chemical status. In future special attention has to be paid to ecological status, which still needs improving in 61 per cent of lakes to achieve the quality target of the Water Framework Directive. To this end it is necessary to reduce diffuse nutrient inputs from agriculture in particular, and also to make further improvements in bank structures and control recreation uses in shore zones.

6.1.4.4. Rivers and water meadows

Flowing waters and water meadows are the life blood of our landscape. Their natural diversity and dynamics make them into centres of biodiversity. In the past, however, people have made extensive encroachments on the structure of rivers and streams, e.g. by shortening them and reinforcing their banks, cutting off water meadows from their rivers and using them for agricultural purposes. This means the rivers no longer have the space they need, and their function as habitats or for flood water retention is severely restricted. Barriers in rivers and streams, such as locks for shipping or weirs for generating hydro power, form obstacles to migration for many aquatic organisms, e.g. migratory fish such as salmon or eel. 31 per cent of the length of rivers and streams in Germany is classified as heavily modified as a result of use-induced structural remodelling and 10 per cent the total length consists of artificial waters, especially canals.

NBS target

According to the requirements of the WFD, good ecological and chemical status or good ecological potential are to be achieved in rivers by 2015, and ecological continuity is to be restored.

For bodies of still water, like lakes or ponds, good ecological and chemical status means that limit values for certain pollutants must be complied with and, above all, that the animal and plant communities living in these waters display the diversity and frequency typical of such water bodies. Some 88 per cent of rivers in Germany already have a good chemical status. But only 8 per cent of rivers have a good or very good ecological status.

It is now the task of the Länder to take suitable measures to improve the status of the bodies of water, as they are responsible for implementing the Water Framework Directive. Their measures make a major contribution to improving the status of water bodies.

Restoring continuity plays an especially important part in the Länder programmes of measures, so that migratory fish in particular can once again reach their former spawning and breeding habitats. Baden-Württemberg, for example, has taken numerous measures in the Rhine tributaries, e.g. to protect migratory fish from hydro power installations. Moreover, salmon stocking measures have been and still are being taken in the Rhine catchment area. The first results of these measures are making themselves felt. In November 2011, for example, several salmon measuring over one metre were sighted in the Kinzig, and in December 2011 salmon spawning grounds were found again in the Murg after a gap of nearly 90 years. Other Länder, such as Rhineland-Palatinate and North-Rhine/Westphalia, can also report similar positive trends in the tributaries to the Rhine.

By the end of 2012 some 539 individual measures under the WFD were carried out in the rivers and streams of the Bavarian Danube river basin to improve biological continuity; and a further 200 individual measures were being planned or implemented at that time. This work is based on the "Prioritisation concept for biological continuity for fish in Bavaria", which identifies the stretches of river and transverse structures where priority should be given to improving ecological continuity.

The Federal Waterways and Shipping Directorate (WSV) is responsible for maintaining and restoring the ecological continuity of the dam structures it operates on federal waterways, as required by the objectives of the Water Framework Directive. In February 2012 the Federal Ministry of Transport, Building and Urban Development (BMVBS) published the Prioritisation concept "Continuity of federal waterways", which it had drawn up jointly with the Federal Institute of Hydrology (Bundesanstalt für Gewässerkunde – BfG) and the Federal Institute for Hydraulic Engineering (Bundesanstalt für Wasserbau – BAW), and which had been agreed in advance with the Federal Environment Ministry (BMUB) and the Länder. Measures to create continuity and ensure ecological bank design for main rivers and also, in conjunction with Länder measures, in tributaries are creating a sound basis for river basin wide re-networking of habitats. Progress reviews of measures implemented show progress with recolonisation of federal waterways. For example, salmon have been sighted several times since 2012 in the fish transfer facility on the Mosel in Koblenz.

NBS target

By 2015, adapt agricultural use in water meadow areas subject to erosion and restrict application of fertilisers and pesticides in the HQ 100 zone, to avoid substantial adverse impacts on water bodies

This target is also aimed at restoring or maintaining good ecological status in surface waters in accordance with the WFD. The management plans and programmes of measures put forward jointly in 2009 by the Länder and river basin associations to implement the WFD during the first management period (2009 to 2015) include appropriate measures restricting the application of fertiliser and pesticides. Some of these measures are offered by the Länder as voluntary agro-environmental measures (assistance programmes for the agricultural sector). Such agro-environmental measures can be co-financed with EU funds under the Second Pillar of the Common Agricultural Policy (European Agricultural Fund for Rural Development – EAFRD), and to some extent at national level through the Joint Agreement on improving agricultural structures and coastal protection (GAK). They can be claimed by farmers in water meadows and in the zone where –statistically – a flood event occurs every 100 years (HQ 100).

To ensure site-appropriate management, the requirements of good practice in Section 5 of the Federal Nature Conservation Act are given more concrete shape in the Federal Soil Protection Act (Bundesbodenschutzgesetz) and the sectoral legislation on agriculture. For example, ploughing of pasture on erosion-risk slopes is prohibited, and agricultural, forestry and horticultural operations must keep a record of the application of fertilisers and pesticides to the relevant land in accordance with the legislation for the agricultural sector. Where ploughing of

pasture is concerned, it is clear that the growing shortage of land is increasing pressure on hitherto extensively farmed land in the individual Länder despite the existence of bans on ploughing up pasture.

In the field of EU agricultural payments, farmers are required under the cross compliance rules to maintain farmland in "good environmental and agricultural condition" (GAEC) if they want to receive the full amount of income support under the Common Agricultural Policy. In Germany the GAEC obligations are regulated in the Direct Payments Obligation Ordinance. The standards laid down also include standards designed to reduce soil erosion, maintain the humus content of the soil, and conserve water bodies. Since 01.07.2010 the erosion control measures to be complied with have been based on the erosion risk levels of the individual areas of arable land. To this end the Länder divide the farmland into certain wind and water erosion classes, which are subject to special management conditions. Compliance with the requirements is verified by systematic on-site checks by the competent supervisory authorities on at least 1 per cent of farmers who have submitted an application for payments subject to cross compliance.

NBS target

Nationwide registration of the ecological status of water meadows under a national water meadow programme by 2009

On 5 October 2009, as a result of the national water meadows research programme, the Federal Environment Ministry and the Federal Agency for Nature Conservation presented a water meadows status report for Germany. This was the first nationwide overview of the loss of flood areas and the status of 79 water meadows in Germany: two thirds of former flood areas along Germany's rivers have already been taken over for other kinds of use. Along the Rhine, Elbe, Danube and Oder, the construction of flood control dykes has left many sections with only 10 to 20 per cent of the original water meadows. What is more, only 10 per cent of the water meadows that still exist in Germany are in a near-natural condition. Ninety per cent of the water meadows are substantially to heavily modified as a result of intensive use, hydraulic engineering work and lack of flooding.

The water meadows status report provides an important foundation of data for improving water meadow conservation and flood control in Germany. It shows that, given forward-looking cross-sectoral planning, sustainable development of water meadows gives rise to substantial synergies in flood control and water and nature conservation, and in adapting to climate change. The water meadows status report 2009 offers a comprehensive basis of data for prioritising projects and drawing up detailed specifications. The GIS-based dataset is published on the website of the Federal Agency for Nature Conservation under the map service "River meadows in Germany".

Overall summary

In recent decades there have been marked improvements in the water quality of many rivers and streams, especially as a result of the increasing use of sewage treatment plants for wastewater purification. However, contamination with organic pollutants is still too high in some cases. Nutrient inputs from the agricultural sector have not been reduced as much as necessary.

With the advent of the WFD, there is now a greater focus on ecological status in rivers as well. Action is needed to improve the ecological status of more than 90 per cent of rivers. The main reasons for this lie in the far-reaching changes in river structure as a result of bank redevelopment and transverse structures, and also excessive nutrient loads.

With the participation of the relevant stakeholder groups and a broad public, the management plans and programme of measures required under the WFD were prepared on time for the ten river basins relevant to Germany (Danube, Rhine, Maas, Ems, Weser, Elbe, Eider, Oder, Schlei/Trave, Warnow/Peene). Germany was thus one

of the few countries that succeeded in meeting the deadline. The plans and programmes will be reviewed at 6-yearly intervals and revised if necessary. Management plans for international river basins have been drawn up in the international river basin commissions, e.g. for Rhine and Danube, with the participation of the Federal Environment Ministry and the German Länder concerned, and also the Federal Waterways and Shipping Directorate, which is responsible for federal waterways.

The German Government and many Länder have launched programmes of their own to finance measures for near-natural development of rivers and water meadows. A survey commissioned by the Federal Agency for Nature Conservation is currently in progress to investigate what improvements in water meadow status have been achieved by renaturing projects to date. There are signs of a clear trend towards improved water meadow status. Extensive measures are nevertheless necessary to achieve the WFD and Habitats Directive targets for rivers.

http://www.bmub.bund.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/auenzustandsbericht_bf.pdf
http://www.bmvi.de//cae/servlet/contentblob/79908/publicationFile/52988/erlaeuterungsbericht-durchgaengigkeit.pdf

6.1.4.5. Peatlands

Peatlands are habitats containing numerous rare and endangered species which are particularly well adapted to the living conditions prevailing here (e.g. cotton grass, orchids, sundew, sphagnum). This means they make a special contribution to biological diversity. They also retain water in the landscape, have a positive influence on the micro climate and are important carbon sinks. If peatlands are used for agriculture or peat production, this may release CO2 and/or CH4 depending on the soil conditions and the presence or absence of air. Preserving intact peatlands is in the interests of nature conservation and also of climate protection, since it helps to minimise greenhouse gas emissions.

NBS target

Natural upland moors still in existence today are safeguarded by 2010 and are developing naturally

The majority of peatlands in Germany, especially in the North German plain, were systematically drained in the 19th and early 20th century for agricultural and settlement purposes. This reduced the area of intact upland moors, for example, by more than 95 per cent. The upland moors that still exist are protected, for example, under Section 30 of the Federal Nature Conservation Act (BNatSchG) and the Habitats Directive (see NBS target for Natura 2000). In the course of the Habitats Directive notification procedure, complete integration in the Natura 2000 regional setting has been achieved for all naturally growing upland moors still in existence in Germany. As Natura 2000 areas they are subject to a ban on deterioration and are thus safeguarded in their present condition. The Länder are called upon to take action to conserve and improve their conservation status, e.g. in connection with legal safeguards for the areas or the preparation of management plans.

Overall summary

The Länder Bayern, Baden-Württemberg, Brandenburg, Mecklenburg/Western Pomerania and Lower Saxony, where there are considerable areas of renaturable upland moors and extensively used lowland moors, have peatland conservation strategies in place or under consideration. Implementing such strategies generally requires comprehensive measures that have economic impacts. This is also one reason why NBS targets for lowland moors – such as reducing peat depletion in lowland moors capable of regeneration, or bringing about natural development on 10 per cent of lowland moors currently under extensive use – have not yet been achieved.
To ensure sustainable conservation of nutrient-poor upland moors, there is a need for further reductions in substance inputs via the airborne pathway.

The federal authorities support the Länder in their task of regenerating or renaturing peatlands, e.g. through the federal nature conservation assistance programme "chance.natur", which has been in existence since 1979 (annual volume: €14 million). Of the 32 major nature conservation projects currently in progress under this programme, seven focus on peatland habitats.
The efforts to reduce greenhouse gas emissions could open up new perspectives for the protection of upland moors, lowland moors and moorland soils. Moreover, initial investigations by the Federal Agency for Nature Conservation indicate that rehydrating peatlands costs the same as or even less than technical CO_2 reduction measures and also has benefits for the specialised peatland flora and fauna.

6.1.4.6. Mountains

The Alps are one of the largest contiguous natural regions in Europe. Many species do not occur anywhere else but here. Sustainable management, in many cases based on tried-and-tested methods that have evolved down the centuries, preserves the special regional and cultural features and contributes to the great diversity of habitats and species.

The Alpine region with its sensitive mountain areas and the highest parts of the central uplands are particularly sensitive to encroachments on the natural regime. Some 54% of typical Alpine biotope types in Germany are already endangered or at risk of complete destruction. Tourist, agricultural and forestry uses and infrastructure development need to take special account of this situation.

NBS targets

Development of an overall strategy for natural re-immigration and re-establishment of major predators

Gaining acceptance of large predators such as wolf, bear, lynx and vulture by 2015 by means of targeted and target group specific communication and information

By the mid-19th century the major predators in Germany had been increasingly pushed back to the Alps and the central uplands. Towards the end of the century they were completely wiped out in their last refuges by targeted hunting, and partly by poisoning.
National and pan-European species conservation regulations and efforts have considerably improved the conditions for the return and establishment of the major predators, especially the wolf, to Germany. In the last decade of the 20th century – with the exception of the bear – they returned to Germany or, in some cases (lynx and vulture), were successfully released into

the wild. However, this favourable development does not always take place without conflicts, and frequently encounters massive objections from the public. Effective management measures and financial instruments for necessary preventive measures and uncomplicated compensation of losses incurred are key elements for acceptance by those concerned and a prerequisite for an objective and unemotional approach to these animals.

In recent years the Federal Environment Ministry (BMUB) and the Federal Agency for Nature Conservation (BfN) have supported a number of projects to create the conditions and basis for monitoring and managing wolf, bear and lynx in accordance with scientific criteria in the relevant Länder. Those Länder that have a wolf or lynx population are running monitoring programmes and, on the basis of these, successfully using management programmes drawn up for these species. Furthermore, Germany is working with its neighbour Poland and, under the Alpine Convention, with the Alpine countries on a common cross-border management system for the conservation of major predators. The aim of all these efforts is to enable these animals to establish a self-sustaining population and at the same time to minimise the resulting potential conflicts with the population groups concerned.

Some sectors of the public still have substantial reservations about wolves, bears, lynxes and vultures. Associations and the federal and regional authorities are therefore running target group oriented information campaigns in an attempt to raise public acceptance of wolf and lynx, with a special focus on those stakeholders (livestock owners, hunters) who are directly affected. Information in the form of permanent exhibitions, e.g. in wolf areas, and publicity events by nature conservation associations are intended to raise the acceptance of these species by a broad public.

Overall summary

In the Alpine region the goals of the National Strategy on Biological Diversity are largely pursued in the course of implementing the Alpine Convention. Interregional cooperation has been stepped up and national data exchanged with the aim of creating a transboundary network of areas of special ecological value. The "Ecological Network Platform" has discussed the resulting issues and made a start on drawing up criteria and indicators for defining and assessing priority implementation measures.

The Bavarian State Ministry of the Environment and Public Health has drawn up an "Eco-plan Alps 2020" to maintain and if possible improve the ecological status and natural resources of the Alps having regard to the provisions of the Alpine Convention. The central action areas are safeguarding soil and water as a basis for life, conserving biodiversity, stepping up environmental education work, securing human living spaces and settlement areas against dangers, promoting climate adaptation measures, and ensuring sustainable energy supplies in the Alpine region. The goals and individual targets are intended to help implement the Alpine Convention in the field and form part of a European Alpine strategy.

A number of measures to foster the reintroduction or natural return of large predators such as wolf, bear, lynx and vulture and their acceptance by the public are being taken in the Alps and – in the case of the lynx – in the central uplands as well.

6.1.4.7. Groundwater

Groundwater is a natural basis of life for man and nature. It serves as a drinking water reservoir and is also very important for many ecosystems. Groundwater itself is a habitat for unique and highly specialised species and communities that have not been adequately assessed to date. The quality of the groundwater can be affected by inputs of substances. The resulting effects often cover very large areas. Remediation may be

impossible or may take a very long time. There is therefore a need for precautionary, nationwide protection of the groundwater.

NBS target

Good qualitative and quantitative groundwater status nationwide by 2015 (in accordance with the WFD)

The EU Water Framework Directive basically aims to achieve good status for all bodies of water, including groundwater, by 2015. For groundwater, good status means that limit values for certain pollutants must be complied with and that the groundwater quantity is not overused. The directive does not cover the biology of the groundwater.

Groundwater quantity is only a problem in a few regions of Germany: 96 per cent of the groundwater currently has a good quantitative status. Only 63 per cent of groundwater achieves good chemical status, i.e. there is a need for further reductions in the main groundwater loads due to nitrate from the agricultural sector and, to a lesser extent, pesticides. Precautionary environmental protection is particularly important in the case of groundwater, because the pollutants stay there for a long time and are difficult, if not impossible, to eliminate. It is primarily the task of the Länder to take suitable measures to improve groundwater quality, as they are responsible for the practical implementation of the WFD. The programmes of measures drawn up by the Länder include, for example, establishing riparian strips, expanding winter planting, extensifying the use of particularly sensitive sites, and stepping up targeted information and advice for farmers.

Overall summary

In many places groundwater is polluted, in some cases to a considerable extent, and exposed to numerous risks. In addition to locally restricted pollution, e.g. from industrial legacy sites, old deposits, leaking sewers or accidents involving substances dangerous to water, such risks mainly take the form of diffuse, i.e. not precisely identifiable, pollution by industry, agriculture and transport, especially nitrate and in some cases pesticides and their degradation products.

Although people are becoming increasingly aware of the importance of the ecosystem services provided by groundwater and its inhabitants, no international conservation strategies exist yet for groundwater habitats. The Federal Environment Ministry has therefore initiated a research project for biological assessment of groundwater ecosystems. The project presents an initial strategy for groundwater ecology for discussion. At the same time it shows that further research efforts are necessary to put effective protection in place for groundwater ecosystems.

6.1.5 Landscapes

6.1.5.1. Wilderness areas

There are hardly any wilderness areas left in Germany today. Areas hardly influenced by humans only exist as fragments, e.g. in forests, peatlands, high mountains and in coastal areas. The natural dynamics typical of wilderness areas in the landscape have been pushed back over the past few centuries. This has taken place in response to the need to cater for the steadily increasing growth requirements of an industrialised society and to make possible not only our present-day living conditions, but also an optimised food production and supply system. In Germany the habitats that depend on these dynamics (e.g. pioneer biotopes, intact water meadow forests) are highly endangered or largely lost. This development is particularly evident along rivers and

streams. To reactivate the natural processes of habitat dynamics, a certain percentage of land needs to be left to develop free from human objectives and purposes.

NBS target

By the year 2020, throughout at least 2% of Germany's territory, Nature is once again able to develop undisturbed in accordance with its own laws.

In order to reactivate the natural processes of habitat dynamics, the National Strategy on Biological Diversity envisages that by the year 2020 some 2 per cent of the area of Germany will be freed from human influence and can once again develop into wilderness areas.

An initial estimate by the Federal Agency for Nature Conservation (BfN) concludes that the wilderness areas and wilderness development areas still in existence in Germany currently account for about 0.7 per cent of Germany's land area. The majority of these areas lie within existing national parks and large nature conservation areas. By 2014, a research project commissioned by the BMUB/BfN is to draw up a reliable inventory of existing wilderness areas and submit proposals for implementing the 2-per cent target for wilderness areas. It seems likely that in addition to the residual fragments of natural ecosystems, other areas will have to be removed from the sphere of human use to enable them to develop in the direction of a "new wilderness". The research project is also to take up ideas and strategies that already exist in the Länder for wilderness areas.

