Forests and Forest Policy in Germany
Preface

Forests are an essential basis of life. In Germany, the Federal Government is obliged to submit a comprehensive forest report to the German Parliament at regular intervals. This brochure builds on data from the most recent report covering the period 2009 to 2017.

Covering 32 percent of Germany’s territory, forests are a typical feature of the landscape in most areas of Germany. Forests in Germany are managed sustainably. They are in good condition – proven by a large majority of parameters – and fulfil a variety of productive, protective and recreational functions.

Under section 1 of the Federal Forest Act:

1. forests, due to their economic benefits (productive function) and their significance for the environment, in particular for the lasting effectiveness of the ecological balance, the climate, the water regime, air pollution control, soil fertility, the landscape, agriculture and infrastructure and public recreation (protective and recreational functions), must be preserved, when necessary propagated and their orderly management sustainably secured,

2. forestry must be promoted and

3. a balance must be achieved between the interests of the general public and the concerns of the forest owners.
Key data on forests in Germany
(Source: National Forest Inventory 2012)

→ Area covered by forests: 11.4 million hectares (32 % of the national territory).

→ Forest distribution: Forest distribution in Germany is quite diverse. While the North German plains are characterised by agriculture and the percentage of land covered by forests is low, the low mountain ranges are particularly rich in forests.

→ Tree species distribution: Between 2002 and 2012, the percentage of conifers dropped and the percentage of deciduous trees increased. Four tree species predominate in the forests of Germany:

• Spruce is the most common tree species, covering approx. 2.8 million hectares and thus accounting for 25 % of the forest area; this figure is decreasing (minus 8%).
KEY DATA ON FORESTS IN GERMANY

• **Pine** covers approx. 2.4 million hectares or 22 % of the forest area (minus 3 %).

• **Beech** is the third most common tree species, covering approx. 1.7 million hectares, thereby accounting for 15 % of the forest area; the area covered by beech has increased (plus 6 %).

• **Oak** holds fourth place, covering approx. 1.1 million hectares and making up 10 % of the forest area (plus 7 %).

→ **Timber stocks**: 3.7 billion m3 in total or 336 m³ per hectare, the highest figures since regulated forestry began. The number of hectares covered is one of the highest in the whole Europe.

→ **Carbon stocks in the forests**: 2.5 billion tonnes of carbon (about half in the living tree biomass above ground and half in the forest soil).

→ **Contribution to climate change mitigation by the forestry/timber use sector**: 127 million tonnes of CO2 equivalents per year (of which: 58 by growth, 3 by the storage of harvested wood products, and 66 by material and energetic substitution!)
**Naturalness and structural diversity:** Almost all forests in Germany are influenced by humans (“semi-natural”). But structural diversity and naturalness have further increased since 2002 through active forest management:

- Almost natural or semi-natural tree species composition covers 36% of the forest area (51% in the young forest stands, i.e. trees up to four metres high).
- Mixed stands cover 78% of the forest area (up 5% since 2002)
- Multiple-storied forest stands cover 68% of the forest area (up 28% since 2002!)
- Natural rejuvenation on 85% of the forest area
- Young stands cover 25% of the forest area.

**Forest genetic resources:** Most of the forests’ tree species exhibit high genetic diversity. The extent of the genetic diversity of naturally and artificially regenerated forest stocks is practically the same.

**Introduced tree species:** Covering an area of almost 5%, these play a subordinate role. The most widespread are the Douglas fir (2%), Japanese larch (0.8%) and red oak (0.5%).
Stress factors for forest ecosystems

→ Air pollution: Clean air measures have measurably eased pressure on the forests. Nevertheless, some inputs, notably nitrogen, exceed the critical load in many areas. It accumulates in the forest soils and has both an acidifying and eutrophic effect. This pollutes the ground water and impairs the health of the trees, the forest soils and the biological diversity of the forests.

→ The National Forest Soil Survey confirms the effectiveness of soil protection liming against soil acidification and nutrient losses caused by air pollution on acidification-sensitive forest sites. Measures to decrease the airborne inputs of pollutants and nitrogen are, however, still necessary.

→ Weather and climate change: In the period under review (2009 until April 2017) the forests were largely spared from nationally significant damage caused by extreme weather events (e.g. windstorms). The climate in Germany was, however, too dry for the forests in some places. The climate data and phenological observations verify that the climate in Germany is changing.

→ Harmful organisms: It was mainly bark beetles on spruce, nun moth and pine moth on pines, and various oak moths that were of national significance during the review period. Mycoses on deciduous trees such as the “new alder mortality” and ash shoot mortality have increased. Many harmful organisms that destroy forests and timber and profiting from climate change. In addition, there is increasing risk of the introduction of foreign harmful organisms (so-called neobiota).

→ Browsing by game and barking: 33 % of young deciduous trees (oak: 43 %) and 10 % of young conifers (20 - 130 cm) have damage caused by browsing. In regions with red deer populations, 16 % of the larger trees are barked (spruce: 34 %).
Forest fires: On a multiyear average, about 300 hectares of forest are damaged by forest fires annually. Due to extensive prevention and counter-measures, forest fires in Germany can usually be limited to small areas (the average damaged area is 0.4 hectares).

The fragmentation of forested areas impairs biological diversity (e.g. by causing genetic isolation). In Germany, approx. 1.3 million hectares of forest are not fragmented (approx. 160 areas > 5,000 hectares).

Forest functions

Forests fulfil a variety of functions for our society; they are far more than just suppliers of timber and a beautiful part of the landscape. Forests and forestry are the focus of diverse and sometimes conflicting demands from society. The statutory mission of forestry policy is to achieve a balance between the interests of the general public and the concerns of forest owners (Section 1 of the Federal Forest Act). All of this requires forestry expertise and support from society.

Forestry in Germany is sustainable and multifunctional. In addition, for approximately three decades, German forestry has increasingly worked according to the principles of close-to-nature forest management.

Climate change mitigation

Hardly any emissions occur in sustainable forest management and timber use. Thus forests and forestry contribute effectively and at the same time inexpensively to the CO2 sink. The forests are important carbon reservoirs. Currently, about 2.5 billion tonnes of carbon are fixed in forest trees and forest soils. Through the growth
of the trees, additional CO2 is constantly absorbed from the atmosphere. After deduction of the harvested timber, this amounts to an additional 58 million tonnes of CO2 absorbed annually.

Timber products extend the binding of the carbon absorbed by the trees. This climate function of timber is particularly effective when it replaces energy-intensive resources (material substitution effect). Timber can also replace fossil fuels (energetic substitution effect) to a limited extent. Material recycling and multiple uses before final energetic use (cascading) can optimise the overall effect. Using timber that originates from legal and sustainable sources and maintaining the sink function of the forests are prerequisites.

**Water**

Forests are natural air-conditioning systems and air filters. They have a balancing effect on the climate and play a special role in global and local water cycles. The forest soil stores and cleans run-off rainwater better than practically any other ecosystem.

**Income**

The forestry and timber sector provides income for around 2 million forest owners and around 1.1 million employees in some 125,000 companies, concentrated in rural areas.

In communal forests 96 percent of all income is generated by the sale of timber. In private forests, this figure is as high as 98 percent. The socially desired protective and recreational functions of forests in Germany are financed almost entirely from this income.
In the state-owned forests of the Länder, the additional costs and the diminished proceeds are largely compensated by subsidies from the state budgets (to the amount of approx. 150 EUR per hectare annually). In the case of private and municipal forestry holdings, public support has so far been comparatively low in this area: the annual share of public subsidies (all product areas) in the communal and privately owned forests amounts to an average of approx. 4 EUR per hectare and 9 EUR per hectare, respectively.

Forestry is strenuous work with a significant risk of accident and typical occupational health risks. Around 86 percent of all fatal accidents in forests and forestry work occur during motor-driven timber harvesting (felling and timber processing). Qualified training and high-quality equipment are therefore essential.

Who owns the forests in Germany?

- Federal forests: 4 %
- State forests of the Länder: 29 %
- Communal forests: 9 %
- Privately owned forests: 49 % (with half of these covering less than 20 hectares)

Approximately 430,000 forest owners have organised themselves into about 3,600 forestry associations to better deal with the specific disadvantages of the fragmented property structures.
Timber – a renewable raw material and energy source

Timber from sustainable forestry is a raw material with an excellent ecological balance. Domestic and sustainably produced timber is an indispensable raw material for domestic enterprises, especially in rural areas, and for the rising bio-economy. It contributes significantly to the achievement of the national sustainability and climate change mitigation targets.

In the period from 2008 to 2014, German forestry was a profitable economic sector.

➔ From 2012, the net business profits exceeded 1 billion EUR per year.

➔ The national cluster of forestry and timber, which according to the EU definition includes trade, printing and publishing, generated sales of 178 billion EUR and a gross added value of 55 billion EUR in 2014.
The transformation of the German forests to more deciduous forests is desirable both from a silvicultural and from an ecological point of view, but it is a challenge for the established sawmilling industry. At present, the added value of the timber industry is mostly based on softwood (77% of domestic raw wood use).

Spruce alone accounted for 52 percent of the timber volume in the last decade, with a share of only 25 percent of the forest area and 33 percent of the timber stocks.