NBS target

Conservation and restoration of semi-natural habitats (pasture, heathland, hedges, meadow orchards, slope viticulture with dry-stone walls etc.) by means of adequate management, e.g. with government incentives.

The second pillar of the Common Agricultural Policy (CAP; EAFRD Regulation) permits financial support for the conservation and restoration of endangered semi-natural habitats, especially for recurring maintenance measures in measure code 214 "Agro-environmental payments" and for spending on measure codes 216 "Non-productive investments" and 323 "Conservation and upgrading of the rural heritage". Moreover, compensation payments are possible for compliance with nature conservation requirements in Natura 2000 areas. Implementation in Germany is by means of 14 Länder programmes, which make use of the EU legal framework in different ways within the limits of the relevant focus. According to the programme planning (as of 30.01.2012), the measure codes mentioned – which also serve other environmental purposes – account for about 34 per cent of the EAFRD funds of approx. €9.1 billion which are available in Germany for the promotion period 2007-2013.

Many of these measures can also be co-financed by federal funds through the Joint Agreement on improving agricultural structures and coastal protection (GAK). Extensive use of pasture also has a favourable effect on biodiversity and the landscape. For many years the assistance under the GAK has been helping to create and maintain extensively used pasture.

The following measures for promoting pasture are available under the GAK:
– Conversion of arable land into pasture for extensive use
- *Extensive farming of permanent pasture with a maximum of 1.4 livestock units per hectare of mainly grass forage*
- *Refraining from ploughing when renewing a farm's permanent pasture*

– Extensive farming of certain pasture areas
  - *to reduce use of operating resources or to practise certain grazing methods,*
  - *to conserve pasture vegetation of plant-genetic value,*
  - *with buffer strips*

- *Introduction and maintenance of an ecological cultivation system (e.g. use of pasture).*

Overall summary

The way the cultural landscape is shaped reflects society's needs and use requirements. The German *Energiewende* (transformation of the energy system), past, present and future agricultural policy, demographic change and climate change, and also food security, are the principal challenges of our time. These inevitably lead to changes in land use and the landscape. It is nevertheless important to ensure, by balancing uses, that changes in the landscape do not occur at the expense of biological diversity and the variety, beauty and typical regional characteristics of cultural landscapes that are worth preserving. The future conservation and development of cultural landscapes will basically call for wide-area strategic and planning approaches. In the past considerable funds have been spent on cultural landscapes through assistance in the field of agro-environmental measures and contract-based nature conservation, as can be seen from the indicator "Agro-environmental measures". This funding practice should be maintained in the future as well. The aim must be that agricultural policy continues to make a contribution to conserving landscape elements.

6.1.5.2. Urban landscapes

In cities, we encounter nature in a wide variety of forms. Private gardens and public parks, water meadows, city forests and fallow land, but also roadside trees and roof and facade greenery are important for biological diversity and experiencing nature in urban areas. They also have a positive effect on the urban climate, air quality, substance cycles and the water balance. The climatic equalisation function of urban green spaces is becoming increasingly important in times of climate change. Moreover, urban green spaces are places for recreation and social contact across all age groups and social classes. Publicly accessible green spaces in the extended neighbourhood are also of considerable importance for sporting activities in nature.

Targeted promotion of greenery in urban areas is good for biological diversity and can help to upgrade urban districts and improve the quality of life for the people who live and work there. Attractive green spaces are an important "soft" locational factor and are also reflected in property values.

NBS target

By 2020, there has been a marked increase in greening of settlement areas including home-related greenery (e.g. yard greenery, small green spaces, roof and facade greenery). Publicly accessible greenery with diverse qualities and functions is generally only a short walk away.

More and more municipalities are recognising the need to strengthen biological diversity at local level. Evidence of this is provided by the declaration on "Biological Diversity in Municipalities", which has been signed by more than 200 cities and municipalities. In it, the signatories give a voluntary undertaking that they will, among other things, increase home-related greening and create near-natural areas and spaces for experiencing nature within the settlement area. On 1 February 2012, on the basis of this declaration, some 60 municipalities from all over Germany founded the alliance "Municipalities for Biological Diversity" to facilitate experience sharing and the dissemination of best-practice examples.

Overall summary

The "Biological Diversity in Municipalities" declaration and the "Municipalities for Biological Diversity" alliance are milestones on the way to implementing those goals of the National Strategy on Biological Diversity that relate to urban areas. Some municipalities have already drawn up their own municipal biodiversity strategy or species protection plan or have formed regional networks with the aim of taking joint action to conserve biological diversity and raise public awareness of the need for its conservation.

Since 2007 the BMUB and BfN have supported municipal competitions in the fields of nature conservation and biodiversity. The aim of such competitions is to motivate cities and municipalities to take concrete action to conserve nature and biodiversity and to improve the quality of life. The competitions "Federal Nature Conservation Capital" (Deutsche Umwelthilfe (DUH),with assistance from BMUB/BfN, 2007), "Greenery in Urban Areas" (DUH, with assistance from BMUB/BfN, 2008) and "Federal Biodiversity Capital" (DUH, jointly with the "Living City" foundation, 2010) are evidence of a great wealth of exemplary activities aimed at developing urban greenery and improving typical urban biodiversity. This also applies to the "Entente Florale" competition (Central Horticultural Association (ZVG), German Association of Cities, German Association of Towns and Municipalities and the German Tourism Association) with the focus on "biological diversity" in alternate years, which is supported by the BMU/BfN. In 2012 three federal ministries jointly supported the „Entente Florale" competition for the first time with three special awards: the "BMEL Garden Prize" (Food and Agriculture), the BMUB special prize "Nature Conservation in the City" (Environment), and the BMVI special prize "Green that connects" (Transport). And in 2012 the German Nature Conservation Prize, first awarded in 2011 by BfN and Jack Wolfskin, also had the motto „City needs nature – joining forces for diversity, experiencing nature and quality of life.

http://www.kommunen-fuer-biologische-vielfalt.de/70.html
http://www.biofrankfurt.org/
http://www.bfn.de/0321_bundeswettbewerb.html
http://www.stadt-gruen.de/
http://www.duh.de/biodiv_kommune.html
http://www.bfn.de/0304_naturschutzpreis-pdm.html
http://www.entente-florale.de

6.2 Sustainable use of biological diversity

6.2.1 Eco-friendly economic activity

Corporate engagement plays an important part in achieving biodiversity targets in general. On the one hand industry depends in various ways on the services of nature, but on the other hand business activities may involve adverse impacts on nature – either directly through non eco-friendly land use, destruction of valuable habitats through landscape fragmentation and land take, excessive substance inputs or non-sustainable use of genetic resources, or indirectly via the upstream products in the supply chain. Today many companies are recognising their social responsibility for conserving the natural basis of life and for making eco-friendly use of natural resources. They contribute to conserving this basis not only within the limits of their statutory obligations, but also over and above them.

Not only the manufacture of products, but also their consumption has impacts on the condition of nature and the environment and, ultimately, on biological diversity. It is necessary to raise consumer awareness of the need for eco-friendly and sustainable consumption. Sustainable consumption implies making a deliberate decision for or against a product that takes account of the impacts on society, nature and the environment.
According to the concept of sustainable development, consumption is sustainable if it satisfies the needs of the present generation without jeopardising future generations' opportunities to satisfy their own needs and make a free choice of lifestyle. Test marks and eco-labels based on high standards can make a contribution to efficient and transparent market conditions, thereby providing a good basis of information for independent and responsible consumer decisions.

NBS targets

More and more economic activities are contributing to the conservation of biological diversity.

The demand for nature-friendly products and services is growing steadily, and the supply is showing a marked improvement.

Even if it is impossible to measure these targets precisely, substantial progress has been made with motivating and raising awareness in industry. In 2010 a corporate biodiversity management manual was published in collaboration with scientists from the Leuphana University (Lüneburg) and the initiative "Biodiversity in Good Company", which the Federal Environment Ministry launched in 2008 and has actively supported since then. This has been supplemented by in-depth guides developed for the fields of purchasing, facility management and marketing. In 2010 and 2011 the Federal Environment Ministry and the Federal Agency for Natural Conservation ran two dialogue forums specifically for businesses on the implementation of the National Strategy. These were attended by numerous companies from a broad spectrum of industries.

To boost demand for nature-friendly products and services, it is essential not only to provide targeted information, but also to ensure that such products and services are easily recognised by the consumer. This can be done by means of test marks, sustainability labels and eco-labels based on high standards. Germany's well-known and successful "Blue Angel" eco-label is being further strengthened by the German Government and will in future take greater account of sustainability aspects. In 2012 the "Blue Angel Award" was presented to companies that sell products and services identified by this eco-label and have, with its assistance, subjected them to a continuous improvement process.

Overall summary

In recent years the topic of "Biodiversity and Business" has received increasing attention at workshops and conferences not only in Germany, but worldwide. There have also been projects designed to provide concrete support for industry, such as the "EU Business and Biodiversity Campaign". Manuals and guides have been developed, e.g. for the financial sector. The Federal Environment Ministry supports this development and in particular cooperates closely in the "Biodiversity in Good Company" initiative founded in 2008, an alliance of companies that have joined forces to conserve biological diversity – in the interests of society and the economy. In a mission statement and a leadership declaration, the members of the initiative have undertaken to integrate the conservation of biodiversity in their corporate management system.

In 2012, in an effort to move beyond a limited number of pioneer companies and involve companies that were not yet active in the implementation of the National Strategy, and especially to recruit industrial associations as multipliers, the Federal Environment Ministry launched the project "Enterprise Biological Diversity 2020". After intensive preparations, e.g. at a dialogue forum in September 2012, Federal Environment Minister Altmaier launched this project jointly with industrial associations and nature conservation organisations at the Fifth National Forum.

"Enterprise Biological Diversity 2020" is a dynamic dialogue and action platform that focuses on cooperation between industry and nature conservation and the initiative of the companies themselves. The project was initiated by the Federal Environment Ministry with assistance from the Federation of German Industry (BDI), the German Industry and Trade Council (DIHK), the Federal Economics Ministry (BMWi), the initiative "Biodiversity in Good Company" (BiGC), econsense, the Global Nature Fund (GNF, coordinator of the European Business and Biodiversity Campaign), the Federal Agency for Nature Conservation (BfN) and the Federal Environment Agency (UBA). This project is also supported by industrial and nature conservation associations. They include the Federal Association of the Energy and Water Industries (BDEW), the German Retail Trade Association (HDE), the Association for Environmental Management and Sustainability in Financial Institutions (VFU) and the nature conservation associations Bund für Umwelt- und Naturschutz Deutschland (BUND), Naturschutzbund Deutschland (NABU) and WWF Deutschland.

As regards the intended integration of biodiversity issues in management systems, some initial progress has been made with the further development of the EU environmental management system EMAS and the international CSR standard ISO 26.000. Further improvements are expected in future from the revision of the environmental management standard ISO 14.001 and the definition of EMAS indicators for biodiversity.

Unlike climate protection, however, the complex subject of biological diversity frequently meets with a lack of understanding in industry. Companies do not see how they are affected or what action they can take. In future, therefore, the Federal Environment Ministry (BMUB) and the Federal Agency for Nature Conservation (BfN) will step up their efforts to address this information and education task and, where possible, draw up concrete steps and guides in cooperation with industry. This will also help to ensure better coordination of the actors. It is also a matter of improved methods, e.g. in connection with business indicators or product life-cycle assessments.

A look at the international targets for industry reveals varied results. On the one hand, no progress was possible with the integration of biodiversity aspects in the world trade system –partly because of the general stalemate on the WTO negotiations. The relevant issues are being discussed in the negotiations on free trade agreements.

The German Government supports the process of developing and refining eco-labels at a high level. For this reason it will further strengthen Germany's well-known and successful "Blue Angel" eco-label.

In the interests of improving the integration of environmental and nature conservation issues in the ongoing process of technical standardisation and strengthening the influence of environmental and nature conservation associations in this field, the Coordination Unit for Standardisation Work by Environmental Associations (Koordinierungsbüro Normungsarbeit der Umweltverbände – KNU) was set up in 1996 with financial assistance from the Federal Environment Ministry. Moreover, thanks to their cooperation with the Coordination Unit at BUND, the environmental and nature

conservation associations have successfully been more closely integrated politically in the process of technical standardisation.

6.2.2 Role of the state as model

According to estimates by the German Association of Towns and Municipalities, the public sector awards contracts totalling €256 billion every year. By appropriate steering of its procurement activities, it could support the conservation of biological diversity by using products resulting from sustainable use. It is also the biggest land owner in Germany. For example, 57 per cent of Germany's forests are owned by the public sector (federal: 4%, Länder: 29%, municipalities: 20%, trustee forest: 4%).

In general, the public sector has an obligation to live up to its model function and responsibility for sustainably managing and using this land in a way that maintains and fosters biodiversity. The state's activities on the market should also serve to encourage business enterprises and provide an exemplary model for them to follow.

NBS target

Put a procurement and construction system in place by 2020 which is nature and environment friendly and also oriented to standards that conserve biodiversity. To this end the existing eco-labels will be developed further. This will be accompanied by a review and, where necessary, further development of the existing basic principles for procurement..

Sustainable procurement of timber products has already been implemented by federal authorities on the basis of the Joint Decree of 17 January 2007 by the ministries BMWi, BMEL, BMUB and BMVI, most recently updated in January 2011. This requires federal procurement bodies to demand evidence of forestry management that is not only legal, but also sustainable. The content of the provisions largely refers to the certification standards of PEFC and FSC. The provision served as a model for procurement rules drawn up by numerous Länder, cities and municipalities, and individual companies with a special commitment to the environment.

In March 2011 the Federal Ministry of Transport, Building and Urban Development introduced the revised guidance document on "Sustainable Building" as a binding requirement in the Federal Facilities Management Authority. The guide takes account of current building policy requirements and also the reduction target of 30 hectares per day for appropriation of land for settlement and transport purposes. For the first time it requires evidence that plausibly describes the environmental impacts of the building and its overall contribution to sustainable development on the basis of prescribed criteria. On the basis of an assessment approach developed jointly with the Deutsche Gesellschaft für Nachhaltiges Bauen e. V. (DGNB), the Federal Ministry of Transport, Building and Urban Development has improved and refined the criteria and assessment yardsticks for federal construction projects and merged them in the assessment system "Sustainable Building" (Bewertungssystem "Nachhaltiges Bauen" – BNB). Initially devised for the construction of new office and administration buildings, the rules were subsequently applied to work on existing buildings and to planned new school and educational buildings, research establishments and external facilities. The BNB use profile for external facilities explicitly asks about the criterion "biodiversity" and assesses it through the sub-criteria "biodiversity conservation", "biodiversity development" and "invasive plant species".

In a variety of conversion projects, the Institute for Federal Real Estate (Bundesanstalt für Immobilienaufgaben – BImA) has made substantial contributions to reducing land take, not only through recompaction and development of conversion land in urban agglomerations, but also through measures to reduce surface sealing and dismantle former military infrastructures by way of compensatory measures in non-built-up areas.

In future greater attention is to be paid to biodiversity issues in connection with procurement and facility management by means of corporate environmental management systems, especially EMAS (European Eco-Management and Audit Scheme), which has explicitly included the biodiversity indicator since its revision in 2009. A guide to using the new EMAS indicators is currently in preparation as part of a BMUB research project.

Overall summary

Various approaches to a greater focus on nature conservation and environmental aspects and biodiversity conservation standards in public procurement already exist in the rules on sustainable procurement of timber products and sustainable building. These rules, which were drawn up for awarding public-sector contracts, also have a model character for procurement and construction activities in the private sector. There are currently no plans for changes in procurement law, since existing legislation on procurement procedures also permits consideration of environmental aspects. The guide to "Sustainable Building" is steadily being expanded into other areas and being made more binding on introduction. This is also being accompanied by training measures in the public-sector building authorities.

In future, the German Government is seeking to ensure greater consideration of biodiversity issues in procurement and facility management by means of EMAS. It is also advocating the introduction of EMAS not merely within the BMUB portfolio, but also in all federal authorities. Use of the EMAS core indicators, including biodiversity aspects and their presentation in the audited environmental statement, is to be tested in a pilot project currently in progress with the participation of several federal ministries and agencies. The nature conservation associations also make a valuable contribution here with their work at association level and in the environmental verification committee which advises the BMUB.

In the spirit of the National Strategy on Biological Diversity, the German Government is also seeking to gear taxation and assistance policy more closely to conservation of biological diversity. In addition to the establishment of new assistance programmes and measures to implement the National Strategy on Biological Diversity, various individual measures are also being taken to achieve this end.

The strategy for exemplary addressing of biodiversity issues for all public-sector land which is called for in the National Strategy on Biological Diversity has yet to be completed. The Federal Environment Ministry started work on it in 2012. The strategy is to bring together all important aspects and identify any action that still needs to be taken and the actors responsible for doing so.

6.2.3 Impacts of German activities on biological diversity worldwide

On average, people in industrialised countries around the world consume about four times more natural resources than people in developing countries. A responsible attitude on the part of German industry and consumers can make a significant contribution to conserving biological diversity worldwide and thereby combat threats to biological diversity that arise from globalisation. The state must create an appropriate framework for such action and can itself set standards through its own investment policy.

NBS target

By 2010 at the latest, no imports of illegally felled timber and resulting wood products into Germany, having regard to the legal requirements of the WTO

Particularly in tropical developing countries, illegal felling is a major cause of deforestation and adverse effects on forests, and therefore results in loss of biological diversity. It also runs counter to the interests of climate protection and poverty alleviation. The EU FLEGT action plan sets out to combat illegal felling. It aims to support the developing countries in their efforts to bring about responsible timber and forestry management by establishing an extensive licensing system and making voluntary trade partnership agreements.

An EU Regulation concerning forest law enforcement, governance and trade (EU FLEGT Regulation) has been adopted to implement the FLEGT action plan. In Germany the EU Regulation entered into force on 15 July 2011 in the form of the Act prohibiting trade in illegally felled timber (Holzhandels-Sicherungs-Gesetz – HolzSiG). This regulates Germany's national controls on imports of timber from countries which have signed partnership agreements with the EU on illegal felling – to date these are Ghana, the Republic of the Congo, the Republic of Cameroon, the Central African Republic, Indonesia and Liberia. Under these agreements the partner countries set up an approval and licensing system to ensure that only legally felled timber is exported to the EU.

The second stage follows with the transposition of the EU Timber Regulation of 20 October 2010, which has been fully applicable since 3 March 2013. This regulation prohibits the marketing of illegally felled timber and requires all market participants who place timber and timber products on the EU market for the first time to comply with certain due diligence obligations. These include duties to provide information on the nature and origin of the timber and procedures for assessing and reducing the risk that timber could originate from illegal felling.