Deciduous species in Germany are not comparable in their technological qualities with softwood, and hardwood products in the construction sector are so far scarcely competitive and are not widely available. At present, hardwood is predominantly used for energetic purposes (58%). The development of new, innovative, marketable hardwood products is one of the most important tasks of research and development in the forestry and timber industry sector.

**Key figures on domestic timber production**

- **Timber increment:** An average of 11.2 m³ per hectare and year or a total of 121.6 million m³ per year (solid volume over bark).

- **Timber removals in Germany:** An average of 7.0 m³ per hectare and year or a total of 76 million m³ raw timber (timber under bark).

- **40-year forecast:** The timber stocks in the forests will increase in spite of the use of high raw timber potentials to 3.9 billion of solid volume over bark (an increase of 0.1 percent per year). The available tree species and timber assortments will change from spruce to more deciduous trees.
→ **Timber industry and timber market:** The companies in the domestic timber industry are highly concentrated in rural regions and at the same time highly integrated in the global economy. The EU countries are the primary trade partners in this market sector, accounting for approx. 80 percent of total trade.

Worldwide, Germany is the third largest exporter (by value) of timber and timber-based products after China and the USA. At the same time, Germany has been a net importer of (softwood) raw timber since 2009.

→ **Consumption of timber and timber products:** In Germany, per year a total of about 132 million m³ (r) timber are consumed (sum of raw timber from forestry, timber for landscape management, timber from short rotation plantations, waste wood and black liquor as well as the net imports of timber products). 76 million m³ or 58 percent of this originate from raw forest timber. Per capita consumption is about 1.4 m³ (r).
About two-thirds of the raw timber felled in Germany is used as material. Important areas in which it is used comprise primarily housing construction, timber-based materials, cellulose and paper. About one-third of the timber from forests is used directly for energy production.

The position of the forestry and timber cluster in the national economy:

- 1.1 million employees (3.4% of the total) in some 125,000 companies
- Gross added value: 55 billion Euro (2.1% of gross domestic product).
Forests in Germany are predominantly productive forests that are managed sustainably and perform multiple functions. As part of the cultivated landscape, they look back on a long and varied history of being put to various different uses. At the same time, however, human impact is significantly lower compared with other uses to which land is put. Sustainable forestry measures – in combination with set-aside areas left to natural development – lead to a dynamic mosaic of diverse habitats, interconnectivity and special habitats and refuges for endangered and rare animal species with numerous and highly variable structural elements.

The ecological value of the forests in Germany has improved significantly in recent decades. The Red List of endangered biotope types of Germany shows that development has stabilised in many forest biotopes. However, Germany’s Red Lists for the forests still show species of animals, fungi and plants that are considered endangered and threatened with extinction. These include many species that are dependent on old forest stands, undisturbed forest development and old and deadwood components.

The latest monitoring of the NATURA 2000 network (period 2007-2012) showed that 79 percent of German forest habitat types have a favourable conservation status, 12 percent were rated “unfavourable-insufficient” and 9 percent “unfavourable-poor.”

Forest use in areas that are protected by the Federal Nature Conservation Act is generally limited to the extent necessary to achieve the respective protection objectives.
FOREST FUNCTIONS

Forest areas that are not used by forestry are important retreats for certain animal and plant species and at the same time of special importance as reference areas and places for experiencing nature. Accordingly, the National Biodiversity Strategy contains a 5 percent target for the share of forests with natural forest development by 2020.

The protection of species must additionally be observed over the entire forest area. Therefore, forest owners need reliable information about protected species in their forests which need to be taken into account in forest management. This information can then be translated into operational preventive protection concepts.

The increase in numbers of old and large-dimension deciduous trees makes a very important contribution to the conservation of forest-related biodiversity. On the other hand, it increases the risk potential and the resulting demands on forest work as well as the potential danger to forest visitors caused especially by more dead branches in the tree crowns.
Key facts on forest biological diversity

→ Indicator “Species and landscape quality” for forests: 87% of the target value achieved in 2013, the highest value of all sub-indicators (National Biodiversity Strategy).

→ Forest area with natural forest development: 5.6% in total, 2% legally ensured (2013)

→ NATURA 2000 protected areas in forests: 2.7 million ha or 24% of the forest area

→ Forest protected areas with specific use restrictions: 1.9% of the forest area

External non-forestry factors also influence forests and their biodiversity. Air pollution, climate change, browsing by game, transformation and fragmentation as well as non-indigenous invasive species are of particular importance. Forests also interact with adjacent landscapes and ecosystems. The decline in biological diversity observed in such areas (e.g. decline in native flowering plants, insects, birds, bats, etc.) can also affect the forests.
Leisure, recreation and health

Visiting forests increases well-being and health. In Germany, access to forests for recreation is generally free. More than 55 million people or 70 percent of the population take advantage of this opportunity at least once a year, usually in forests close to where they live. Constant changes in the type of recreational forest use, but also in the views and expectations of many visitors to the forest, pose a constant challenge for forest owners and managers.

Intensive recreational use can become both a strain on the forest and on forest owners. Forests as a natural environment exhibit typical forest hazards. This leads to challenges for forest owners concerning certain obligations to ensure public safety. On the other hand, because of the forestry regulations governing right of access, forest owners have little chance of gaining added operational value from recreational activities in the forests.

→ The additional costs and income reductions resulting from the provision of forest protection and recreational services amount, after subsidies, to 16.85 EUR/ha in communal and to 5.20 EUR/ha in privately owned forests (holdings > 200 ha, year 2011).

Other forest functions

In addition to the services outlined above, forests and forestry provide society with a whole range of other services (e.g. protection from noise, dust, avalanches and rock falls, supply of game, mushrooms and forest berries etc.) that go far beyond timber production. The following have recently gained in importance:

→ Offering an environment for sustainable education and for experiencing nature: Forest-related education offers a unique combination of physical exercise, a wide range of sensory impressions and a natural
experience, and is suited to highlight sustainability in all its dimensions. Corresponding extracurricular education programmes have increased considerably in recent years.

→ **Forests as a site for wind turbines:** In recent years (2009-2017), the number of wind turbines in the forests rose fivefold from around 300 in 2010 to around 1,530 in 2016. However, the expansion of wind energy, desirable in terms of energy policy, may impact on the biological diversity of adjacent forests.

→ **Forests as burial places:** In Germany, forests have gained popularity as burial places. At present, forest burial places are now found in about 500 locations.
National forest policy

Conflicts of aims and tensions between the various economic, ecological and social demands on the forest do occur. Forest policy defines the framework and rules relating to forests, forestry and timber utilisation.

The main forestry regulations at Federal level can be found in the Federal Forest Act. In addition to this there is the Act on Forest Reproductive Material, the Act on the Joint Task for the Improvement of Agricultural Structures and Coastal Protection, the Timber Trade Safeguard Act, the Compensation for Forest Damage Act, the Federal Hunting Act and the Federal Nature Conservation Act.

One of the Federal Government’s political guidelines is the Forest Strategy 2020. Its aim is to develop an adapted, lasting balance between the increasing demands on the forests on the one hand and their sustainable carrying capacity on the other. Regionally specific concepts for achieving the goals remain unaffected. The Forest Climate Fund will be endowed with appropriate financial means to achieve the strategy’s aims.
In recent years (2009 – April 2017) implementation of the Forest Strategy 2020 focused on the following thematic areas

Climate change mitigation and climate adaptation: The greatest potential for strengthening the contribution of the forest and timber industry to climate change mitigation is the sustainable, efficient use of forests and the promotion of their sink capacity, as well as a greater use of timber, preferably in the form of durable products. The Climate Action Plan 2050 adopted by the Federal Government in 2016 addresses these aspects. Relevant measures are supported through existing promotional programmes on forest transformation and adaptation.

Ownership, income and forestry promotion: The structures in the small and micro private forests pose major challenges for forest policy. Each of the over 2 million forest owners pursues their own operational objectives within the framework of existing legal regulations. In addition, the already small forest properties are often spread over several parcels. These small, fragmented woodlands are often hard to manage.

In addition, the proportion of forest owners who do not pursue any forestry use interests is rising in the micro private forests. A large number of them are urban forest owners. They are hard to reach in respect of targeted appeals, for the transfer of basic forest-management knowledge and networking with local forestry associations.

Against this background, the Federal Government and the Länder provide for forestry promotional programmes as part of the Joint Task for the Improvement of Agricultural Structures and Coastal Protection that are targeted at communal and private forest owners. Forestry infrastructure, forestry associations, afforestation and close-to-nature forest management, in
particular forest transformation, are the four groups of measures that receive support, the latter being the financially most important one.

In addition, some of the Länder have launched supplementary funding programmes, some of which are funded by the Länder alone, some with EU co-funding under Regulation (EU) No 1305/2013 (EAFRD).

→ Forestry measures account for a total of about 2 percent of EAFRD’s total ceiling in Germany or about 48 million EUR per year. On average, for example in the years 2014 and 2015, forestry measures were subsidised with about 62 million EUR per year (Federal, Land, EU and additional national funds from Länder and municipalities).