In Germany appropriate additions have been made to the Timber Trade Security Act. First checks have been carried out by the competent authority, the Federal Institute for Food and Agriculture (Bundesanstalt für Landwirtschaft und Ernährung – BLE). In March 2013 the Thünen Centre of Competence on the Origin of Timber was established. This develops scientific methods for supervising the new provisions and provides assistance for public authorities, the timber trade, associations and consumers2.

Overall summary

The German Government is seeking to achieve closer integration of the conservation and sustainable use of biological diversity in its bilateral and multilateral cooperation. There has been a marked increase in the proportion of projects aimed at conserving and developing biological diversity. Germany has stepped up its international cooperation in the field of biological diversity by nearly 600 per cent since 2006. As promised by Federal Chancellor Dr. Angela Merkel, it will provide an annual sum of 500 million EUR from 2013 onwards for the conservation of forests and other ecosystems.

At the G8/G20 summit and the World Food Summit held in the last two years, Germany also promised to make a substantial increase in the proportion of German development cooperation projects for agricultural development. The German Government is thus continuing to pursue the UN objective of increasing total funds for development cooperation to 0.7 per cent of gross national income by 2015. To this end it will use innovative financial instruments, e.g. using the proceeds of auctioning emission allowances, and integrate market resources. The National Strategy on Biological Diversity explicitly mentions the EU Directive on the inclusion of international aviation in the EU emissions trading scheme. This has been in force since February 2009 and has been transposed into national law by Germany and all other member

[2] http://www.ti.bund.de/de/startseite/startseite/thuenen-kompetenzzentrum.html

states. Starting at the end of April 2013 for the year 2012, airlines must submit emission allowances for the CO2 emissions of all flights into, out of and within the EU. However, owing to the Commission's proposal for the temporary suspension of enforcement in respect of intercontinental flights, the auction proceeds for the year 2012 will be reduced to about a quarter. In the following years, however, the original situation will apply once again, unless amendments are made to the directive in response to a favourable outcome of negotiations in the International Civil Aviation Organisation (ICAO).

In the case of investments abroad, the German Government already checks for compliance with international environmental and social standards when considering applications for investment guarantees. These checks also take account of the OECD Guidelines for Multinational Enterprises. In the revision of the OECD Guidelines in 2011, in which the German Government played an active part, biodiversity was for the first time included in the provisions on disclosure of information. Furthermore, enterprises are now to include the conservation and sustainable use of biodiversity in their environmental strategies.

The EU FLEGT action plan for combating worldwide illegal timber felling pointed the way to a responsible policy on imports and addressed a problem that is a major cause of biodiversity loss, especially in tropical developing countries.

6.2.4 Agriculture

In 2010 the area covered by farmland in Germany totalled 18.7 million ha (52.3%); the majority of this consisted of arable land with a share of 11.8 million ha and permanent pasture with a share of 4.7 million ha. Agriculture, with more than half the total area, is the most important form of land use in Germany.

Land used for agriculture provides habitats for a wide range of open-country animal and plant species. Many of the biotope types and structures in the cultural landscape that are worth protecting today only came into being through agricultural use. The agricultural sector has special significance and bears a special responsibility for the conservation of biological diversity.

Biodiversity depends to a large extent on the type of farming. In recent years a sharp decline has been observed throughout Europe in the populations of many ground-nesting birds (e.g. skylark or lapwing). The decline went hand in hand with – regionally varied – intensification of farming on high-yield sites and abandonment of use on low-yield sites.

The aim of sustainable, i.e. nature-friendly and environmentally compatible farming is to make sparing use of the production resources soil, water and air, and thereby conserve the many and varied agrarian ecosystems as an important element of biological diversity.

In 2010 the area covered by organic farming operations accounted for 5.9 per cent of total farmland. Organic farming makes a special contribution to conserving biological diversity and to promoting typical regional cultural landscapes. Organic farming aims to achieve largely closed nutrient cycles in agricultural production in order to maintain ecosystem functions, to conserve non-renewable energy and mineral resources, to avoid pressures on the environment and to reduce soil acidification and nutrient inputs into bodies of water.

NBS target

Enactment of a government ordinance on the sustainable cultivation and use of biofuels (Sustainability Ordinance) as a precondition for tax concessions and crediting against quotas

In 2008 the European Union decided to substantially increase the proportions of biofuels in the automotive sector by 2020. However, the use of biofuels is not to take place to the detriment of man and nature. For this reason the German Government passed the Biofuels Sustainability Ordinance (Biokraft-NachV) in 2009, thereby transposing into national law the sustainability requirements of the Renewable Energy Directive 2009/28/EC for the production and energy use of liquid and gaseous biofuels. From 1 January 2011 onwards, biofuels can only be credited against the biofuels quota and enjoy tax concessions if they comply with certain sustainability requirements: greenhouse gas saving of at least 35 per cent compared with fossil fuels, including the entire production and supply chain; no destruction of land with high carbon content or of high nature conservation value; and compliance with the cross-compliance requirements if grown within the European Union.

Overall summary

The integrated strategy for increasing agrobiodiversity which is called for in the National Strategy on Biological Diversity has been drawn up in the form of the agriculture ministry's Agrobiodiversity Strategy (see above). Work is in progress on implementing it.

The voluntary agro-environmental programmes of the Länder, which offer farmers agro-environmental measures and incentives to maintain or reintroduce extensive forms of farming, are of direct importance for the conservation and development of biological diversity. The programmes can be co-financed by EU funds under the second pillar of the Common Agricultural Policy (EAFRD – European Agricultural Fund for Rural Development), and also to some extent at national level by federal funds under the Joint Agreement on Improving Agricultural Structures and Coastal Protection (GAK). The area receiving assistance was around 5.4 million hectares in 2010, which was almost as high as the previous record level of 5.5 million ha in 1997. At the same time assistance funds rose again slightly to €577 million in 2010. To maintain or increase biological diversity in the context of sustainable, i.e. environmentally sound and nature-friendly agriculture, this topic will play a key role in the further development of the CAP after 2013.

Under the cross-compliance rules, farmers who apply for direct payments under the first pillar of the EU's common agricultural policy are prohibited from eliminating certain types of landscape elements. As well as these landscape elements of cross-compliance relevance, other types of landscape elements are to a certain extent directly eligible for direct payments, which makes them more attractive to conserve. Also under the cross-compliance rules, compliance with provisions on ploughing up permanent pasture, statutorily protected biotopes and flood areas is checked and sanctions imposed where appropriate by cuts in the direct payments. Furthermore, if the percentage of permanent pasture in a federal Land falls more than 5 per cent below the figure for the reference date, additional provisions are to be enacted which require official approval for any conversion of permanent pasture into arable land. In the meantime such provisions have become necessary in several Länder (Lower Saxony, Bremen, North-Rhine/Westphalia, Schleswig-Holstein and Hamburg). In Baden-Württemberg there is a voluntary rule. Definition and supervision of the cross-compliance standards helps to ensure greater precision and rigorous practical implementation of good professional practice.

The national action plan on the application of pesticides (NAP) which was adopted by the conference of federal and Länder agriculture ministers in 2008 is a refined and improved version of the 2004 programme for reducing chemical crop protection agents. Its purpose is, among other things, to further reduce the risks to biological diversity that could arise from the use of chemical pesticides. The aim is to reduce the risks for the natural regime by a further 25 per cent by 2020.

The share of total farmland accounted for by organic farming shows a continuous increase from 1.6% in 1994 to 5.9% in 2010, as can be seen from the indicator "Organic farming" (see Chapter E 2). In 2010 the area under organic farming increased by 4.6 per cent on the year before. If the trend remains unchanged, it will take many years to achieve the target of increasing the organic farming share to 20 per cent of total farmland.

The decision to convert to organic farming rests with the individual farm. The German Government welcomes such conversion of farm operations, which is desirable from an environmental and demand point of view, and intends to design the conditions for conversion so that organic farming can reach a share of 20 per cent in the next few years.

The entire process of producing and using bio energy must be organised on a sustainable basis – including with a view to biological diversity. Now that the sustainability requirements of the Renewable Energy Directive for the production and energy use of biofuels and heating bioliquids have been transposed into national law, the challenge for the future is to develop sustainability criteria for solid and gaseous bio energy sources as well.

6.2.5 Soil use

Germany has a great variety of regional, natural and historically formed soils.

Soils are one of the principal bases of life for humans, animals, plants and a wide range of soil organisms. They are pollutant filters, water and carbon reservoirs, sources of raw materials and sites for a wide variety of economic uses. Soils also contain a wealth of information (e.g. gene pool) and constitute an archive of natural and cultural history.

Certain human influences can seriously affect, and in some cases irreversibly impair, their ability to perform these functions. Particularly adverse factors are compaction and surface sealing, removal of vegetation cover leading to erosion, removal of carbon with consequent CO_2 emissions, and the introduction of pollutants. On the other hand, relatively little effort is needed to promote the maintenance of these soil functions. Soil is a non-renewable resource. For this reason, protecting the soil and its functions is also of special importance for safeguarding the future of coming generations.

NBS target

Examination, and if necessary specification and efficient implementation of good practice in accordance with Section 17 of the Federal Soil Protection Act (BBodSchG) and Section 5 of the Federal Nature Conservation Act (BNatSchG) to ensure site-appropriate soil use. To minimise adverse soil changes due to erosion, agricultural land is classified by erosion risk and erosion reduction measures are prescribed under agricultural law (cross compliance).

This target includes a control and correction process concerning the implementation and practicability of obligatory (statutory) requirements for ensuring site-appropriate soil use.

The revision of the Federal Nature Conservation Act in 2009 (entered into force on 01.03.2010) replaced the framework nature conservation law, which was not directly applicable, with a directly valid nationwide arrangement based on concurrent legislative powers. It describes principles for the good practice provisions to be observed for agricultural use in accordance with Section 5(2); these are specified in greater detail in the sectoral agricultural legislation. With the exception of Baden-Württemberg, Berlin, Brandenburg, Rhineland-Palatinate, Saar and Thuringia, the nature conservation acts of the Länder have since been brought into line with the Federal Nature Conservation Act (BNatSchG). Nature conservation law diverging from Section 5 BNatSchG has been enacted in Bavaria, Schleswig-Holstein and Hamburg. Under the cross compliance rules, which are connected to the direct payments under the first pillar of the Common Agricultural Policy, new erosion control provisions came into force in Germany in 2010. All erosion-risk areas were classified in terms of the severity of their erosion risk. At the same time protection requirements were imposed depending on the severity of the erosion risk; compliance with these is checked under cross compliance.
In the field of wind erosion prevention, it is also relevant that the elimination of certain types of landscape elements is banned under the cross compliance rules. As well as these landscape elements of cross-compliance relevance, other types of landscape elements are to a certain extent eligible for direct payments, which makes them more attractive to conserve.

Infringements of sectoral restrictions on ploughing of permanent pasture in nature conservation areas, statutorily protected biotopes and flood areas are also subject to surveillance under the cross compliance rules and may be subject to sanctions in the form of cuts in direct payments. Furthermore, if the percentage of permanent pasture in a federal Land falls more than 5 per cent below the figure for the reference period, additional provisions are to be enacted which require official approval for any conversion of permanent pasture into arable land.

New provisions have been enacted to conserve organic substance in the soil. These require farmers to comply with a specific crop ratio, keep humus accounts or perform soil humus content tests.

Overall summary

The Federal Nature Conservation Act (BNatSchG), the Federal Soil Protection Act (BBodSchG) and the nature conservation acts of the Länder set out the good practice requirements to be complied with by farmers in the interests of soil protection. Furthermore, the cross compliance rules on good agricultural and environmental condition contain requirements for site-appropriate erosion control and soil humus conservation. Potential pollutant inputs associated with soil-oriented utilisation of sewage sludge and bio waste are limited by the existing provisions of waste and fertiliser legislation, and also by the provisions of fertiliser legislation in relation to mineral fertilisers and organic manure. This also helps to maintain the important ecological and economic functions of the soil. The German Government is making representations to the European Commission advocating the introduction of further pollutant limit values in European fertiliser legislation.

6.2.6 Resource extraction and energy production

A reliable supply of mineral resources and energy is absolutely essential for the German economy. However, non-renewable resources such as clay, sand, gravel and ore are only available in limited quantities. This is also true of important fossil fuels like coal, oil and gas, which have been formed in processes lasting millions of years. It is therefore necessary to make efficient use of the resources available. Extraction of

mineral resources and fossil fuels results in loss of established soil structures, changes in the water table and loss of habitats for plant and animal species. Extracting and using mineral resources and fossil fuels leads to emissions of greenhouse gases, which are responsible for climate change. However, land appropriated for the extraction of mineral resources is not lost for ever. After the end of the extraction period, current legislation requires the land to be recultivated or renatured.

Sustainable and secure supplies of mineral resources and energy are only possible through sparing extraction and use of the resources, high recycling rates, energy saving, and increased use of sustainably produced renewable raw materials and renewable energy sources such as hydro power, wind energy, solar energy, geothermal energy and biomass.

Per capita consumption of resources is currently about four times greater in the industrialised countries than in less developed countries. Even today, the use of natural resources considerably exceeds the planet's regeneration capacity. Raw materials consumption in Germany showed a marked drop from approx. 27 t per head in 2000 to 23 t per head in 2003, but has since remained more or less constant. The proportion of renewable energy sources that can replace fossil fuels in all sectors of consumption (electricity, heat, transport) has steadily increased. The operation of renewable energy installations and the production of biomass for energy and substance use may also have adverse effects on biological diversity (e.g. bird strikes, interruption of fish migration paths, monocultures, ploughing up pasture, nutrient inputs), which should be avoided as far as possible.

NBS target

Use of finite resources is reduced to the essential minimum.

One important prerequisite for limiting the use of finite resources is greater resource efficiency. In its Raw Materials Strategy of October 2010 the German Government realigned its raw materials policy in the field of non-energy mineral resources. Among other things, the Raw Materials Strategy places emphasis on efficiency in raw materials extraction and processing, and on strengthening recycling. The German Resource Efficiency Programme (ProgRess) which was approved by the Federal Cabinet in February 2012 is designed to further the implementation of this strategy. The programme is concerned with abiotic, non-energy raw materials (ores, industrial and construction materials) and the use of biotic resources as materials, and provides an overview of the existing activities. It describes approaches and measures for improving resource efficiency throughout the entire value chain, from resource extraction through production and consumption to recycling.
Since many of the resources we use are extracted in other countries, Germany also bears a responsibility for the impacts of our resource consumption in the producing country. As a new form of foreign trade cooperation, the raw materials strategy envisages bilateral raw materials partnerships with selected supplier countries. Compliance with environmental and social standards during the extraction and initial processing of the raw materials in the partner countries is an important object of the agreements. Appropriate bilateral cooperation projects are intended to promote sustainable raw materials extraction and treatment and a resource-efficient management approach in the partner countries. Intergovernmental agreements on raw materials partnership were signed with Mongolia on 13 October 2011 and with Kazakhstan on 8 February 2012.

NBS targets

The proportion of total energy consumption[3] due to renewable energy sources will be increased to at least 4.2% by 2010 and at least 10% by 2020 (compared with 2000), and thereafter continuously in line with the National Sustainability Strategy.

In the electricity sector the share due to renewable energy sources is to increase to at least 12.5% by 2010 and at least 20% by 2020.

The renewables share of total (primary) electricity consumption, which was around 2.9 per cent in 2000, increased to 9.9 per cent in 2010. This means the target for 2010 was exceeded by 5.7 percentage points, i.e. over-achieved. In 2011 the share showed a further increase to 11 per cent, or one percentage point higher than the NBS target for 2020 (as of: December 2012).

In the German Government's energy concept of 2010 it was decided to increase the renewables share of total gross final energy consumption[4] to 18 per cent by 2020. The trend in 2011 shows that Germany is well on the way to achieving this more ambitious target as well. Thereafter the Federal Government, under its energy concept, is aiming for the following rates of increase for renewable energy, as also adopted in the 2012 progress report on the National Sustainability Strategy: raising the renewables share of gross final energy consumption to 30% by 2030, with a further increase to 45% by 2040 and 60% by 2050.

The renewables share of total electricity consumption rose from 6.8% in 2000 to 17.1% in 2010. This means the target for 2010 was over-achieved by 4.6 percentage points. In 2011 the renewables share of total electricity consumption stood at 20.5%, which means it had already reached the 2020 target of the National Strategy on Biological Diversity (as of: December 2012).

NBS target

The generation and use of renewable energy is not at the expense of biological diversity.

The German Energiewende is inseparably linked with the expansion of renewable energy. However, this expansion can give rise to conflicts of objectives in the field of environmental protection and nature conservation. As part of the Energiewende, a revised version of the Renewable Energy Sources Act (EEG) was passed in 2011 and entered into force on 1 January 2012. On the one hand the new act expands the use of biomass for energy, while on the other, it introduces various precautions designed to prevent adverse impacts.
For example, the restriction of crop rotation and the undue focus of biogas production on energy maize in particular are to be counteracted by, among other things, the introduction of a "maize cap" that limits the use of certain maize and cereal substrates in new biogas installations to a maximum of 60 per cent by weight. The act introduced increased payments for energy crops of special ecological value, and greater incentives to exploit the potential of waste and residual substances, in order to reduce competition for land and further increase the climate contribution of bio energy use.

But promotion of other forms of renewable energy is not to take place at the expense of biological diversity either. For example, no assistance is provided for electricity from offshore wind farms in protected areas within the Exclusive Economic Zone or from free-standing

[3] What is meant here is primary energy consumption. Primary energy consumption in Germany is based on the primary energy sources produced in Germany plus all imported energy sources, less exports of energy (and excluding bunkering on the high seas). In terms of use, this amounts to the total energy used for energy purposes (final energy consumption and internal consumption by the energy sectors) and for non-energy purposes (e.g. in the chemical industry), losses due to energy conversion within Germany, flaring and grid losses, and the statistical differences shown in the energy accounts.

[4] Gross final energy consumption comprises final energy consumption by end consumers, plus losses in generating plants and during transport. Gross final energy consumption for renewable energy is made up of final energy consumption in the household, transport, industry and trade/commerce/services sectors, plus internal consumption in the conversion sector and flaring and grid losses.

photovoltaic installations on conversion areas in national parks and nature conservation areas. In the hydro power sector, no payments are made for installations which could have serious impacts on the natural regime.

Overall summary

Towards the end of 2010 the German Government's energy concept paved the way for moving into the age of renewable energy. The concept is an integrated overall strategy which sets out to develop renewable energy sources into a pillar of the energy supply system and at the same time seeks to improve energy efficiency. It was supplemented by the *Energiewende* decisions of summer 2011. The renewable energy expansion targets set out in the energy concept go further than the relevant targets in the National Strategy on Biological Diversity. Thanks to the great efforts to expand renewable energy in recent years, the National Strategy on Biological Diversity's target of increasing the renewables share of total (primary) energy consumption from 2.9% in 2000 to at least 4.2% in 2010 was over-achieved by 5.7 percentage points with a figure of 9.9% in 2010. Also included in the National Strategy on Biological Diversity, the German Government's target of increasing the renewables share of total electricity consumption to 20% in 2020 was reached as early as 2011 with a figure of 20.5%.

To ensure that the increased expansion of renewable energy does not take place at the expense of biological diversity, the revised version of the Renewable Energy Sources Act which entered into force on 1 January 2012 contains amendments to various assistance provisions with a view to counteracting the massive and widespread crop share of energy maize, which is believed to be responsible for the decline in certain bird species in these regions, e.g. the restriction of maize to 60% (maize cap).

With its raw materials strategy and the resource efficiency programme (Progress), the German Government has paved the way for reducing the consumption of raw materials. One key to this will be stepping up resource efficiency.

To supplement the existing statutory recultivation or renaturing obligations, various regional agreements have been made between nature conservation and raw materials industry associations on the basis of regional biodiversity forums (e.g. between NABU Baden-Württemberg and Industrieverband Steine und Erden (association for the non-metallic minerals industry), and between NABU Lower Saxony and Wirtschaftsverband Baustoffe-Natursteine (association for the construction materials and non-metallic minerals industry). In this way, sustainable raw materials extraction methods and recultivation measures are to be used to promote species diversity in raw materials extraction areas. Many former extraction sites have developed into valuable secondary biotopes for biological diversity.

6.2.7 Land take for settlement and transport purposes

Undeveloped and unfragmented land that is unspoiled by urban development is a finite resource in great demand. Competitors for its use include agriculture and forestry, settlement and transport, nature conservation, resource extraction and energy production. The area covered by human settlement and transport infrastructure is steadily increasing. The direct environmental impacts of the increase in land used for settlement and transport include loss of natural soil functions due to surface sealing, loss of fertile farmland or loss of near-natural areas and their biological diversity.

NBS target

By 2020 the additional land take due to settlement and traffic does not exceed 30 ha per day. In the long term it should ideally be possible to effectively replace land take by re-using existing land.

Information about the trend in additional land take for settlement and transport is provided by the indicator "Increase in settlement and transport areas" (in hectares per day), which is measured both for the National Sustainability Strategy and for the National Strategy on Biological Diversity. The figures show that in recent years there has been a noticeable slackening of the trend to take more land for settlement and transport. The rolling four-year average shows a steady decline in the growth of the area used for settlement and transport between 2000 (129 ha per day) and 2010 (87 ha per day). In 2010, nationwide land take for settlement and transport purposes came to 77 ha per day.

Overall summary

In spite of the generally positive trend, a continuation of the average annual rate of recent years would not be sufficient to achieve the target of reducing land take for settlement and transport purposes to 30 ha per day by 2020. The National Strategy on Biological Diversity includes numerous measures by the federal, regional and local authorities which are geared to this aim, and which can together help to achieve the target. Points currently under discussion include the further development of measures and instruments for stricter implementation of the provisions in the Federal Building Code (Baugesetzbuch – BauGB) on stepping up internal development of built-up areas, e.g. by expanding land management and land recycling as a voluntary instrument. Knowledge about internal development potential (waste land, vacant sites and empty buildings) is extremely important. Cities and municipalities must be given support here by providing regularly updated details of settlement area potential collected in standardised form for the entire Land. Tools for simple registration of waste land and vacant sites in a cadastral district have been developed and are available for use. Moreover, various multi-year federal research projects were launched at the end of 2010: one topic is identifying deficits and developing approaches for adapting public and private organisations with regard to strategic land resource management. Other topics include preparing a supra-regional model trial of trading in land certificates, and experimental testing of instruments for limiting appropriation of land for building purposes at regional level.

In the interests of development that makes sparing use of transport and land, the National Strategy on Biological Diversity provides for drawing up a comprehensive concept under the title of "Town of Short Distances". Drawn up under a research and development project commissioned by the BMUB/UBA, this concept was published in 2011 (Leitkonzept Stadt und Region der kurzen Wege – Gutachten im Kontext der Biodiversitätsstrategie). The concept indicates ways and means of reclaiming valuable urban areas that have hitherto been occupied by traffic and parked vehicles, and making them available for pedestrians and cyclists, for rest and recreation, and for green and nature in the city. Since cities are closely entwined with the surrounding country, the concept also looks at settlement structures and transport systems at regional level. Biological diversity and the quality of life in the surrounding country also benefit from improvements in open space and quality of life in the cities, and from a reduction in transport requirements and the burden on the transport system.

During the period 2006 to 2012 the Federal Ministry of Education and Research (BMBF) supported the land take reduction target through its assistance focus "Research into sustainable land management and reducing land appropriation" (REFINA). More than 110 projects devised innovative solutions and strategies for reducing land take and

ensuring sustainable land management, and tested and implemented them in the form of demonstration projects. The project database provides detailed information on individual projects.

http://www.refina-info.de/ueber-refina/bekanntmachung/hintergrundpapier-2004-10-27.pdf
http://www.refina-info.de/de/projekte/index.phtml

6.2.8 Mobility

Transport routes make substantial use of space and resources, and also lead to permanent surface sealing. Adverse effects on biological diversity result from various factors, including fragmentation and loss of habitats, noise pollution, light and pollutant emissions. In many cases landscapes no longer guarantee continuity for biological diversity. Migratory species and wild animals that need large territories are particularly affected by barriers in the form of roads, railway lines and canals or residential areas and industrial estates. The fragmentation of animal habitats also means a high accident risk for humans. In 2009 there were more than 3,000 accidents involving personal injury due to collisions with game.

NBS targets

By 2020, existing transport routes do not normally give rise to any substantial impairment of the biotope network. Ecological continuity of fragmented spaces is achieved.

Draw up a comprehensive concept for minimising fragmentation effects by 2010

In February 2012 the Federal Cabinet adopted a federal re-networking programme drawn up jointly by the BMUB and BMVI. It identifies 93 stretches of federal motorways and federal highways where crossing aids, mostly in the form of green bridges, are to be built in the medium to long term with the aim of reversing existing fragmentation effects. The re-networking measures are planned in places where, from a national point of view, federal highways are causing significant fragmentation of the network of habitat corridors and where the measures would also result in traffic safety improvements.

Where requirement-plan measures (new construction or further development) are taken in the priority re-networking sections in the years ahead, it is both desirable and expedient to implement the re-networking plans as avoidance measures. The habitat corridors in Germany are also being taken into account in current preparations for a new federal transport infrastructure plan.

The development of the Federal Re-networking Programme is also one of the strategy's lighthouse projects.

Overall summary

The comprehensive concept for minimising fragmentation effects which is called for in the National Strategy on Biological Diversity now exists in the Federal Re-networking Programme adopted by the Federal Cabinet in February 2012.
A strategic environmental assessment has to be made when drawing up a new federal transport infrastructure plan. In addition to the habitat corridors, other criteria to be applied here when identifying and assessing the fragmentation of landscapes, habitat corridors and core elements of the national system of interlinked biotopes are

unfragmented functional spaces and unfragmented low-traffic areas in excess of 100 square kilometres.

Migration by wild animals does not stop at national boundaries. For this reason the Federal Re-networking Programme will also form part of the processes of bilateral coordination with neighbouring countries and the overarching European processes of coordination on re-networking concepts and avoiding fragmentation effects in the highway construction sector.

6.2.9 Recreation and tourism close to nature

In 2010 Germany was the German public's main holiday destination, with 30 per cent of the total of 70 million holiday trips (of 5 days or more). For 65 per cent of domestic holiday makers, "experiencing nature" was one of the most important reasons for their holiday, taking fourth place in the rankings. Fifty per cent of Germans say that national natural landscapes (national parks, national parks and biosphere reserves) play an important or very important role in their choice of holiday destination. Thus the national natural landscapes are also an important economic factor.

People often spend their leisure time in natural surroundings as well. According to the Nature Awareness Study 2009, sporting activities are also a major reason for 21 per cent of Germany's population to spend time in nature, in addition to rest/recreation, health, and the diversity and beauty of the landscape.

NBS target

By 2010, 80 % of nature parks satisfy quality criteria in the fields of tourism and recreation.

In 2004 and 2005 quality criteria for nature parks were developed as part of a research and development project commissioned by the BfN/BMUB. They formed the basis for the "Nature Parks Quality Offensive" launched by the German Nature Parks Association (VDN) in 2006. The aim of this initiative is to provide the nature parks with a tool for self-assessment and continuous improvement of the quality of their work and with services in the fields of management and organisation, nature conservation and landscape maintenance, recreation and sustainable tourism, environmental education and sustainable regional development. The list of criteria contains 87 assessment questions on these fields of action. The maximum score in each field of action is 100 points. If the nature park achieves the required score (250), it is awarded the title of "Quality Nature Park", which is valid for five years. The evaluation is performed on site by specially trained quality scouts.

In 2009 the quality criteria and the evaluation procedure were revised in the light of experience gained. The second phase of the quality offensive was launched in 2011.

Some 82 of the 104 nature parks took part in the quality offensive. Of these, 66 nature parks were awarded the title of "Quality Nature Park".

The quality offensive is designed on a long-term basis with a view to participation by all nature parks, if possible. It thus contributes to the NBS target of establishing a well-functioning management system for all major protected areas and Natura 2000 areas by 2020.

NBS target

All national parks allow people to experience nature in suitable areas.

Germany has 14 national parks. They are visited by about 50 million people every year. Process protection in national parks is intended to permit the development over the years and decades of unique wilderness areas that allow nature to re-establish its own cycles and ensure that the treasures of nature are preserved for future generations. The Federal Nature Conservation Act also requires national parks to allow humans to experience nature, where this is compatible with their protective purpose. A special zoning system, a system of paths and tracks that is designed to steer visitors and exclude them from specific areas containing highly endangered animals that are sensitive to interference, and a strict requirement to keep to these paths and tracks basically make it possible for national parks to implement the protection approach while at the same time enabling humans to share in the development processes of nature that take place here. Today all our national parks provide suitable areas that give people of all ages a broad range of opportunities to witness nature's fascinating development processes. Infrastructure facilities such as visitor centres, observation towers or platforms, canopy walkways, special wilderness trails and nature experience paths, or ranger-guided walking tours make it possible to experience nature at first hand.

NBS target

Development of concepts for nature-friendly, attractive leisure uses in protected areas and their implementation by 2012

The more than 130 national natural landscapes offer excellent conditions for experiencing nature.

Partner initiatives with a current total of about 800 businesses have been established in 19 national natural landscapes in Germany. These have developed concepts which impressively demonstrate how quality tourism based on the principles of sustainability, which at the same time creates and safeguards jobs and improves regional value generation, can be reconciled with the conservation of biological diversity. By implementing the concepts, the partner businesses make a major contribution to raising visitors' awareness of "their" protected area. They offer visitors a high standard of quality and inform them about "their" national park, nature park or biosphere reserve.

Another example is the "Green Strip" of the National Natural Heritage, which is one of the lighthouse projects of the National Strategy on Biological Diversity.

http://www.nationale-naturlandschaften.de/partner-der-nationalen-naturlandschaften

Overall summary

For many people, being in nature is a major part of their holiday or leisure time. The National Natural Landscapes, as an umbrella brand for German major protected areas, are recognised as a high-quality trade mark for recreation close to nature and for quality tourism in natural surroundings. As part of the National Natural Landscapes, the 104 nature parks make a major contribution to this. They currently account for more than 25 per cent of the area of Germany. This means we are well on the way to achieving the target in the National Strategy on Biological Diversity of having nature parks covering 30 per cent of Germany by 2020. Responsibility for designating further nature parks rests with the Länder.

The number of environment-oriented tourism providers and services is growing. By 2020 at least 10 per cent of tourism providers are to satisfy ecological criteria. For ten years now the umbrella brand "Viabono" has been helping to achieve this target. Viabono is constantly expanding and streamlining its quality concept in the interests of easy use as a valuable and reliable guide enjoying growing acceptance on the part of both visitors and hosts. At present 19 members from all stakeholder groups – teamed up in a sponsoring organisation – represent a network for sustainable tourism

development comprising 16 million consumers, 85,000 tourism businesses and 6,000 tourist municipalities. Increasing use is being made of the European Charter for Sustainable Tourism and the CBD guidelines for sustainable tourism, which are thus contributing to the growth of environment-oriented tourism services in Germany and other countries.

As an important social group with a model function, sports are also making increasing efforts to ensure that biological diversity does not suffer from the pursuit of sports in natural settings. They are increasingly integrating active nature conservation and environmental protection in the development of sporting activities, as shown by the eponymous Internet portal of the German Olympic Sports Confederation (DOSB). The activities range from general information, education and cooperation to management plans developed jointly with nature conservation bodies, including for protected areas. Special-interest Internet portals like the "Rock Information System" of the German Alpine Association (DAV) or the "Lake Diving Portal" of the Verband Deutscher Sporttaucher (VDST), which provide information about the diversity and sensitivity of the relevant habitats and the rules of conduct to be observed, are well accepted and help to avoid conflicts.

http://www.nationale-naturlandschaften.de/partner-der-nationalen-naturlandschaften

http://www.dosb.de/de/sportentwicklung/sportstaetten-umwelt-und-klimaschutz/
http://www.tauchseen-portal.de/home

6.3 Environmental impacts on biological diversity

6.3.1 Wide-area diffuse substance discharges

Many animal and plant species and ecosystems in Germany are affected by diffuse inputs of pollutants from the air (nitrogen compounds, oxides of sulphur, heavy metals, persistent organic pollutants etc.). For example, inputs of sulphur and nitrogen compounds lead to acidification of the soils and hence to changes in the nutrient supply for plants. Nitrogen compounds may also result in over-fertilisation (eutrophication) of soils and bodies of water and of entire terrestrial ecosystems. Elevated nitrogen inputs over long periods can make ecosystems more sensitive to frost, drought or pests, for example. They are also a major cause responsible for loss of biological diversity. To protect sensitive ecosystems, the UNECE air quality control protocols include agreements on national emission reduction obligations and emission reduction measures for air pollutants. In the long term these are intended to reach ecosystem-specific, critical loads and critical levels. If these ecosystem-specific limits are complied with, present knowledge indicates that there is no reason to expect either acute or long-term damage to the ecosystems in question.

Marine ecosystems are also polluted by numerous hazardous substances and nutrients (nitrogen and phosphorus) which are transported by rivers and the atmosphere.

NBS targets

By 2020 the critical loads and levels for acidification, heavy metal and nutrient inputs (eutrophication) and ozone are complied with, thereby ensuring sustainable protection for sensitive ecosystems.

Continued development of international conventions and EU legislation (e.g. Water Framework Directive, UNECE Protocols on Long-range Transboundary Air Pollution (LRTAP))

In recent years there has been a marked decline in pollutant emissions into the atmosphere in Germany and its neighbouring countries. This applies particularly to emissions of sulphur dioxide and most heavy metals, and to transport-induced and industrial emissions of nitrogen and sulphur compounds. Although ammonia emissions in the agricultural sector have been reduced by a total of around 20 per cent since 1990, they no longer display any significant downward trend following a marked reduction of 10 per cent during the period 1990-1992. The NBS indicator "Eutrophicating nutrient inputs" comprises the airborne inputs of nitrogen compounds that lead to eutrophication of sensitive ecosystems. It shows that a risk of eutrophication still exists on more than three quarters of the land in question.

The emission reduction measures already adopted in Germany and neighbouring states are not sufficient to achieve the National Strategy on Biological Diversity's target of complying with the ecosystem-specific critical limits by 2020. Whereas the critical loads for heavy metals and acidification are only likely to be exceeded on small areas if the present trend continues, the reduction in emissions of ammonia and oxides of nitrogen will not be enough to halt the large-scale eutrophication and ozone pollution of terrestrial ecosystems.

The Gothenburg Protocol to the UNECE Convention on Long-range Transboundary Air Pollution was revised in May 2012. A revision of the EU Directive on national emission ceiling (NEC Directive) has been announced for 2013/2014. In these negotiations the German government will press for balanced Europe-wide emission reductions to cut nutrient inputs in particular. Germany is also playing an active part in the monitoring and modelling programmes under the LRTAP Convention and the further development of the convention as a whole.

NBS target

Persistent organic pollutants – POP's – are removed as far as possible from trade and use, and replaced by less persistent, less bioaccumulative and less toxic substances.

POPs are persistent organic pollutants. They may be transported over long distances in the environment. These substances accumulate in the environment and the food chain and have undesirable effects on human health and nature. POPs include certain pesticide active agents (e.g. DDT) and industrial chemicals (e.g. polychlorinated biphenyls, PCB),and also the highly toxic dioxins and furans which form as unwanted by-products in production and combustion processes. Under EU Regulation 1107/2009, pesticides are only approved at EU level if they are not classified as POPs.

Including the highly toxic pesticide endosulfan, which was added by the Fifth Conference of the Parties in 2011, a total of 22 POPs are listed in Annex A to the Stockholm Convention on Persistent Organic Pollutants and are therefore subject to a ban on production and use.

NBS target

By 2020, reduce pollutant inputs into the marine environment to the level of natural background concentrations, and close to zero in the case of synthetic substances (HELCOM, OSPAR)

The parties to the Conventions on the Protection of the Marine Environment of the Baltic Sea (Helsinki Convention, HELCOM) and of the North-East Atlantic (OSPAR Convention) have adopted strategies regarding hazardous substances.

According to the "one-generation target" of OSPAR and HELCOM, which was also adopted in the National Strategy on Biological Diversity, pollutant concentrations in the marine environment are to be reduced close to natural background levels for natural substances and close to zero for synthetic substances. Both marine protection conventions list a selection of

substances that are of special importance for these marine areas. The HELCOM Baltic Sea action plan adopted in 2007 concentrates on 11 selected substances/substance groups relevant to the Baltic Sea, while the OSPAR Convention focuses on 26 substances/substance groups.

The OSPAR Quality Status Report published in 2010 allows progress to be measured against the target set. Assuming that the measures in progress are continued, the one-generation target will be achieved for one third of the substances specified under OSPAR. There has already been a marked reduction in emission levels for heavy metals (lead, mercury, cadmium), polycyclic aromatic hydrocarbons (PAHs) and dioxins and furans.

Pollutant emissions reaching the marine environment directly or indirectly from industrial plants in Europe, i.e. mass pollutants such as sulphur dioxide, oxides of nitrogen, particulates or hazardous substances such as dioxin, aromatics and heavy metals, have also been reduced substantially in the past two decades.

Overall summary

The efforts in the field of air quality control policy have made their effects felt. In many terrestrial ecosystems there has been a reduction in non-compliance with critical loads aimed at protection from acidification and eutrophication. In particular, progress has been made with reducing transport-related and industrial emissions of nitrogen and sulphur compounds. Despite a declining trend, current inputs still exceed the critical loads for acidification on half of all the ecosystem areas assessed and the critical loads for eutrophication on nearly three-quarters of the areas. It is proving difficult to reduce agricultural ammonia emissions to a level compatible with ecosystems. Reducing the overall annual balance of nitrogen excesses to 80 kg per hectare of farmland (target year 2010) has yet to be achieved. However, the annual nitrogen excess fell from 131 kg/ha in 1991 to 95 kg/ha in 2009 (rolling three-year average). The provisions of the revised Fertilisers Ordinance of 2006 can be expected to bring a further reduction in the nitrogen excess. The evaluation of the Fertilisers Ordinance by an expert group in 2012 identified a need for adjustments. The German Government has already held initial discussions with the Länder.