Raw materials, use and efficiency: Timber from sustainable forestry is a technically and ecologically excellent renewable resource. The main focus is on:

• **New hardwood technologies**: As a result of forest transformation to more deciduous forests, the raw material basis of the timber industry is shifting. Adjustments by the timber industry are necessary. New technologies and products are required so that more hardwood can be used for materials in future.

• **Building with timber**: This is the field of timber use that has the greatest potential from a climate policy perspective at present, for example in adding storeys to buildings or constructing new buildings in the city with prefabricated building elements.

• **Energetic use of timber**: The use of wood-fuelled power contributes to the attainment of Germany’s target of producing 18 percent by 2020. But for this the cascade utilisation of timber should be further expanded and additional potentials developed. The
use of timber for energy should be concentrated – as far as possible and feasible – on residual and waste wood at the end of the cascade, which cannot be put to other use as a material (even waste wood is a valuable resource). When harvesting timber, the sink function of forests and specifically the conservation of biological diversity must be taken into account.

• **The German Resource Efficiency Programme:** The goal is to largely decouple economic growth from the use of resources and reduce the associated environmental impacts. The German forestry and timber cluster can make a significant contribution to this, especially since the forest/timber value-added chain is already largely waste-free. An improved material efficiency – in the case of both material and energetic uses - also contributes to enhancing the climate change mitigation effects of the use of timber.

• **Certification of forestry:** The share of forest areas certified according to high-quality ecological standards in Germany should continue to grow in the period up until 2020. At present, about 7.3 million hectares (approx. 64% of the forest area) are certified according to PEFC criteria and approximately 1.1 million hectares (approx. 9% of the forest area) according to FSC criteria. Some large forest owners are certified by both systems. The total certified area in Germany is estimated to be approximately 8 million hectares.

• **The Federal Government’s procurement decree:** Since 2007, federal agencies have only procured timber products from forests that are certified according to PEFC, FSC or similar systems or which have been individually certified to meet comparable standards. The procurement decree was updated in 2011.
Biodiversity and forest nature conservation

The following approaches are intended to further improve forest biological diversity:

- **Integrated forest management:** The nature of forest management is of great importance for the biodiversity of forests. Measures for the conservation and protection of biological diversity are generally an integral part of forest management systems. This has long been an essential element of multifunctional forestry in Germany.

- **Intensifying the dialogue between forest owners, forestry and nature conservation:** The aim of the Federal government is to incorporate all stakeholders more strongly and to motivate them to get involved.

- **Taking the dynamics of forest ecosystems and unique local features into account:** Very distinct measures are required to protect forest-specific biological diversity, depending on the protection objective and the cause of the threat. What benefits one species can impair others. In such cases, the conflict over aims must be resolved.

- **Balancing interests:** According to Section 1 of the Federal Forest Act, forest policy has to strike a balance between the interests of the general public and the interests of the forest owners. This includes, for instance, ensuring that the forest holdings do not incur unreasonable hardships from the requirements relating to other uses of the land well as from nature conservation requirements.

- **Creating incentives:** The tension between the use of biological resources and the conservation of biodiversity needs to be defused. Contractual nature conservation is to be strengthened and extended to include at least 10 percent of the area of the privately owned forests. So far, promotion of forest
environment measures in the privately owned forests covers only a small area (0.1% of the total funding earmarked for EAFRD programmes of the Länder for the period 2014-2020).

With the amendment of the Act on the Joint Task for the Improvement of Agricultural Structures and Coastal Protection in 2016, the basis for supporting nature conservation measures, including contractual nature conservation and landscape management, was expanded.

- **Linking biotopes:** Animal and plant species must be able to move from one region to another. The genetic exchange and the survival of animal and plant species in the cultivated landscape, which has been fragmented by settlement and traffic and is mostly used intensively, must be ensured. The aim of the Federal Re-Linking Programme is to re-link the habitat corridors that have previously been separated by the regional road network. The focus lies on the construction of crossing aids at priority sections in the existing federal highways network; this also helps to avoid accidents with game.

- **Strengthening environmental protection:** The existing approaches of forestry and nature conservation to preserve the biodiversity of forests can only have the desired effect if they are embedded in comprehensive approaches to protect the environment that effectively counter global and large-area environmental changes, e.g. climate change, large-area substance inputs, fragmentation, interference in the groundwater or the expansion of wind power in the forests.
• **Implementing the biodiversity objectives in the federal forest areas:** Since 2005, a total of around 156,000 hectares of federal land have been permanently secured for nature conservation. Including the areas of the National Natural Heritage, the Federal Government has devoted about 20 percent of the federal forests to the objective of natural forest development set out in the National Biodiversity Strategy. For the total area of around 400,000 hectares, the so-called Strategy for the Exemplary Consideration of Biodiversity Concerns for all Federal Lands applies.