The parties to the Conventions on the Protection of the Marine Environment of the Baltic Sea (Helsinki Convention, HELCOM) and of the North-East Atlantic (OSPAR Convention) have adopted strategies regarding inputs of substances into the marine environment. The HELCOM Baltic Sea action plan adopted in 2007 focuses on 11 selected substances/substance groups, the OSPAR Convention on 26 substances/substance groups.

The Stockholm Convention and the POPs Protocol to the Geneva Convention on Long-Range Transboundary Air Pollution regulate the production and use of persistent organic pollutants which are the incidental result of production or combustion processes and are transported over long distances. The inclusion of additional POPs is currently being considered.

6.3.2 Climate change

According to the most recent assessment report of the IPCC (2007), there is no doubt that global warming is taking place. In Germany, for example, the mean air temperature has risen by 0.8 degrees Celsius since the beginning of the last century.

Climate change has impacts on the distribution of species, the seasonal structure of their life processes, their genetic make-up and the structure of ecosystems. The

existing isolation of habitats means that many less mobile species are unable to avoid climate-induced changes.

Estimates indicate that up to 30 percent of existing animal and plant species could die out in the coming decades as a result of climate change, because their adaptive capacity is limited. At the same time, species introduced by man will increasingly become established in nature, while already established species will spread or new species will settle. According to model calculations, there will be an above-average tendency for the declining species to be among those that are already rare and endangered.

Anthropogenic interventions resulting in impairment of ecosystems and their functions also involve additional adverse impacts on the climate, such as the release of greenhouse gases when draining peatland or ploughing up pasture. On the other hand many nature conservation measures designed to maintain biological diversity also make a contribution to climate change mitigation (e.g. re-establishment of forests, renaturing of peatlands).

NBS target

By 2020, sensitive species and communities can respond to climate change impacts by migrating within a network of spatially or functionally interlinked biotopes.

The Federal Nature Conservation Act (BNatSchG) requires a cross-border system of interlinked biotopes to be created on at least 10 per cent of Germany's land area. Implementing the biotope network is the responsibility of the Länder. In this connection the Federal Agency for Nature Conservation (BfN) has put forward a proposal for a nationwide sectoral concept for the cross-border system of interlinked biotopes.

The significance of the biotope network as a strategy for adaptation to climate change has been specifically investigated in a research and development project commissioned by the BMUB/BfN. This found that the ecosystem approach hitherto adopted in the development of a supra-regional biotope network and the criteria used are basically suitable for creating a biotope network that helps species to make the geographical adjustments necessary to respond to climate change.

NBS target

Devise and establish a system of indicators for the impacts of climate change on biological diversity

In the field of "Biological diversity and climate change" the National Strategy on Biological Diversity contains only one indicator, "Climate change and the start of spring", which reflects the start of apple blossom in Germany. Here the development of apple trees stands for the development of other species. However, this indicator alone is not sufficient to cover the impacts of climate change on biological diversity.

Climate change involves both direct and indirect changes in biological diversity, some of which are far-reaching. Direct adverse effects on biological diversity result from various factors, e.g. shifts in territory, changes in seasonal processes and physiological changes. Indirect adverse effects on biological diversity may arise from land use changes due to climate change or measures to reduce CO2 emissions, e.g. the expansion of renewable energy.

In September 2011 the BMUB/BfN commissioned a research and development project to develop a proposal for a compact set of indicators for identifying the direct and indirect impacts of climate change on biological diversity. The project is also to examine the indicators for which monitoring programmes can already be used and the fields in which there is a need for action to make use of other monitoring data and set up additional monitoring programmes. The results are scheduled to be available at the end of 2014.

Overall summary

To prevent climate change from having serious impacts, the increase in global temperature must be limited to 2 degrees Celsius above pre-industrial levels.

At the UN Climate Conference in Cancún the global community accepted the two-degree target, which is also included in the National Strategy on Biological Diversity, as a binding requirement. It is thus a guide value for climate policy measures. Accordingly, global greenhouse gas emissions should reach a maximum by 2020 and then be reduced to at least 50 per cent of 1990 levels by 2050. Moreover in 2007/2008 the EU committed itself to the "20-20-20" initiative: by 2020 the target is to reduce greenhouse gas emissions by 20 per cent (or possibly 30 per cent, cf. decisions by the Council), raise the renewables share of energy consumption to 20 per cent and increase energy efficiency by 20 per cent. On the basis of the national 40 per cent target, the German Government agrees to raising the EU climate target to 30 per cent, provided Germany is not expected to make any emission reductions in excess of this figure and all EU member states make a fair contribution.

By doing so the German Government has reaffirmed and defined the greenhouse gas emission reduction target laid down in its National Strategy on Biological Diversity. By the end of 2011, Germany's greenhouse gas emissions were already nearly 27 per cent below 1990 levels. This means Germany is more than halfway to achieving the national reduction target of 40 per cent by 2020.

In 2008 the Federal Government adopted the German Strategy on Adaptation to Climate Change in order to manage the climate change impacts that are inevitable even if the two-degree target is achieved. This sets out the framework for a medium-term national adaptation process. To this end the Adaptation Action Plan was adopted in August 2011. This underpins the strategy for the years ahead with specific federal activities and joint action by the federal and Länder authorities. The action plan caters for the "Nature Conservation and Climate Change" concept drawn up by the BMUB/BfN to implement the National Strategy on Biological Diversity, e.g. putting in place an effective and permanently safeguarded system of interlinked biotopes and re-networking measures taking into account the requirements of adaptation to climate change.

The legal and financial conditions for establishing a forest climate fund from 2013 onwards were created through the Act establishing a special "Energy and Climate Fund" (EKFG) in conjunction with the federal budget 2012 and the medium-term financial plans. The forest climate fund is designed to support measures for adapting Germany's forests to the impacts of climate change and avoiding greenhouse gas emissions, and for safeguarding and increasing carbon storage in forests and timber products in the following sectors: 1. Adapting forests to climate change, 2. Ensuring carbon storage and increasing CO2 fixation in forests, 3. Increasing storage in timber products and reducing CO2 through timber products, 4. Avoiding greenhouse gas emissions, and 5. Research, monitoring, information and communication. The aim is to permanently maintain the indispensable contribution that near-natural species-rich forest of varied structure makes towards safeguarding the natural basis for life, and to create synergies between climate action, adapting forests to climate change and conserving biological diversity.

As long ago as 2008 the International Climate Initiative (ICI) was set up as an innovative and independent funding instrument. The initiative has €120 million at its disposal every year. This is used in developing countries and emerging economies for measures including adaptation to climate change and the conservation of climate-

relevant biological diversity, e.g. projects for conserving carbon sinks, especially in forests and other ecosystems such as wetlands.

Furthermore, at the Conference of the Parties in Nagoya in October 2010 the CBD secretariat was requested to draw up a proposal for joint activities by the Framework Convention on Climate Change, the CBD and the Convention to Combat Desertification. This proposal was also to include adaptation measures. This decision marks another step on the way towards the closer international cooperation on updating and implementing these three Rio conventions that is called for in the National Strategy on Biological Diversity.

There is a need to broaden the knowledge base regarding the effects of climate change, in the interests of both avoiding adverse effects and ensuring effective adaptation. The development of an indicator system for the impacts of climate change on biological diversity will make a significant contribution to this.

6.4 Genetic resources

A large proportion of natural biological diversity and hence of animal and plant genetic resources is located in biogeographical regions of the Earth with temperate to tropical climatic conditions. The essential points of the international access and benefit-sharing regime for genetic resources are laid down in Article 15 of the Convention on Biological Diversity. This states that access to genetic resources shall be ensured and the benefits shared on an equitable basis. These provisions were given concrete shape in the Nagoya Protocol, which was adopted at the 10th conference of the parties to the CBD and will enter into force upon ratification by 50 parties. In resource-rich developing countries, such benefit sharing can help to conserve biological diversity and combat poverty. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR) devised a sectoral solution for access and benefit sharing through which some 730,000 specimens of genetic resources had been exchanged between 139 countries by the end of 2012.

The treaty includes provisions on conserving diversity, on access and benefit sharing in the use of genetic resources, and on the rights of farmers to propagate seed (farmers' rights). This makes it possible to improve the conditions for the interchange of plant genetic resources. Germany plays an active part in implementing the treaty, and since 2006 it has supported one of the main financing instruments, the "Global Fund for Crop Diversity", with a total of €7.5 million. The international obligations to conserve endangered domestic animals and cultivated plants are discharged under specific sectoral programmes.

Sustainable use of a great diversity of genetic resources is regarded as a good basis for their conservation. To safeguard biological diversity and harness its elements, there is a need to provide not only for *in-situ* conservation, but also for *ex-situ* conservation and *on-farm* management.

NBS target

An international regime for access to genetic resources and benefit sharing (negotiations to be completed as early as possible before 2010)

The 10th conference of the parties to the CBD adopted the Nagoya Protocol, which lays down rules for access to genetic resources and fair sharing of the benefits of their use. This succeeded for the first time in fleshing out the third goal of the CBD – fair benefit sharing – in a

binding protocol. The international community of states now has an effective instrument – one that provides both developing countries and user countries, especially the industrialised countries, with a reliable framework for the use of genetic resources.

Germany and the EU signed the Protocol in July 2011 and are now working on its implementation and ratification. In 2012 the European Commission put forward a proposal for implementing the Protocol in European law, which was presented at the 11th conference of the parties to the CBD. This proposal now forms a basis for the European legislative procedure for the Nagoya Protocol. At the same time work on developing the Protocol has continued at international level. Among other things, the pilot phase of the Nagoya Protocol's clearing house mechanism was launched at the first two meetings of the intergovernmental panel for the Nagoya Protocol. A further meeting of this panel is planned for 2013.

NBS target

By 2008, draw up a list of species in urgent need of protection by ex-situ measures at national level

Targeted integration of ex-situ and in-situ measures and consideration of local populations are important for a successful long-term strategy for the conservation of endangered species. Only in this way is it possible to preserve intra-species genetic variation and hence the evolutionary potential of species. The BMUB/BfN have commissioned a research and development project for developing a list of plant species requiring priority protection. The project will perform genetic investigations on 10 endangered species for which Germany has responsibility. Based on the findings of the molecular investigations, the aim is to establish exemplary conservation cultures of the selected species on a decentralised basis in German botanical gardens representing the genetic spectrum of species. This is a model project contributing to the national implementation of the Global Strategy on Plant Conservation (GSPC).

The development of the national inventories and information and conservation networks on genetic resources for food and agriculture has made great progress in recent years. The underlying national sectoral programmes for animal, plant, forest and aquatic genetic resources have been constantly updated. Work is in progress on a sectoral programme for genetic resources of microorganisms and invertebrates. Stimulating input is provided here by the results of the model and demonstration projects run by the Federal Ministry of Food, Agriculture and Consumer Protection. This has also created the basis for an ex-situ gene bank for wild plants for food and agriculture.

Overall summary

At international level the community of states finally reached agreement on internationally binding rules for access to genetic resources and fair sharing of the benefits of their use with the adoption of the Nagoya Protocol at the 10th conference of the parties to the CBD in 2010. This at last responded to the many years of calls by the international community of states for fair benefit sharing and created legal certainty for users and providers of genetic resources. The process of ratifying, fleshing out and implementing this protocol has started.

Moreover, a first sectoral solution has already been devised with agreement on the details of the access and benefit-sharing mechanism of the International Treaty on Plant Genetic Resources for Food and Agriculture. Germany plays an active part in implementing the treaty, and since 2006 it has supported one of the main financing instruments, the "Global Fund for Crop Diversity", with a total of €7.5 million. The international obligations to conserve endangered domestic animals and cultivated plants are discharged under specific sectoral programmes.

6.5 Public awareness

Long-term conservation of biological diversity will only be possible with broad support from society. For this to happen, biological diversity must be valued as an important quality-of-life element and a prerequisite for a healthy and fulfilled life. Three aspects play a role in mainstreaming biological diversity in the consciousness of the general public: knowledge, attitude and behaviour. Knowledge and a positive attitude are essential preconditions for people to act in ways that ensure the conservation of biological diversity and reduce pressures on it.

NBS target

Regular surveys of awareness and knowledge about biological diversity

Since 2009 population surveys have been held every two years to investigate personal attitudes to nature, knowledge about nature and biological diversity, and individual readiness to act in ways that protect nature and biological diversity. Two representative surveys commissioned by the BMUB and BfN now exist on awareness of nature in Germany. The surveys are to be repeated at regular intervals in future.

NBS target

By 2015, at least 75 % of the population regard the conservation of biological diversity as one of the priority tasks of society. The importance of biological diversity is firmly embedded in public awareness. The way people act is increasingly geared to this and results in a marked reduction in pressures on biological diversity.

According to the 2011 nature awareness study, the public awareness situation is as follows: the term "biological diversity" is relatively well known to the public; three quarters of the population have heard of it. However, less than half the population know what it means. Biological diversity is mostly equated with species diversity, while the other aspects are less well known.

To permit an overall assessment of awareness taking in knowledge, attitude and behaviour, an indicator for this has been developed as part of the indicator set on biological diversity. According to the survey results from December 2011 and January 2012, 23 per cent of the German-speaking population aged 18 and over had at least an adequate knowledge of biological diversity and a positive attitude to it, and also expressed their readiness to act accordingly. This figure is still a long way from the target of 75 per cent. It is interesting to note, however, that in the latest survey far more of those who were familiar with the term "biological diversity" mentioned not only the diversity of species, but also habitat diversity and genetic diversity as elements of biological diversity.

Numerous initiatives have been started and target group specific measures taken to achieve the NBS target: For example, in addition to many non-governmental actors the BMUB and BMEL publicised the topic to a broad public in the context of the UN International Year of Biodiversity in 2010 and the International Year of Forests in 2011. New initiatives like the nationwide Walking Day held every year since 2010 reach very large numbers of people. The UN Decade on Biological Diversity 2011-2020 also pursues the aim of raising awareness of the need to conserve biological diversity. And the NBS process of dialogue with governmental and non-governmental actors help to implement this goal.

Overall summary

Changes in public awareness cannot be brought about overnight, but require long-term efforts and learning processes designed for specific target groups.

With their many and varied activities, the International Year of Biological Diversity in 2010, the International Year of Forests in 2011 and the ongoing UN Decade "Education for Sustainable Development 2005 - 2014" have done much to raise public awareness.

The process of implementing the National Strategy on Biological Diversity with its dialogue-oriented approach and the numerous activities of cities and municipalities are contributing to this, as are the public-relations activities of the nature conservation associations, foundations and academies, and the open-air museums and zoological and botanical gardens.

Communicating awareness of nature is not a task that is confined entirely to nature conservation. As well as other user associations, the German Olympic Sports Confederation (DOSB), which with its 91,000 associations and nearly 28 million members has great potential as a communicator and multiplier, supports this awareness-raising process on a broad front.

The recent surveys on awareness of nature have shown that the efforts by the various governmental and non-governmental actors are bearing fruit. They reveal that between 2009 (first survey) and 2011 (second survey) there was a marked improvement in knowledge about the three dimensions of biological diversity (species diversity, habitat diversity, genetic diversity).

Under the UN Decade "Biological Diversity 2011-2020" new means of communicating biological diversity are being developed, tested and expanded with financial support from the BMUB.

Since education is the responsibility of the Länder, the federal level can only play a supporting role here. For example, the BMUB offers an educational service on the topic of biological diversity and has had a "Teaching the Environment" service developed as a website for teachers, with background information, teaching suggestions, media and materials on numerous nature-relevant topics for various school levels. As part of the Federal Programme on Biological Diversity, various model projects with educational content on biological diversity are receiving support from the BMUB in the key assistance area "Other measures".

http://www.bmub.bund.de/themen/umweltinformation-bildung/bildungsservice/
http://www.umwelt-im-unterricht.de/

6.6 Research and technology transfer

Targeted research into biological diversity forms a central foundation for the conservation and sustainable use of biological diversity. Research into biological diversity has a long tradition in Germany. This is true not only of systematic taxonomic research with its outstanding research establishments and collections of international acclaim, but also of ecological research into the species in their habitats and of molecular biology with its molecular and phenotype methods of characterising biological diversity.

Efficient methods of conserving biological diversity presuppose an adequate knowledge of diversity and also require communication of know-how on sustainable management of natural resources. This is where the Federal Ministry of Education and Research comes in by supporting the network "GBOL - German Barcode of Life". The aim is to create the scientific basis for a reliable and inexpensive automated system for identifying biological diversity for a wide range of uses. The focus is on developing

molecular markers, or "bar codes", and establishing a comprehensive gene database for Germany's flora and fauna. The intention is also to establish automated workflows for identifying extensive environmental samples and to perform various application studies, including economic assessment of the techniques used. These techniques should help to make biodiversity monitoring easier for the relevant institutions.

The aim of research and technology transfer, especially with developing countries, is to build up "sustainable partnerships" with these countries in the field of nature conservation and biological diversity in accordance with the goals of the CBD, and to use them to achieve sustainable effects. To this end research structures in particular need to be strengthened in the partner countries as part of capacity building efforts.

Promoting research capacity in developing countries is an important part of the BMBF's support for research in its cooperation projects with developing countries. This includes a research project in Madagascar on "Participatory research to support sustainable land management on the Mahafaly Plateau in south-western Madagascar (SuLaMa)". As in many sensitive ecosystems around the world, the local actors on the Mahafaly Plateau practise non-sustainable forms of land use as a result of high production risks and the economic framework conditions. The reasons for the pressure on ecosystems include population growth, poverty, lack of education, and the impacts of climate change. With a view to sustainable improvements in the basis for the life of present and future generations, SuLaMa is investigating these problems and examining alternative forms of land use which at the same time help to maintain and strengthen the biodiversity of the ecosystems and the associated ecosystem functions and services.

Germany made a major contribution to the biodiversity projects supported by the 7th Framework Research Programme of the EU. This success is also due to the qualified advice from the German research community financed by the BMBF.

The BMBF and the German Research Association also support ERA-Net BiodivERsA, a network of 21 research sponsoring associations in 15 European countries which since 2008 has assisted 21 joint European projects with German participation under annual public promotion notices.

The "Biodiversity and Global Change" (BIOLOG) research programme was successfully completed in 2010. A major closing conference was held with close involvement of stakeholder groups, decision makers and local actors. The assistance measure included strategies for improving the status of biodiversity and a long-term biodiversity monitoring system.

A BMBF research programme on sustainable land management has been successfully implemented and will run until 2016. It consists of three main areas. These address issues that extend far beyond classic sectors like agriculture and forestry to take in aspects such as use of water, soil or biodiversity, regional added value, urban-rural relationships, quality of life, segregation into dwindling and flourishing regions etc.

The BMBF supports the provision of species-specific data (identification, spread, status) via the Global Biodiversity Information Facility (GBIF). GBIF is an international initiative that seeks to make scientific facts and figures on species permanently and freely available worldwide in digital form via the Internet. Germany is a founder member of this international initiative, and the BMBF has supported this initiative since 2001 by paying an annual membership fee.

Furthermore, since 2002 the BMBF has been promoting the establishment and expansion of a German GBIF node system which is based on fairly large groups of organisms and has been supplemented since 2009 by an extensive GBIF soil zoology information system. With more than 50 different institutions in close on 100 individual

projects, almost all major natural history collection institutes and research establishments are involved in building up the German GBIF structure.

Another project supported by the BMBF is the Network Forum project coordinated by the Helmholtz Centre for Environmental Research (UFZ) in Leipzig. By assisting this project, the BMBF has contributed to better networking of German biodiversity research and the practical application of scientific knowledge. The platform helps scientists to bring about cooperation between representatives of various disciplines. At the same time the platform assists decision makers in the search for information on scientific answers to topical problems. This puts them in a position to make soundly based decisions.

In April 2012 the German Research Association (DFG) decided to support a research centre for integrative biodiversity research (€33 million over a five-year period, including eight new professorships). The funding went to the joint bid by the universities of Leipzig, Halle and Jena and the UFZ in Leipzig.

Moreover, since 2006 the DFG has been supporting the priority programme "Infrastruktur – Biodiversity Exploratories". Among other things, this is concerned with the influence of land use and management on biodiversity, and also with biodiversity changes and their influence on ecosystem processes. The following were chosen as long-term study areas (exploratories): the Schorfheide-Chorin biosphere reserve (Brandenburg), the Hainich national park (Thuringia) and the Schwäbische Alb biosphere reserve (Baden-Württemberg).

http://www.bolgermany.de/
http://www.biodiversa.org/
http://www.gbif.de/homeenglish
http://www.biodiversity.de/index.php/de/english

6.7 Innovation and employment

Innovation potential of biological diversity

The German government has made a considerable contribution to stepping up research and development in Germany to 2.9 per cent of gross domestic product in 2011. This means the 3-per cent target is almost achieved. As a concrete step, the government has launched the €6-billion programme for research and development under the title of "New Impetus for Innovation and Growth".

The German Government has set itself the target of substantially improving the conditions for private-sector investment in innovation. In summer 2006 it therefore bundled its initiatives aimed at exploiting future markets in a high-tech strategy that combines research support with innovation-friendly design of the framework conditions.

Developing products and technologies modelled on nature is a growth market for the future. In an evolutionary process lasting million of years, nature has developed optimum solutions for a vast range of problems, and these can serve as models for developing innovative technologies. The interdisciplinary research field of bionics is concerned with systematically identifying such solutions and opportunities for transferring them.

Support for bionics has been steadily intensified by several federal ministries since 2001, with the largest input of resources coming from the Federal Ministry of Education and Research (BMBF). Key areas here have been the establishment of a bionics

competence network and assistance for feasibility studies and joint projects. Between 2007 and 2012 a total of 35 projects were supported by the promotion measure BIONA "Bionic Innovations and Technologies", which is now completed. Many of the developments supported have great market potential. For example, remarkable results were achieved by the development of an anti-fouling formulation for marine paints that prevents organisms growing on ships' hulls. This can cut fuel consumption by up to 40 per cent. Substituting this for conventional marine paints can avoid using at least 60,000 tonnes of toxic substances a year. In another project, car suspension parts were optimised by using design principles modelled on the growth of trees. The weight-reduced components with a truss-like bracing structure are up to 22 per cent lighter than conventional components.

Bionics is increasingly being used in industry as a source of innovation, not only in the automotive industry, but also in aircraft construction or mechanical engineering, and in sensor systems and robotics. It is becoming increasingly established within companies, and often serves to stimulate the development of new products. Bionics makes it possible to expand and develop existing competencies. Manufacturing innovative products based on bionic approaches is normally accompanied by a corresponding improvement in competitive strength and job security in German companies. To date it has not been possible to quantify this. Many interesting approaches arising from research and development projects still need several years to reach market maturity.

http://www.bionische-innovationen.de/

Employment potential of biological diversity

Sustainable use of biological diversity offers employment opportunities in a large number of industries and fields of activity. On the one hand it offers massive potential for the sustainable development of rural areas, while on the other, it makes an important contribution to local added value. For example, sustainable tourism that is in harmony with nature and landscape and is based on sustainable management, and hence on resource efficiency and climate protection, provides an excellent basis for making a long-term contribution to regional added value and thus to growth and prosperity. At the same time, sustainable tourism caters for growing consumer demands on the quality front and helps companies to stand up to competition.

Strengthening sustainable tourism in rural areas is therefore a special key area for the Federal Environment Ministry. With about 130 national natural landscapes (national parks, biosphere reserves and nature parks) covering about one third of its land area, Germany offers excellent conditions for experiencing nature with great recreation and leisure value. A study by the University of Würzburg for the BMUB revealed that Germany's 14 national parks alone are visited by about 50.9 million people a year. This involves a gross sales revenue of around €2.1 billion, thereby creating or safeguarding about 70,000 jobs in these regions. At present a similar study is in progress on the 16 biosphere reserves in Germany.

The number of jobs in Germany in the organic farming sector, including further processing and sale of the relevant products, has risen to 180,000. In 2011 Germany remained the biggest organic food market in Europe, with sales of €6.6 billion, and the upward trend is continuing.

Employment in the field of regrowable raw materials is showing a marked increase. Gross employment in this sector (excluding use of timber) in 2011 was estimated at 224,400 jobs.

6.8 Lighthouse projects: Trend-setting examples

The National Strategy on Biological Diversity contains a number of "lighthouse projects". These are a series of widely differing projects aimed at conserving biological diversity. They provide exemplary demonstrations of how it is possible to cater equally for ecological, environmental and social aspects in the spirit of the guiding principle of sustainability. In each case, diverse actors and sometime various individual projects are brought together under the umbrella of the lighthouse project. The federal level is involved in all these projects. The objectives and results of some of these projects are described below.

Conserving and safeguarding the Green Strip along the former Iron Curtain as a natural heritage and historic monument

Project partners: BMUB, BfN, Länder, BUND and other nature conservation associations

The Green Strip, the former border strip between East and West Germany, is 1,400 km long. It contains a large number of valuable habitats, serves as a refuge for many endangered species and includes numerous Natura 2000 areas. It touches nine Länder and is intended to form the backbone of the supra-regional system of interlinked biotopes. Since autumn 2009, federal land within the Green Strip has been assigned as part of the National Natural Heritage to Länder or their nature conservation foundations, which now have the task of maintaining and developing these areas for the purposes of nature conservation.

The "Green Strip" lighthouse project pursues a broad cross-sectional approach that seeks to maintain and develop the Green Strip as a unique national biotope network, while at the same time catering for economic aspects (nature tourism, regional development) and its importance as a historic monument. The National Strategy on Biological Diversity shows a timeline of 2015 for this comprehensive project.

In line with the cross-sectional approach, the German government is promoting a wide variety of mutually complementary projects under the umbrella of the lighthouse project. The "Green Strip Experience" trial and development project, which ran from 2005 to 2011, served to increase local acceptance of the former border strip with its unique nature conservation value and to establish the sustainable tourism value of the Green Strip as a space for experiencing "nature, culture, history". In three model regions (Elbe-Altmark-Wendland, Harz and Thüringer Wald/Thüringer Schiefergebirge/Frankenwald), sustainable tourism offerings were created by linking practical nature conservation measures and opportunities for experiencing nature with the history and special cultural features of the border region, ranging up to specific "bookable packages".

A conference on the management of the Green Strip in November 2011 brought together the principal landowners and actors with the aim of developing a joint model for biotope maintenance and initiating an experience-sharing process.

A research and development project started in May 2012 to update the biotope mapping carried out in 2001. This is also intended to provide a basis for implementation of the vision by future management and for verifying compliance with

the agreements made in the interests of nature conservation when the land was transferred.

In recent years two new projects have been included in the funding in addition to the four major nature conservation projects already running in connection with the Green Strip.

A project by the nature conservation association BUND which is receiving assistance under the Federal Biodiversity Programme is concerned in particular with upgrading existing deficit areas (e.g. arable land, overgrown open-space habitats) that are needed to close gaps. A wide range of activities to raise awareness and increase acceptance of the Green Strip are being undertaken to ensure successful implementation of the nature conservation measures. New information media (Web 2.0) are being used for this purpose.

With all these activities, Germany is making an important contribution to the German Government's "European Green Belt" initiative. This aims to maintain and develop the entire border strip along the former Iron Curtain from the Barents Sea to the Black Sea, with a total length of over 12,500 km.

www.erlebnisgruenesband.de

Reintroducing the sturgeon

Project partners: BMUB/BfN, Gesellschaft zur Rettung des Störs e.V. (Save the Sturgeon Association), Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB), Mecklenburg-West Pomerania Research Centre for Agriculture and Fisheries

Until the end of the 19th century, sturgeons were part of the communities of rivers and coastal waters in northern Germany. Pollution of the environment and obstruction of water bodies, and also drastic overfishing, led to the disappearance of this species. Since 1996 the BMUB/BfN have been supporting long-term research, breeding and reintroduction projects with the aim of re-establishing populations of the two species that historically occurred in the catchment area of the North Sea and Baltic Sea – the European sturgeon *(Acipenser sturio)* and the Atlantic or Baltic sturgeon *(Acipenser oxyrhinchus)* – so that they can breed and multiply. The projects are being run in cooperation with the Leibniz Institute of Freshwater Ecology and Inland Fisheries, and the Mecklenburg-West Pomerania Research Centre for Agriculture and Fisheries.

A German-Polish project for re-introducing the Baltic sturgeon into Germany has been running since 2006 in the form of an annual stocking programme in the River Oder using fry from captive-bred stock from North America.

There is a Franco-German project for re-introducing the European sturgeon. A first major stocking campaign with 1500 sturgeon fry from a French breeding station was run in the Elbe and its tributaries in 2011. Further releases of young European sturgeon in the Elbe region took place in 2012.

The sturgeon re-introduction projects are also intended to serve as means of improving the basic living conditions for other animal species in the ecosystems they inhabit. This is achieved, for example, by means of an integrated river basin management system

designed to restore natural river dynamics and improve structural diversity. Professional and amateur fishermen were involved at an early stage, resulting in great readiness on the part of this user group to support these projects.

Nature Conservation and Health Protection

Project partners: BMUB/BfN, University of Bonn, German Nature Parks Association (VDN), nature parks TERRA.vita, Hohes Venn and Thüringer Wald

The physical and mental health of human beings is closely connected with nature and landscape. Both nature conservation and health protection can profit if they take greater advantage of and communicate the benefits of positive synergies.

The lighthouse project took three nature parks as model areas and developed strategies for linking nature conservation with measures designed to promote and maintain health. The model areas selected were the nature parks TERRA.vita (Lower Saxony/North-Rhine/Westphalia), Hohes Venn-Eifel (North_Rhine/Westphalia) and Thüringer Wald (Thuringia), where initial activities in the field of health already existed.

In each of the nature parks, an action network was formed by bringing together all relevant actors in the health and nature conservation sectors and actors from the tourism and culture sector. Forums were held at regular intervals where the actors shared, discussed and developed new project ideas at the interface between nature and health.

The project also tested ways of communicating the positive synergies between nature conservation and health protection. Repositioning and new alliances succeeded in developing and improving the image of nature conservation, which in the past has sometimes been seen as regulatory and restrictive.

www.naturparks-und-gesundheit.de

Landscape development with a future – re-networking for sustainable conservation of biological diversity: Developing a nationwide action programme to overcome barriers and re-network ecological systems

Project partners: BMUB/BfN, BMVI/BASt

As a densely populated industrialised country, Germany has a well-developed transport infrastructure. Increasing traffic density and fragmentation of habitats by the transport network have in some cases resulted in the isolation and qualitative deterioration of existing habitats for animals and plants. Above all, the barrier effects of roads adversely affects interchange within and between populations and also the colonisation of new habitats. Moreover, the high traffic density gives rise to considerable losses in the case of animals. The fragmentation effects and the high traffic density also result in a large number of accidents involving wild animals.

The Federal Environment Ministry (BMUB) and the Federal Transport Ministry (BMVI) have jointly developed the programme "Federal Re-networking Programme". This

seeks to minimise the fragmentation effects arising from the existing system of federal highways. The scientific basis for the programme is the research findings on habitat corridors in Germany that have been available since 2009. These cover the habitat network of dry biotopes, wet biotopes and HNV forest biotopes and the corridor system for larger forest-dwelling mammals. On this basis, the federal programme provides for re-networking measures in the non-local transport infrastructure at locations where, from a federal point of view, the network of habitat corridors is considerably fragmented by federal highways. The measures will at the same time improve traffic safety. To this end the programme lists 93 sections of federal motorways and federal highways where medium to long-term financing of crossing aids is possible from the annual budget for federal highways.

In February 2012 the German Government adopted the "Federal Re-networking Programme". Its implementation calls for close cooperation between federal, regional and local authorities and the conservation and user associations. In addition the federal level is providing assistance under the lighthouse project for model projects designed to implement re-networking measures such as the trial and development project "Holstein Habitat Corridors".

http://www.bmub.bund.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/broschuere_wiedervernetzung_bf.pdf

Rewards strategies in agricultural landscapes – biodiversity and spatial complexity (BIOPLEX)

Project partners: BMBF, Universities of Gießen and Göttingen, Rural District of Northeim, German Federal Foundation for the Environment, and other regional partners

During the period 2000 to 2010, a research project in the rural district of Northeim (Lower Saxony) developed a rewards strategy to promote sustainable use of agricultural land on a larger scale. In addition to the conventional agricultural products, farmers were also able to offer ecological assets on a voluntary basis, e.g. species-rich meadows, hedges or wild herbs and flowers. In this way the farmers produced additional biological diversity, for which they were then rewarded. The farmers were free to decide for themselves what restrictions this meant for their farm management.

The rules for this system, i.e. which offerings of ecological assets were desirable and how they were to be rewarded, were drawn up by a regional advisory committee in close cooperation with conservationists, farmers, politicians and the regional administration. Final selection of the farmers' offerings was by means of a tender procedure based on market principles. Surveys of the local populations were also carried out to identify suggestions and interests, which were taken into account in the rewards strategy.

During the course of the project, the project officers succeeded in attracting €116,000 from regional sponsors, the rural district of Northeim and the German Federal Foundation for the Environment. This money was then used via various tender procedures to increase biological diversity in the region.

In summary, the project achieved marked improvements in the effectiveness of agro-environmental measures geared to measurable biodiversity conservation results. These

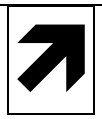
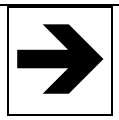
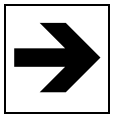
measures also led to better networking of the actors concerned and improved public acceptance of agro-environmental measures. Relevant findings from the BIOPLEX project have therefore been incorporated in current agro-environmental measures in Lower Saxony.

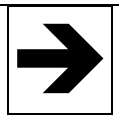
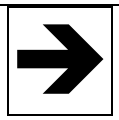
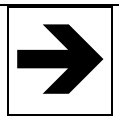
http://www.uni-giessen.de/bioplex/

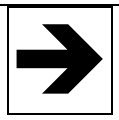
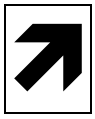
Part III: Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Development Goals.

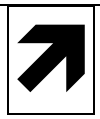
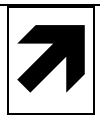
Q10: What progress has been made by your country towards the implementation of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets?

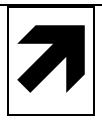
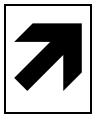
The following table provides an overview of the progress made in implementing the Strategic Plan, with references to more detailed treatment in the individual chapters.

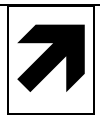
Target as worded in the new Strategic Plan of the CBD	
Target 1 **By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.** See comments on: Q2: "Awareness of biological diversity" (page 23ff.) Q8: Activities in connection with the "International Year of Biodiversity" (page 51) Q8: Activities in connection with the "UN Decade on Biodiversity" 2011-2020" (page 51) Q9: "Social dialogue" (page 48ff.) Q9: "Communication concept" (page 54ff.) Q9: "Recreation and tourism close to nature" (page 92ff.) Q9: "Public awareness" (page 101ff.)	
Target 2 **By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.** See comments on: Q9: "Impacts of German activities on biological diversity worldwide" (page 81ff.) Q9: "Genetic resources" (page 99ff.) Q11: "Actions to implement the Convention towards achievement of the 2015 targets of the Millennium Development Goals" (page 117ff.)	
Target 3 **By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant national obligations, taking into account national socio-economic conditions.** See comments on: Q9: "Sustainable use of biological diversity" (page 77ff.) Q9: "Agriculture" (page 83ff.)	

Target 4 **By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.** See comments on: Q8: “National Sustainability Strategy” (page 41ff.) Q9: “Sustainable land management and ecosystem services” (page 53ff.) Q9: “Conservation and sustainable use of agrobiodiversity” (page 54ff.) Q9: “Eco-friendly economic activity” (page 77ff.) Q9: “Sustainable use of biological diversity” (page 77ff.) Q9: “Role of the state as model” (page 80ff.) Q9: “Agriculture” (page 83ff.) Q9: “Soil use” (page 85ff.) Q9: “Resource extraction and energy production” (page 86ff.) Q9: “Wide-area diffuse substance discharges” (page 94ff.)	
Target 5 **By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.** See comments on: Q2: “Species diversity and landscape quality” (page 11ff.) Q2: “Area protection” (page 14ff.) Q2: “Land take” (page 15ff.) Q7: “Forest strategy 2020” (page 43ff.) Q9: “Habitat diversity” (page 57ff.) Q9: “Individual habitats” (page 63ff.) Q9: “Peatlands” (page 71ff.) Q9: “Landscapes” (page 74ff.) Q9: “Land take for settlement and transport purposes” (page 89ff.) Q9: “Mobility” (page 91ff.) Q9: “Conserving and safeguarding the Green Strip” (page 106ff.) Q9: “Landscape development” (page 109ff.)	
Target 6 **By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.** See comments on: Q9: “Biodiversity” (page 55ff) Q9: “Coasts and seas” (page 65ff.) Q9: “Lakes, ponds and pools” (page 67ff.) Q9: “Rivers and water meadows” (page 68ff.)	