**Silviculture**

The focuses of this core discipline of forestry are:

• **Maintaining forest area:** In Germany, the forests are effectively protected by the forest laws of the Federal Government and the Länder as well as a number of other laws. The slight increase in forest area between the last two inventories underlines the effectiveness of these provisions.

• **Increasing the stability, productivity and diversity of the forests:** Stable mixed forests and a high proportion of usable timber are important forest policy objectives. Silvicultural decisions such as the choice of tree species impact the forests for many decades. Therefore, multiple aspects, including the complex demands made of multifunctional forestry, need to be taken into account. Many forest owners in Germany now pursue the concept of close-to-nature forestry which has been a declared goal of German forest policy for more than 30 years.

• **Adaptation to climate change:** Forestry is becoming more risky due to climate change. Silviculture needs to stabilise the forest stands. In order to distribute the risk, a transformation of the forests to mixed, multi-storied, site-adapted and as near to nature as
possible stand types, making use of mainly native tree species, structures and forest types, are being striven for.

- **Preserving forest genetic resources:** The national Forest Genetic Resources programme has existed in Germany since 1987. Here, the Federal Government and the Länder work together on the conservation of forest genetic resources. At the federal level, measures for the conservation of forest genetic resources are promoted by project funds from the Forest Climate Fund, which is used to finance model and demonstration projects on biological diversity, and from the Renewable Resources funding programme.

- **Integrated plant protection:** The aim of the concept of integrated plant protection is to ensure the stability, productivity and diversity of forests while limiting the use of chemical plant protection products to the necessary extent. Chemical plant protection products are used only in exceptional cases in the forest and even then only in extremely small amounts.

**Hunting**

Forests are important habitats for many wild animals. Some of these wild animals are subject to hunting law and are hunted. Appropriate hunting helps to achieve a balanced ratio of game stock and forest area, to prevent excessive damage caused by game animals and to ensure a healthy game stock and species-rich forests. The Federal Ministry of Food and Agriculture ensures, e.g. by means of hunting legislation, wildlife research and dialogue forums, that the local stakeholders are provided with the necessary framework for modern, game-friendly and forest-friendly wildlife management.
Protection of the soil and the water regime

Soils are a limited resource and are vulnerable to air pollution and improper use; impairments can have long lasting effects.

- **Further decrease airborne inputs of acids, nitrogen and pollutants**: These agents still endanger forest soils in Germany despite extensive air pollution control measures in recent decades. The forest soils in Germany are among the most nitrogen-polluted forest soils in Europe. A further reduction of eutrophic nitrogen inputs by means of air pollution control measures is therefore urgently required.

- **Soil protection liming**: Compensatory calcification for the protection of the forest soils against persistent acid inputs from the air and their adverse effects are still recommended in acid-sensitive forest sites. This is funded through the Joint Task for the Improvement of Agricultural Structures and Coastal Protection and may need to be repeated after a time.

- **Pay attention to nutrient sustainability**: It must be ensured that the nutrient removal that results from any use to which the forest is put is in harmony with the restoration of nutrients by soil formation. When using forest biomass, use of branches, fine brushwood, needles and leaves or full trees (especially on sites with too little nutrient supply) should be avoided.

- **Soil-conserving use of forestry machinery**: Incorrect use of heavy forestry machinery can affect the forest soil and its functions in the long term. Many regional laws contain relevant regulations for appropriate and nature-friendly development of the forests. The Kuratorium für Waldarbeit und Forsttechnik e. V. (KWF) has developed recommendations for the soil-conserving use of forestry machinery.
Research

Forestry expertise and knowledge from experience and forest research (including monitoring) are important prerequisites for sustainable and multifunctional forest management.

- **Research** on the subject of forests, forestry and timber is conducted in particular at the Johann Heinrich von Thünen Institute – Federal Research Institute for Rural Areas, Forest and Fisheries (Thünen Institute) and the Julius Kühn Institute – Federal Research Institute for Cultivated Plants.

At the same time, research is also being carried out on these topics at the forestry research and experimental institutes of the Länder, as well as at universities and colleges.

- **Research funding:** The Federal Government promotes research on forests, forestry and timber beyond the research carried out by the federal ministries, through a wide range of funding programmes targeted at national and international level.

- **Forest inventories and surveys** on the condition and development of the forests in Germany are carried out in close cooperation between federal and Länder governments on the basis of the constitutional distribution of competences. The National Forest Inventory, the Carbon Inventory, forest environmental monitoring (forest condition survey, National Forest Soil Survey and intensive monitoring on permanent observation areas), as well as the “Test Holdings Network – Forests” are among the most important at the federal level.
Education, consumer information:

In Germany, society is increasingly losing its connection with rural regions, its knowledge about the necessity of sustainable land and nature use and its knowledge about the achievements of sustainable forestry. The Federal Government therefore supports measures for education, training and schemes aimed at increasing consumer awareness about sustainable forest use and the efficient use of renewable raw materials.
Germany’s international and European forestry policies

The conservation, sustainable management and rehabilitation of forests worldwide are important global goals and central challenges for the international community. Germany is one of the active supporters and, in some cases, initiator of all relevant important current processes at international level.

The United Nations Forest Forum (UNFF) and United Nations Strategic Plan for Forests has the task of promoting sustainable forest management worldwide. The focus is on promoting more coherence among the numerous, sometimes competing forest-related processes and organisations at international level.

In January 2017, the United Nations Strategic Plan for Forests (UNSPF) for 2017-2030 was adopted by the General Assembly following a proposal by UNFF. For the first time, this plan provides a common reference framework for the entire UN and all other international stakeholders.
For the first time, with the Paris Agreement on Climate Change (2015), all forest-related contributions to the preservation of the world climate have been recognised in an agreement that applies to all countries on the planet. The Agreement includes the forest-related elements of REDD+ (Reducing Emissions from Deforestation and Forest Degradation), sustainable forest management and the possibility of recognising wood and timber products as additional carbon sinks and reservoirs. State parties are called upon by the Agreement to preserve and expand this positive environmental climate impact that forests have. REDD+ meets the need to provide appropriate incentives for forest protection. The clearing and destruction of forests, especially in the tropics, is, after the energy sector, the second largest source of anthropogenic greenhouse gases in the atmosphere. Tropical forest countries are also expected to make an active contribution to climate protection by reducing the rate at which their national forests are being destroyed.

In New York in 2015, the United Nations member states agreed on a comprehensive 2030 Agenda for Sustainable Development. The 17 Sustainable Development Goals (SDGs) included in the Agenda are intended to push for a transformation of the economies towards global sustainable development. Unlike the previous international development goals, the importance of forests for the major challenges of the community of states was recognised and explicitly anchored in SDG 15.

The International Tropical Timber Organisation (ITTO), headquartered in Yokohama, aims at the sustainable management of tropical forests and the expansion and diversification of the trade in sustainably produced and legally harvested tropical timber. After the ITTO suffered an organisational and financial crisis in 2016, the ITTO Council agreed in November 2016 on far-reaching
reforms as well as an experienced new executive director. This provides the basis for the organisation to recover.

In many regions, improvements have been made in the fight against illegal logging, including through consumer initiatives such as the EU Timber Regulation. But the problem is still urgent. In 2016, a voluntary partnership agreement (FLEGT VPA) was put into practice in Indonesia for the first time, following extensive negotiations and provision of the necessary conditions in the producer country. These partnership agreements are a particularly promising measure for combating illegal logging. They are, however, lengthy and complex. The one with Indonesia now serves as an example for other countries.

In 2015, the Federal Ministry of Agriculture initiated a global partnership to support global timber origin checks. The aim of the Global Timber Tracking Network (GTTN) is to consolidate the global activities for genetic analysis (fingerprinting) and analysis of stable isotopes of wood, to combine these with further methods of detecting timber species and origins and to promote their practical application by customs authorities and in the timber trade.
Forest certification plays an important role as proof of sustainable forest management in the promotion of responsible use practices at international level, including the involvement of local forest users, and is therefore supported by the Federal Government. Since 2000, the area of the two most important forestry certification systems, PEFC and FSC, has grown considerably worldwide. Starting with approximately 14 million hectares in 2000, 494 million hectares or 12 percent of the global forest area were certified by October 2016. A significant focus of certification (about 90 percent) is still in countries of the boreal and temperate zones, while in the tropics only around 6 percent of the forests are internationally certified.

Since the boom in palm oil production, particularly in Indonesia and Malaysia, and the associated forest destruction, the pressure on forests associated with the consumption of agricultural products has increasingly been addressed. The consumption by the EU of, in particular, soybean oil and palm oil is one of the driving factors here, alongside that of the USA and China. Against this background, the Federal Government is promoting projects that will improve the underlying conditions for private-sector initiatives in soya, palm oil, coffee and cocoa, and will further strengthen its cooperation with the private sector to develop deforestation-free supply chains.