Target 7 **By 2020 all areas used for agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.** See comments on: Q2: “Agro-environmental measures” (page 16) Q2: “Organic farming” (page 17) Q2: “Genetic engineering in agriculture” (page 18) Q2: “Nitrogen excess in agriculture” (page 19) Q2: “Sustainable forestry” (page 21) Q7: “Agrobiodiversity strategy” (page 42) Q7: “Forest strategy 2020” (page 43) Q9: “Sustainable land management and ecosystem services” (page 53ff.) Q9: “Conservation and sustainable use of agrobiodiversity” (page 54ff.) Q9: “Agriculture” (page 83ff.) Q9: “Soil use” (page 85ff.) Q9: “Resource extraction and energy production” (page 86ff.) Q9: “Rewards strategies in agricultural landscapes” (page 110ff.)	
Target 8 **By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.** See comments on: Q2: “Nitrogen excess in the agricultural sector” (page 19) Q2: “Eutrophicating nitrogen inputs” (page 20) Q9: “Lakes, ponds and pools” (page 67ff.) Q9: “Rivers and water meadows” (page 68ff.) Q9: “Groundwater” (page 73ff.) Q9: “Wide-area diffuse substance discharges” (page 94ff.)	
Target 9 **By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.** See comments on: Q9: “Genetic diversity” (page 60ff.), especially: Q9: “The natural genetic diversity of the wild populations is protected from harmful effects due to invasive alien species” and other NBS targets.	
Target 10 **By 2015, the multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.** See comments on: Q2: “Climate change and start of spring” (page 22) Q8: “German strategy for adaptation to climate change” (page 41ff.) Q8: “National Marine Strategy” (page 42) Q9: “Coasts and seas” (page 65ff.) Q9: “Wide-area diffuse substance discharges (page 94ff.) Q9: “Climate change” (page 96ff.)	

Target 11 **By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.** See comments on: Q8: “National Marine Strategy” (page 42) Q9: “Coasts and seas” (page 65ff.) Q9: “Lakes, ponds and pools” (page 67ff.) Q9: “Rivers and water meadows” (page 68ff.) Q9: “Peatlands” (page 71ff.) Q9: “Landscapes” (page 74ff.) Q9: “Climate change” (page 96ff.) Q9: “Conserving and safeguarding the Green Strip” (page 106ff.)	
Target 12 **By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.** See comments on: Q9: “Federal Biodiversity Programme” (page 52ff.) Q9: “Biodiversity” (page 55ff) Q9: “Coasts and seas” (page 65ff.) Q9: “Rivers and water meadows” (page 68ff.) Q9: “Peatlands” (page 71ff.) Q9: “Mountains” (page 72ff.) Q9: “Genetic resources” (page 99ff.) Q9: “Conserving and safeguarding the Green Strip” (page 106ff.) Q9: “Reintroduction of the sturgeon” (page 107)	
Target 13 **By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other species of high socio-economic as well as cultural value, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.** See comments on: Q9: “Conservation and sustainable use of agrobiodiversity” (page 54) Q9: “Genetic resources” (page 99ff.) Q9: “Research and technology transfer” (page 102ff.)	
Target 14 **By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.** See comments on: Q9: “Impacts of German activities on biological diversity worldwide” (page 81ff.) Q9: “Genetic resources” (page 99ff.) Q11: “Actions to implement the Convention towards achievement of the 2015 targets of the Millennium Development Goals” (page 117ff.)	

Target 15 **By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.** See comments on: Q9: “Peatlands” (page 71ff.) Q9: “Impacts of German activities on biological diversity worldwide” (page 81ff.) Q9: “Wide-area diffuse substance discharges” (page 94ff.) Q9: “Climate change” (page 96ff.)	
Target 16 **By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.** See comments on: Q9: “Genetic resources” (page 99ff.)	
Target 17 **By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan (NBSAP).** See comments on: Q5: “What are the biodiversity targets set by your country?” (page 32ff.) Q5: “Links with strategies at various levels of government” (page 40ff.) Q8: “How effectively has biodiversity been mainstreamed into relevant sectoral and cross-sectoral strategies, plans and programmes?” (page 47ff.)	
Target 18 **By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.** See comments on: Q2: “Organic farming” (page 17) Q9: “Impacts of German activities on biological diversity worldwide” (page 81ff.) Q9: “Genetic resources” (page 99ff.) Q9: “Research and technology transfer” (page 103ff.) Q11: “Actions to implement the Convention towards achievement of the 2015 targets of the Millennium Development Goals” (page 117ff.)	
Target 19 **By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.** See comments on: Q9: “Sustainable use of biological diversity” (page 77ff.) Q9: “Research and technology transfer” (page 102ff.)	

Target 20 **By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.** See comments on: Q9: “Financial assistance” (page 52ff.) Q11: “Actions to implement the Convention towards achievement of the 2015 targets of the Millennium Development Goals” (page 117ff.) Germany does not yet have any estimate of expenditure Germany has not fixed this expenditure (% of GDP) From 2013 onwards, Germany is providing €500 million a year to support action to conserve forests and other ecosystems worldwide	

Q11: What has been the contribution of actions to implement the Convention towards the achievement of the relevant 2015 targets of the Millennium Development Goals in your country?

Poor people in developing countries are particularly dependent on intact ecosystems and their important services, such as clean water, stable climate, food or source materials for medication. The impacts of excessive, inappropriate use of nature are especially dramatic in developing countries. The natural regeneration capacity of soil, water, air and whole habitats is destroyed, more and more species and ecosystems and their services are irretrievably lost, and one fifth of all greenhouse gas emissions caused by man are due to deforestation. This is especially true of developing countries and emerging economies that are rich in biological diversity – 80 per cent of the world's biodiversity is found in developing countries. This often robs poor people in particular of their only basis for life.

The fact that the German Government considers biodiversity conservation to be just as important as climate action was underlined by Federal Chancellor Dr. Angela Merkel in 2008. Speaking at the Ninth Conference of the Parties to the CBD in Bonn, she announced that Germany would provide an additional €500 million for the period 2009 to 2012 and a further €500 million a year from 2013 onwards for the conservation of forests and other ecosystems around the world. The greater part of these funds comes from the budget of the Federal Ministry for Economic Cooperation (BMZ). The BMZ has therefore made a significant increase in its bilateral commitments in this field – from €159 million newly pledged funds in 2008 to €309 million in 2011. Up to the end of 2012, the Federal Environment Ministry (BMUB) approved biodiversity-related business projects with a total volume of around €300 million in economically weak countries as part of the International Climate Initiative (ICI). By the end of 2012 the BMUB also made further promises totalling about €70 million from the special "Energy and Climate Fund".

The aim of the German Government's engagement is to make a concrete contribution to poverty eradication in partner countries through the conservation and sustainable use of natural resources and biological diversity, and thereby enable people in the long term to have a fair share in the services of nature. It helps partner countries to ensure better protection of biodiversity and to derive greater economic value from it: if the local population benefits from natural services, this creates incentives for sustainable and fair use of biological resources, reduces poverty and contributes to achieving the Millennium Development Goals. This also leads to increased inclusion of biodiversity issues in development plans and in business and private decision processes. The basis for action is the three goals of the Convention on Biological Diversity and the ambitious Strategic Plan for the period 2011-2020 adopted at the Tenth Conference of the Parties. Capacity building measures will also be stepped up in future under the new international scientific panel IPBES to permit fair benefit sharing by developing countries. After all, effective conservation is only possible if knowledge is available about the diversity of species and ecosystems.

Developing and establishing sustainable conservation and use concepts, e.g. for protected areas and their peripheral zones, helps to ensure long-term maintenance of the natural basis for life of the local population. In addition to the intrinsic value of the individual protected areas, this conserves important services that these areas provide for people in the region and elsewhere. Involving indigenous and local communities is particularly important here. Conflicts of use are avoided by integrating biodiversity and forest conservation in other sectors of German development policy, e.g. good governance, agriculture or water. Cooperation with "polluter sectors", such as industry and agriculture, and expansion of sustainable production methods and strategies lay the foundations for poverty-oriented

economic development that respects the environmental limits of our planet in the spirit of sustainable development ("Green Economy").

Promoting the use of ecosystem services to protect the population from extremes of climate makes an important contribution to climate change mitigation that can supplement or replace costly technical solutions. The German Government supports the mechanism for reducing emissions from deforestation and forest degradation (REDD+): this assigns a monetary value to the carbon stored in forests. For example, developing countries that are particularly successful in the field of forest conservation are to be rewarded for emission savings arising from forest conservation and rehabilitation by compensation payments that provide an incentive to conserve forests. Projects in the REDD+ sector provide political advice, convey technical knowledge, make necessary investment resources available, help with the establishment of institutions and promote experience and information sharing.

Another area on which attention is being focused is the protection and sustainable use of the biological diversity of marine waters. The oceans are some of the most over-used ecosystems on Earth. Serious overfishing of marine waters is increasingly threatening the basis for life of the local coastal populations and creating problems for the global food situation. Moreover, coastal habitats such as mangrove forests and coral reefs are important elements for natural coastline protection – especially in view of rising sea levels due to climate change – and represent an important economic basis for the local population, e.g. through tourism. The BMUB therefore provides targeted support for projects in the field of protecting coasts and marine waters, and intends to step up its efforts in this sector in the future.
German development cooperation also works with partner countries to implement the Nagoya Protocol on access to genetic resources and benefit sharing (ABS). Partnerships with the private sector are intended to ensure that more value is added in the source countries, thereby creating incentives for more sustainable use of biodiversity. To this end German development cooperation works closely with other donors – e.g. in the ABS Capacity Development Initiative. In addition, Germany is supporting the establishment of the ABS Clearing House Mechanism, one of the central instruments for the practical implementation of the Nagoya Protocol. This is designed to put developing countries in particular in a position to supervise access to their genetic resources.

The conservation and maintenance of forests and biodiversity must be placed on a broad footing in society. In 2010, to facilitate better use of opportunities for cooperating with civil society, the Federal Ministry for Economic Cooperation and Development (BMZ) created specifically for this purpose an NGO facility which makes grants totalling €7 million a year to German non-governmental organisations for biodiversity conservation projects. Under the special "Energy and Climate Fund" (ECF), the "Climate action, Forest and Biodiversity Conservation" facility made a further €8.5 million in 2011 for German non-governmental organisations and municipalities. Under the Federal Environment Ministry's International Climate Initiative, biodiversity projects approved up to 2011 in which NGOs were the sole executing body or major project partners reached a total volume of €82 million.

In 2011 the BMZ, under the special "Energy and Climate Fund" (ECF), promised amounts totalling €43 million in the forest and biodiversity conservation sector for the implementation of measures especially in the fields of REDD+ and ecosystem-based adaptation to climate change.

At multilateral level Germany is the third-largest donor to the Global Environment Facility (GEF) in the field of biodiversity/forests and the largest donor to the multilateral Forest Carbon Partnership Facility (FCPF), which is testing REDD+ in practice.

Further information about Germany's engagement in the field of worldwide biodiversity conservation can be found in the brochure "Committed to Biodiversity".

http://www.bmz.de/en/publications/type_of_publication/special_publications/Biodiversity.pdf

Lighthouse projects: Trend-setting examples

The National Strategy on Biological Diversity contains a number of "lighthouse projects". These are a series of widely differing projects aimed at conserving biological diversity. They provide exemplary demonstrations of how it is possible to cater equally for ecological, environmental and social aspects in the spirit of the guiding principle of sustainability. In each case, diverse actors and sometime various individual projects are brought together under the umbrella of the lighthouse project. The federal level is involved in all these projects. The objectives and results of some of these projects are described below.

Developing and implementing an international standard for sustainable collection of medicinal and aromatic plants in the wild

Project partners: BMUB, BfN, WWF Germany, IUCN-SSC

For the foreseeable future, the demand for most of the plants used and traded will have to be met by gathering wild plants, since the cost of cultivating such plants is high and many medicinal plants are neither easy nor economic to grow. However, estimates indicate that the populations of up to 15,000 medicinal plant species are endangered, which is due among other things to non-sustainable collection practices. Sustainable design of such use is therefore a matter of great importance.

The BMUB/BfN have promoted the development of an international standard for sustainable wild collection of medicinal and aromatic plants (ISSC-MAP) in several projects since 2004.

First of all, several implementation scenarios were drawn up: One was certification by means of a quality label, another was the field of "advocacy", i.e. publicising and advocating the standard with a view to its voluntary adoption by companies or by donor organisations (e.g. Deutsche Gesellschaft für Internationale Zusammenarbeit, GIZ) when assigning projects, or statutory implementation (e.g. under CITES).

The subsequent practical implementation focused largely on developing a quality label to inform consumers. Since the introduction of a quality label focusing solely on ecological sustainability did not appear very promising from a sectoral point of view, the BMUB/BfN, IUCN and WWF as organisations responsible for the ISSC-MAP decided in autumn 2008 to enter into close cooperation with the FairWild Foundation, which until then had been geared entirely to FairTrade.

A written agreement on this cooperation was signed by the directors of the responsible organisations at the IUCN World Conservation Congress in Barcelona in October 2008.

This was followed by the establishment of a joint foundation with a common quality label bearing the name "FairWild" as a recognisable brand. This quality label can be used to certify both the social and ecological sustainability of wild collection.

The growing interest of companies in FairWild certification demonstrates the market acceptance of this quality label. The first certified products are already available in Europe, the USA and Canada. In 2010, producers in nine countries received FairWild certification for a total of 46 plant species.

http://www.bfn.de/0310_steckbrief_wildsammlung.html

IPEN – an international network for botanical gardens for regulating the exchange of plants for non-commercial use in accordance with the CBD guidelines

Project partners: BMUB, BfN, Verband Botanischer Gärten e.V. (German Association of Botanical Gardens)

The roughly 1,800 botanical gardens that exist around the world have collections totalling more than 80,000 different plant species, which amounts to about one third of all higher plant species. They therefore make an important contribution to conserving biological diversity. International seed exchange is the most important source for botanical gardens wishing to add plants to their collections.

Initiated by the German Association of Botanical Gardens, the International Plant Exchange Network (IPEN) was developed with the support of the BMUB/BfN. The network enables its member gardens to exchange living plant material by a simplified procedure while ensuring transparent compliance with the CBD rules on access and benefit sharing. This is possible with the aid of a code of practice which requires that the plant material entrusted to the members shall be used exclusively for non-commercial purposes. Handing over material for commercial use is only permitted if the potential user has first obtained the consent of the country of origin and can produce credible evidence to this effect. Thanks to the introduction of IPEN numbers, which accompany the plant material circulated within IPEN and are stored in the participating gardens' databases, the country of origin of the plant remains identifiable, which means that benefits can be passed on to the country of origin at all times.

Thus the system of the International Plant Exchange Network not only ensures comprehensive checking of compliance with CBD rules, but also affords easier access to plant material for the important work of botanical gardens. IPEN is now recognised as a model by the CBD. Its membership comprises 150 botanical gardens in 22 countries.

http://www.bfn.de/umsetzung_nutzersek_ex-situ.html
http://www.bgci.org/resources/ipen/

Pendjari National Park: Joint protection for the benefit of man and nature

Project partners: BMZ, GTZ, KfW, GfA, DED

The Pendjari National Park in the north of Benin was placed under protection as an animal reserve in 1954. It is part of a protected area measuring 28,600 km2 on the borders of Benin, Burkina Faso and Niger which was recognised as a UNESCO biosphere reserve in 1986. The protected area was designated and the associated resettlement carried out without involving the local population and without accompanying promotion and development measures. This resulted in overuse of the natural resources in the now densely populated peripheral areas of the national park and made it difficult for the population to accept the park's protection requirements. For example, illegal building took place on land in the hunting zone, and settlements were built. The result: protection of the environment was

no longer assured; conflicts between the park administration and the population were a day-to-day occurrence.

For about 16 years now, Germany has been supporting the Pendjari National Park with the aim of promoting the management and sustainable use of natural resources in the north of Benin. As well as building up the park infrastructure, the project has successfully established the institutionalised involvement of the neighbouring population in the management of the park. The life of the largely poor population in the peripheral zones of the Pendjari National Park depends on direct use of the natural resources. The local population are allowed to use certain resources in a controlled manner (e.g. farming, fishing). They also receive a share of the revenue from tourism and amateur hunting for development and social measures. And they profit from newly created jobs in the administration of the protected area and in the tourism sector.

During the intergovernmental negotiations in 2010 it was agreed that Germany would contribute €12 million to the establishment and capital endowment of a planned foundation for long-term funding of the complex of protected areas and hence to the conservation of biodiversity. This contribution is intended to safeguard the successes achieved by Benin-German development cooperation in the Pendjari National Park in the long term. The greater part of the promised funding (80%) is invested as foundation capital with the aim of generating long-term financial resources for the management of the protected area. The remainder will be used to support the establishment of the foundation and strengthen the management capacity of the local actors, putting them in a position to make sensible use of the long-term capital to conserve the protected area.

Conserving Brazil's rainforests

Project partners: BMZ, World Bank, EU

Tropical rainforests are a fundamental requirement for stabilising the global climate and conserving species diversity. With an area of 4.8 million km2 the Brazilian rainforests account for nearly 10 per cent of tropical forests worldwide. With nearly 1.5 million different species they are home to the greatest diversity of species in the world. They are not only a gigantic store for greenhouse gases, but also regulate regional hydrological cycles, prevent erosion and silting-up of rivers and lakes, and at the same time constitute an enormous economic potential.

Brazil is faced with the great challenge of pressing ahead with its social development while trying to harmonise the necessary interest in economic exploitation of its natural resources with the task of conserving them. The success or otherwise of Brazil's endeavours has impacts on a global scale.

German-Brazilian cooperation in the tropical forest sector has developed since the early 1990s under the "Pilot Programme for Conserving Brazil's Tropical Rainforests" (PPG7), which was included in the National Strategy on Biological Diversity as a lighthouse project. Today this project is being continued under the programme for "Promoting the conservation and sustainable use of tropical forests", which contributes to implementing the international climate and biodiversity conservation obligations. To this end the following projects are being implemented on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ):

- Promotion of nature conservation areas and sustainable use,
- Designation and protection of Indio areas,
- Regional policy and regional development in the Amazon Basin, and
- Amazon Forest Conservation and Climate Fund.

From 1994 to 2011 Germany made some €429.6 million available for this commitment, e.g. for financing investments, establishing or expanding institutions, providing technical advice and training for experts and managers, promoting numerous scientific cooperation projects and integrating German and Brazilian private-sector companies in sustainable development processes. In particular, the German contribution supports the national Anti-Deforestation Plan (PPCDAm) and has helped to cut the annual deforestation rate in the Brazilian Amazon Basin by 75 per cent.

BIOTA-Afrika: Biodiversity Monitoring Transect Analysis in Africa
Project partners: BMBF, Universities of Hamburg and Würzburg, Zoological Research Museum Alexander König and a large number of other institutions in Germany and other countries

BIOTA-Afrika was promoted by the Federal Ministry of Education and Research (BMBF) as a cooperative and interdisciplinary joint research project. It was a project on a unique scale, with project partners in Benin, Burkina Faso, Côte d'Ivoire, Germany, Kenya, Morocco, Namibia, South Africa and Uganda.

The entire network involved more than 600 African and German scientists from a wide variety of disciplines. They worked on registering biodiversity in Africa and developed standardised methods for long-term observation of changes in various ecosystems. In close cooperation with regional partners and stakeholders in the cooperating countries, the project made recommendations for the management and conservation of habitats and established local capacity for habitat assessment. The network involved cooperation by modellers, meteorologists, ecologists, taxonomists, economists, sociologists and agronomists. Its activities also contributed to the UN Convention on Biological Diversity (UNCBD) and the Framework Convention on Climate Change (UNFCCC). Closer links were also forged with existing observation networks in Africa and worldwide.