The German initiatives are embedded in political objectives at the international and EU level: in 2014, in the New York Declaration on Forests, Germany, joined forces with nearly 190 other governments, companies and representatives of civil society and indigenous peoples in committing to eliminating deforestation from the supply chains of global agricultural raw materials by 2020. In addition, 2015, Germany and several other European countries signed the two Amsterdam Declarations supporting similar goals.
Within the framework of the Ministerial Conference on the Protection of Forests in Europe (Forest Europe), the 2015 ministerial conference in Madrid resolved that possible ways must be explored to find common ground on the issue of a Legally Binding Agreement on Forests in Europe by 2020. At the beginning of 2015, the negotiations failed due to overarching political dissent. The objectives of the draft European Forest Convention were to promote sustainable and multifunctional forest management as well as cooperation in the whole of Europe in the field of forest conservation and forestry, as well as complementing various environmental agreements with their very specific objectives for forests.

Forest-related activities at EU level

A number of EU policies, such as the Biodiversity Strategy and the decisions on climate policy, biomass and renewable energies, have an impact on forest policy and forest management in the EU. As there is no formal EU competence for a common European forestry policy, cooperation between Member States and EU Commission is therefore particularly important to harmonise the diverse and sometimes contrary demands on the forests resulting from these policy areas. The Commission’s Standing Forestry Committee is the central advisory body for this. Central guideline is the EU Forest Strategy of September 2013.

At European level, there are also extensive research activities aimed at the protection, sustainable management and use of natural resources in agriculture and forestry that are funded by the research framework programmes of the European Union.
ERA-NETs combine European and national funding. The European Forest-based Sector Technology Platform (FTP) coordinates the research interests of the market players in the forestry and timber sector at European level.

The European Forestry Institute (EFI), which has been present with an office at the UN site in Bonn since March 2017, plays a central role in the preparation of scientific findings for policy advice.

International cooperation with regard to forests

Germany’s development cooperation by the Federal Ministry for Economic Cooperation and Development is currently cooperating with 38 partner countries in the field of forest protection. It pursues three overarching development policy objectives: the fight against poverty, the preservation of the ecological balance functions of forests and the fight against climate change.

→ The bilateral commitments for forest-related projects amounted to around 280 million EUR in 2015.

→ In total, 229 bilateral projects with a total volume of more than 1.5 billion EUR were funded in 2016; their main objective is the conservation and sustainable management of forests.

→ In addition, 210 million EUR went to multilateral measures.
REDD+ accounts for a third of the current total bilateral and multilateral forest portfolio. German development cooperation supports relevant forestry countries in creating the framework conditions for (sub) national implementation of REDD+ (e.g. good governance, involvement of civil society and indigenous associations, monitoring of forest areas) while also providing results-based financing for countries that have already demonstrated that they have avoided their deforestation (e.g. bilateral REDD Early Mover Programme).

Germany multilaterally finances activities of the World Bank’s Forest Carbon Partnership Facility (FCPF) to support countries in the coherent introduction and implementation of REDD+. With 18 donors and 47 REDD+ partner countries, the FCPF is the largest multilateral REDD+ initiative. The German Federal Government is co-initiator of the FCPF and to this end had committed about 210 million EUR by the end of 2016. The Federal Government thus finances about 25 percent of the total budget of the FCPF.

Protection and sustainable use of biodiversity are important elements of the principle of sustainable forest management and striven for in all forest-related programmes of German development cooperation. This applies, for example, to the implementation of REDD+ protection clauses in the REDD programmes supported by Germany as well as the promotion of sustainable forest management and the restoration of forest landscapes. Key elements in maintaining biodiversity are the establishment and sustainable development of protected areas.
The **Bonn Challenge** created an internationally recognised worldwide platform for forest landscape restoration in 2011 with the aim of restoring 150 million hectares of forests worldwide by the year 2020. The New York Declaration on Forests expanded the Bonn Challenge’s target in 2014 to 350 million hectares.

Through its **International Climate Initiative (IKI)**, the **Federal Ministry for the Environment and Nuclear Protection** supports the practical implementation of climate and biodiversity protection in numerous partner countries. The work of the IKI focuses on four areas of support: (I) climate protection through mitigation of greenhouse gas emissions, (II) adaptation to the consequences of climate change, (III) preserving natural carbon sinks/REDD+ and (IV) protection of biological diversity. Forest-related projects are located in support areas III and IV in particular.

- From 2011 until 2015, projects with a total volume of 177 million EUR were funded under support area III. In addition, support totalling 35 million EUR is provided for the **BioCarbonFund**.

Since 2014, the **Federal Ministry of Food and Agriculture** has also been supporting smaller demonstration projects and measures of bilateral research cooperation and of knowledge transfer in the field of sustainable forestry in order to meet the unbroken demand for German forestry expertise

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