BIOTA-Afrika succeeded in establishing numerous structures in the partner countries and developing standardised methods which continue to be used and developed even after the end of the project, such as databases, government collections, standardised observation systems or vegetation maps.
BIOTA-Afrika also supported local initiatives and institutions, e.g. the Pendjari National Park and the botanical garden in Papatia in Benin, or the KEEP initiative in Kenya.

Another important aspect is the contribution to capacity building in the partner countries. A total of about 250 Master and Doctoral theses (PhD) were completed in the African partner institutions alone, and 13 African PostDocs were employed. Moreover, representatives of land user communities regularly received training in courses lasting several weeks on biodiversity monitoring and the analysis of land use effects, thereby turning them into local environmental ambassadors (para-ecologists).

As a contribution to the framework research programme "Research for sustainable development", the BMBF is currently planning the measure "Competence Centres for Climate Change and Appropriate Land Management in Africa", with centres in western (WASCAL) and southern Africa (SASSCAL). This measure will benefit considerably from the structures established under BIOTA-Afrika.

Important BIOTA-Afrika activities in southern Africa will also be continued in the present project "The Future Okavango", including an extension to Angola and Botswana under the BMBF assistance measure "Sustainable Land Management".

http://www.biota-africa.org/
http://www.future-okavango.org/

Q12: What lessons have been learned from the implementation of the Convention in your country?

Answer: see Executive Summary (page 4)

Appendices

Appendix I - Information concerning the reporting Party and preparation of the fifth national report.

A. Reporting Party

Party	Germany
Full name of institution	***Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety***
Name and function of contact person	***Nicola Breier, Head of Division***
Postal address	***Robert-Schuman-Platz 3, 53175 Bonn, Germany***
Phone	***0228/305- 2619***
Fax	***0228/305-2684***
Email	***nicola.breier@bmub.bund.de***
Full name of institution	***Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety***
Name and function of contact person	***Kilian Delbrück, Head of Division***
Postal address	***Robert-Schuman-Platz 3, 53175 Bonn, Germany***
Phone	***0228/305-2610***
Fax	***0228/305-2694***
Email	***Kilian.Delbrueck@bmub.bund.de***

Appendix II - Further sources of information.

1. **Websites:**
2. **Publications on biological diversity**

1. Websites:

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
http://www.bmub.bund.de/en/

Federal Ministry of Food and Agriculture: Agrobiodiversity Strategy: Conserve agrobiodiversity, exploit and make sustainable use of agricultural, forestry and fisheries potential.
http://www.bmel.de/EN/Homepage/homepage_node.html

Federal Ministry for Economic Cooperation and Development:
Biodiversity website:
http://www.bmz.de/en/what_we_do/issues/Environment/biodiversitaet/index.html

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ):
Biological diversity services:
http://www.giz.de/de/downloads/giz2011-de-biologische-vielfalt.pdf

Federal Office for Nature Conservation
http://www.bfn.de/
http://www.biologischevielfalt.de/

The National Strategy on Biological Diversity (German / English)
http://www.bmub.bund.de/themen/natur-arten/naturschutz-biologische-vielfalt/nationale-strategie/

2. Publications:

Publications on "climate change and biological diversity"

- Korn, H.; Kraus, K. & Stadler, J. (Eds.): Proceedings of the European Conference on Biodiversity and Climate Change – Science, Practice and Policy
  BfN-Skripten 310, 2012 (0,8 MB)
- Korn, H.; Feit, U. & Schliep, R. (Red.): Biodiversität und Klima – Vernetzung der Akteure in Deutschland VIII – Ergebnisse und Dokumentation des 8. Workshops
  BfN-Skripten 307, 2012 (1,4 MB)
- Biodiversität und Klima – Vernetzung der Akteure in Deutschland VII
  BfN-Skripten 282, 2010, pdf-Datei (1,7 MB)
- Biologische Vielfalt und Klimawandel, Tagungsband mit den Beiträgen der 2. BfN-Forschungskonferenz "Biologische Vielfalt und Klimawandel" vom 02.-03.März 2010 in Bonn
  BfN-Skripten 274, 2010, pdf-Datei (7,4 MB)
- Working with Nature to Tackle Climate Change - Report of the ENCA / BfN Workshop on "Developing ecosystem-based approaches to climate change – why, what and how"
  BfN-Skripten 264, 2010. (0,8 MB)
- Biodiversität und Klima – Vernetzung der Akteure in Deutschland VI – Ergebnisse und Dokumentation des 6. Workshops
  BfN-Skripten 263, 2010. (1,2 MB)
- Biodiversität und Klima - Vernetzung der Akteure in Deutschland V - Ergebnisse und Dokumentation des 5. Workshops
  BfN-Skripten 252, 2009 (1,7 MB)
- Biodiversität und Klima – Vernetzung der Akteure in Deutschland IV – Ergebnisse und Dokumentation des 4. Workshops
  BfN-Skripten 246, 2009 (650 KB)
- Biodiversität und Klima – Vernetzung der Akteure in Deutschland III
  BfN-Skripten 241, 2008 (843 KB)
- Biodiversität und Klima - Vernetzung der Akteure in Deutschland II - Ergebnisse und Dokumentation des 2. Workshops
  BfN-Skripten 180, 2006 (1,9 MB)
- Biologische Vielfalt und Klimawandel - Gefahren, Chancen, Handlungsoptionen -
  BfN-Skripten 148, 2006 (220 KB)
- Biodiversität und Klima - Vernetzung der Akteure in Deutschland -. Ergebnisse und Dokumentation des Auftaktworkshops"
  BfN-Skripten 131, 2005 (774 KB)

- Klimawandel und Vegetation im nordmitteleuropäischen Tiefland. Arch. f. Naturschutz und Landschaftsforschung.
  Volume 45, Heft 3/4: 127 - 133. (Knapp, H.-D. 2006)
- Haben Schutzgebiete unter den Bedingungen des Klimawandels noch Sinn? In: Ministerium für Landwirtschaft, Umwelt- und Verbraucherschutz (Hrsg.) 2006: 15 Jahre Großschutzgebiete - Redebeiträge der Festveranstaltung. Nationale Naturlandschaften. 23-27 (Knapp, H.-D. 2006)

Publications on "economic effects of nature conservation"

Brief descriptions of selected publications:

Economic assessment of nature-friendly flood precautions on the Elbe

GROSSMANN, M., HARTJE, V. & MEYERHOFF, J. (2010)

Ökonomische Bewertung naturverträglicher Hochwasservorsorge an der Elbe

Naturschutz und Biologische Vielfalt 89. Landwirtschaftsverlag, Münster.

In view of the increasing risk of damage due to flooding and the considerable loss of active water meadows in recent decades, we are constantly faced with the question of what flood control measures make sense. The spectrum ranges from largely technical measures such as dyke construction and refurbishment to conservation-oriented projects such as relocating dykes further from river banks, reclaiming natural flood areas and revitalising water meadows. The study makes it clear that measures which take a multifunctional approach and serve the interests of other ecosystem functions in addition to flood control also offer greater benefits from an economic point of view.

Assessing the ecosystem services of HNV pasture

MATZDORF, B., REUTTER, M. & HÜBNER, C. (2010)

Bewertung der Ökosystemdienstleistungen von HNV-Grünland

Abschlussbericht des Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.

Species-rich pasture, often referred to as high nature value (HNV) pasture, is a component of central importance for the conservation of biodiversity in Europe's cultural landscapes. This is also made clear by the Habitats Directive: Annex I defines large sections of such pasture as habitats in need of protection under the Directive. Moreover, many species in need of protection under the Habitats Directive and the Birds Directive are to be found in these pasture areas. However, this component of the landscape can only be maintained by human activity. Against this background the preliminary study uses the concept of ecosystem services and provides a first assessment of the environmental services of HNV pasture in Germany.

JOB, H.,WOLTERING, M. & HARRER, B. (2009)

Regionalökonomische Effekte des Tourismus in deutschen Nationalparken

Naturschutz und Biologische Vielfalt 76. Landwirtschaftsverlag, Münster

and

JOB, H., HARRER, B., METZLER, D. et al. (2005) , BfN-Skripten 135

Ökonomische Effekte von Großschutzgebieten - Untersuchung der Bedeutung von Großschutzgebieten für den Tourismus und die wirtschaftliche Entwicklung der Region

At international level, major protected areas play an important role as points of attraction in the tourism sector. Especially in North America, Africa and Asia, national parks and other conservation areas are frequently important tourist destinations. In Central Europe, and Germany in particular, it is only recently that comprehensive tourism development plans have started to include major protected areas. It is still relatively rare for such areas to exploit the attraction of government predication for tourism marketing to the same extent as other destinations are already doing successfully. The existing studies are concerned with the broad field of tensions and constraints between nature conservation and tourism and, in particular, with the opportunities for achieving positive effects for the regional economy. The findings of these analyses show clearly that major protected areas can make substantial contributions to the regional economy.

BfN-Skripten 154

NEIDLEIN, H.-C. & WALSER, M. (2005)

Natur ist Mehr-Wert - Ökonomische Argumente zum Schutz der Natur

In times of economic stagnation and high unemployment, nature conservation is often referred to as a "job destroyer" and a "growth inhibitor". But what is the situation like in fact when it comes to the economic impacts of nature conservation? In view of the strong focus of public discussion on economic arguments, the BfN has commissioned a short expertise. The facts and figures compiled by the evaluators provide an impressive demonstration that nature conservation can indeed be a driving force behind sustainable economic development.

Nature conservation as a stimulating factor

PETERMANN, C. (2003)

Naturschutz als Impulsgeber für sozioökonomische Entwicklungen

Angewandte Landschaftsökologie 47, Landwirtschaftsverlag, Münster.

Nature conservation is not an obstacle to economic development, but a stimulating factor. Especially in structurally weak regions, nature conservation has considerable potential for generating income and creating jobs. Examples of the socio-economic impacts of implementing nature conservation objectives at local/regional level were investigated as part of the R&D project "Nature conservation as a stimulating factor for socio-economic development". The study findings show that cooperative nature conservation projects can make a substantial contribution to the development of rural areas.

Other BfN publications on "economic effects of nature conservation"

- Beständig, U., Wuczkowski, M. (2012). Biodiversität im unternehmerischen Nachhaltigkeitsmanagement - Chancen und Ansätze für Einkauf, Marketing und Liegenschaftsmanagement. Centre for Sustainability Management, Lüneburg.
- BfN (Hrsg.) (2003): Naturschutz durch Vermarktung. Natur und Landschaft 78 (7) – Schwerpunktheft.
- Blümlein, B., Güthler, W. & Habelt, U. et al. (2001): Naturschutzrelevante Produktions- und Vermarktungskriterien ausgewählter Regionalprodukte. BfN-Skripten 33. BfN, Bonn.
- Gehrlein, U., Grunzke, B. & Steimel, K. et al. (2007): Strategien zur Förderung des nachhaltigen Wirtschaftens in Biosphärenreservaten. BfN-Skripten 202. BfN, Bonn.
- Gehrlein, U. & J. Fick (2008): Bedeutung der Regionalvermarktung. BfN-Skripten 221. BfN, Bonn.
- Job, H., Harrer, B., Metzler, D. & Hajizadeh-Alamdary, D. (2005): Ökonomische Effekte von Großschutzgebieten. Untersuchung der Bedeutung von Großschutzgebieten für den Tourismus und die wirtschaftliche Entwicklung der Region. BfN-Skripten 135. BfN, Bonn.
- Job, H., Woltering, M. & Harrer, B. (2009): Regionalökonomische Effekte des Tourismus in deutschen Nationalparken. Naturschutz und Biologische Vielfalt 76. Landwirtschaftsverlag, Münster.
- Kullman, A. (2007): Regionalvermarktung in den deutschen Biosphärenreservaten – Status Quo-Analyse und Optimierungspotentiale. BfN-Skripten 175. BfN, Bonn.
- Petermann, C. & Letzner, V. (2011): Regionale Beschäftigungseffekte durch Naturschutz. Natur und Landschaft 4: 168-171.

Other publications on "economic effects of nature conservation"

- BMU (Hrsg.) (2009): Ökologisch wirtschaften: Zukunftsperspektiven ländlicher Räume. Berlin.
- Deutscher Verband für Landschaftspflege (Hrsg.) (1998): Praxis-Workshop "Regionale Produktvermarktung für Naturschutz und Landschaftspflege - wie geht das konkret?" vom 28./29. März 2008 in Bonn. Deutscher Verband für Landschaftspflege, Ansbach.
- Deutscher Verband für Landschaftspflege (Hrsg.) (2006): Landschaft vermarkten - Leitfaden für eine naturverträgliche Regionalentwicklung. Deutscher Verband für Landschaftspflege, Ansbach.
- Jessel, B.; Tschimpke, O. & Walser, M. (2009): Produktivkraft Natur. Hoffmann und Campe. Hamburg.
- Kullmann, A. (2001): Stand und Perspektiven der Integration des Naturschutzes in das Marketing von Agrarprodukten und Lebensmitteln – Kurzfassung. IfLS, Frankfurt/Main.
- Schaltegger, S. & Beständig, U. (2010): Handbuch Biodiversitätsmanagement. Ein Leitfaden für die betriebliche Praxis. BMU, Berlin.

Publications on "access and benefit-sharing" (ABS)

- Access and Benefit Sharing in Relation to Marine Genetic Resources from Areas Beyond National Jurisdiction - A Possible Way Forward, BfN-Skripten 301, 2011
- An economic analysis of new instruments for Access and Benefit-Sharing under the CBD – Standardisation options for ABS transaction - Final Report, BfN Skripten 286, 2011, pdf-Datei
- Report of the Expert Meeting in Preparation of SBSTTA-14, pdf-Datei
- An economic analysis of new instruments for Access and Benefit-Sharing under the CBD – Standardisation options for ABS transaction. Interim Report, BfN-Skripten 244, 2009, pdf-Datei
- Access and Benefit-Sharing of Genetic Resources - Report of an international workshop in Bonn, Germany held in 2005, 8-10 November, BfN-Skripten 163, 2005
- New Elements of the International Regime on Access and Benefit- Sharing of Genetic Resources - the Role of Certificates of Origin, BfN-Skripten 127, 2005.
- Users of Genetic Resources in Germany, BfN-Skripten 126, 2005.
- Deep Sea Genetic Resources in the Context of the Convention on Biological Diversity and the United Nations Convention on the Law of the Sea, BfN-Skripten 79, 2003.
- Implementing the Convention on Biological Diversity, BfN-Skripten 47, 2001.
- Regulating access and benefit sharing, BfN-Skripten 46, 2001.
- International Vilm Workshop on matters related to traditional knowledge associated with genetic ressources and the ABS Regime July 6-10 2009, Vilm-Report, 2009

Publications on "ecosystem approach"

- Implementing the Ecosystem Approach for Freshwater Ecosystems - A case study on the Water framework Directive of the European Union, BfN-Skripten 183, 2006, pdf-Datei
- Report of the International Workshop on "Ways to Promote the Ideas behind the CBD's Ecosystem Approach in Central and Eastern Europe"
  BfN-Skripten 120, 2004, pdf-Datei
- Umsetzung des Ökosystemaren Ansatzes in Hochgebirgen Deutschlands: Erfahrungen mit der Alpenkonvention
  BfN-Skripten 85, 2003, pdf-Datei
- The International Debate on the Ecosystem Approach
  BfN-Skripten 80, 2003, pdf-Datei
- Report of the International Workshop on the "Further Development of the Ecosystem Approach"
  BfN-Skripten 78, 2003, pdf-Datei
- Applying the Ecosystem Approach in High-Mountain Ecosystems in Germany: Experiences with the Alpine Convention
  BfN-Skripten 76, 2003, pdf-Datei
- Sustainable forest management in Germany: The Ecosystem Approach of the Biodiversity Convention Reconsidered
  BfN-Skripten 51, 2001, pdf-Datei

Publications on SBSTTA (scientific advisory committee to the CBD)

- Report of the European Expert Meeting in Preparation of SBSTTA-16 , March 5 - 7, 2012, pdf-Datei
- Report of the European Expert Meeting in Preparation of SBSTTA-15 , September 26 - 28, 2011, pdf-Datei
- Report of the Expert Meeting in Preparation of SBSTTA-14, 2010, pdf-Datei
- Report of the Expert Meeting in Preparation of SBSTTA-13 and WGPA-2, 2007, pdf-Datei
- Report of the Expert Meeting in Preparation of SBSTTA-12, April 10 - 14, 2007, pdf-Datei
- Reports of the Expert Meetings in Preparation of SBSTTA-11 and WG-PA2, October 18 - 23, 2005 (Vilm 2005), pdf-Datei
- Report on the expert meeting in preparation of SBSTTA 10, January 18 - 21, 2005, pdf-Datei
- Report on the expert meeting in preparation of the ninth meeting of SBSTTA
  BfN-Skripten 97, 2003, pdf-Datei
- Report on the expert meeting in preparation of the eigth meeting of SBSTTA
  BfN-Skripten 81, 2003, pdf-Datei
- Report on the expert meeting in preparation of the seventh meeting of SBSTTA
  BfN-Skripten 55, 2001, pdf-Datei
- Report on the expert meeting in preparation of the sixth meeting of SBSTTA
  BfN-Skripten 35, 2001, pdf-Datei

Other publications on SBSTTA (scientific advisory committee to the CBD)

- Natur und Landschaft; Schwerpunkt: Moorschutz; 87. Jahrgang, Februar 2012, Heft 2
- Natur und Landschaft; Schwerpunkt: Das 2010-Ziel - Zur Erhaltung der Biodiversität; 85. Jahrgang, Juli 2010, Heft 7
- Natur und Landschaft; Schwerpunkt: Biologische Vielfalt und Klimawandel; 84. Jahrgang, Januar 2009, Heft 1
- Natur und Landschaft; Schwerpunkt: 9. Vertragsstaatenkonferenz der CBD - Zugang zu genetischen Ressourcen und gerechter Vorteilsausgleich; 83. Jahrgang, Februar 2008, Heft 2
- Politische Ökologie; Einzelheft "Biodiversität - Vom Reden zum Handeln"; Heftnr. 109, 2008, Oekonom Verlag München
- Kazem, N.; Mohadjer, R. M.; Bode, W. & H. D. Knapp 2005: Schutz der biologischen Vielfalt und integriertes Management der Kaspischen Wälder (Nordiran). Naturschutz und Biologische Vielfalt 12. 206.
- Report of the International Workshop "Capacity-Building for Biodiversity in Central and Eastern Europe"
  BfN-Skripten 121, 2004, pdf-Datei
- Report on the international workshop "Capacity-Building for Biodiversity in Central and Eastern Europe"
  BfN-Skripten 103, 2004, pdf-Datei
- Implementing the Convention on Biological Diversity on the ground - the example of biosphere reserves
  BfN-Skripten 58, 2002, pdf-Datei
- Report of the International Expert Workshop "Case Studies on Sustainable Tourism and Biological Diversity"
  BfN-Skripten 16, 2000, pdf-Datei