



Federal Ministry
of Food
and Agriculture

Mitigating climate change. Creating value. Utilising resources efficiently.

Charter for Wood 2.0



Dear Friends of Wood and Forests,

Wood has shaped human development since the dawn of time. Fire, the wheel, the construction of villages and towns – none of these things would have been conceivable without wood. And even today, in the digital age, wood is our most important renewable resource and is still opening up new perspectives – in particular, as an essential factor in climate change mitigation. Thanks to its environmental value, we can use wood not only to conserve our resources, but also to improve our overall climate footprint.

“Mitigating climate change. Creating value. Utilising resources efficiently.” The goals of the Charter for Wood 2.0 reflect the central challenges of our time. In Germany, we are already heading in the right direction. The results of the 2012 National Forest Inventory and the recommendations made by our Scientific Advisory Board on Forest Policy clearly pointed out that our forests are being managed sustainably and responsibly. Our forest is an important carbon storage system. But it is also a resource and reservoir, and wood is a sustainable material par excellence. Our forests and the forestry and wood sector are currently already reducing Germany’s CO₂ emissions by roughly 14 per cent. As a result, they are making a significant contribution to climate change mitigation. Forestry and wood operations, which are often family-owned, are an important pillar of regional employment and value creation, especially in rural areas, and should be maintained and expanded.

The Charter for Wood 2.0 further develops and substantiates the German Federal Government’s Forest Strategy 2020 with regard to wood utilisation. It focuses on the contribution that wood sourced from sustainable forestry could make towards supporting international, European and national political strategies and programmes that aim to mitigate climate change,

strengthen rural areas and conserve resources. One example is encouraging the use of more wood in urban construction. Other important goals include promoting the additional potentials of the bioeconomy and repositioning research activities that advance the efficient use of wood.

With the Charter for Wood 2.0, I am also implementing the Federal Government’s resolution to “enhance the contribution made by the sustainable use of wood to achieving climate action targets,” as stated in its Climate Action Plan 2050.

The Charter for Wood 2.0 is the result of, and also the starting point, for a dialogue. As part of the Forest Strategy 2020, we discussed the issues of forest conservation, forests and recreation, as well as the prospects for wood as a material of the future, with around 500 participants in three dialogue forums. We delved into these topics in greater detail on the inaugural “Day of the German Forest” in October 2016 during events such as a wood workshop, where representatives from different societal groups identified important starting points for the Charter. With this as their basis, experts from politics, science and business developed the Charter for Wood 2.0 in a working group consisting of representatives of the Federal Government and the federal states. It therefore forms the framework and foundation for the further implementation of my ministry’s clear policy of achieving a strong and sustainable forestry & wood cluster. I invite everyone to get involved.

Christian Schmidt,
 Member of the German Bundestag
 Federal Minister of Food and Agriculture

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An aerial photograph of a lush, green forested landscape. In the background, a city skyline is visible across a river. The foreground shows rolling hills with dense green trees and a few scattered buildings.

1

Why do we need a Charter for Wood 2.0?

Objectives and contributions of the
forestry & wood cluster

Why do we need a Charter for Wood?

Objectives and contributions of the forestry & wood cluster

Time to take action

It was a historic moment when the United Nations community adopted the 2030 Agenda for Sustainable Development in New York in September 2015. The Agenda reflects the international community's promise to face the challenges of the 21st century together and make a life of dignity and prosperity possible for all human beings.

The challenge is huge: It is expected that earth will be home to almost 10 billion people by 2050 – about 2.5 billion more than today. The global need for healthy food, housing and energy will continue to increase as a result. However, resources are already being used at a rate that exceeds the earth's regenerative capacity.

The goal must therefore be to find an efficient way of utilising the ever-scarcer and increasingly expensive resources – commodities, energy and land – while bearing in mind the need to conserve these resources. To do so, growth and prosperity must, as far as is possible, be uncoupled from the use of these finite resources. We need to rethink the way we consume the Earth's resources in order to reduce our dependency on fossil and mineral resources and pave the way for a biobased society sustained by the use of renewable resources and energies. New concepts for providing a secure and sustainable supply of energy and resources, with due account taken of sustainably generated biomass, are therefore gaining importance.

Climate change is also one of the biggest challenges of our time. In the Paris Climate Agreement of December 2015, the international community resolved to take active steps to limit the rise in the global average temperature to 2 °C between now and 2100. The participating countries also committed themselves to achieving this goal by implementing national climate change mitigation plans.

Charter for Wood 2.0 – Mitigating climate change. Creating value. Utilising resources efficiently.

In November 2016, the Federal Government enacted a series of ambitious objectives and measures by adopting the Climate Action Plan 2050. It describes the Charter for Wood 2.0 as a milestone on the path to achieving its climate change mitigation targets. One of the goals of this Charter is to develop measures that will strengthen the

contribution made by sustainable wood use to achieving climate change mitigation targets. The Climate Action Plan also calls upon us to closely link efforts to increase the contribution to climate change mitigation provided by forests, sustainable forestry and intelligent use of wood with the requirements of resource and material efficiency.

Subsequent to the Climate Change Conference in Paris, the agricultural ministers of the Federal Government and the federal states (Länder) passed a resolution to implement a "Charter for Wood" based on their conviction that "... sustainable forest management, sustainable wood use and consistently using wood as a substitute for energy-intensive materials that have a harmful CO₂ impact can make a significant contribution to reducing greenhouse gas emissions and to mitigating climate change overall, making these factors indispensable for reaching the goals set in the Paris Climate Agreement." In this resolution, the agricultural ministers also emphasised the significance of sustainable forest management and wood use for strengthening the forestry and wood sector and thereby strengthening rural areas in particular. They consider it vital to increase social awareness for these arguments even further.

In light of the major social and political challenges, the use of wood as the most important renewable resource is of particular significance. Sustainably produced wood from structurally rich forests has the potential to increasingly replace materials produced on the basis of fossil resources and to conserve energy from finite resources while simultaneously mitigating climate change.

The Third German National Forest Inventory (BWI3), published in 2014, confirmed that German forests are being managed sustainably. According to the report, reserves in German forests have increased to 3.7 billion m³ – even though the benefits of wood as a renewable resource have led to an increase in wood consumption. No other country in the European Union has forests that are as rich in reserves, structure or species. Today, forests in Germany are being managed more nature-oriented than before.



The foundations for responsible utilisation are sustainable forestry and the goal set out in the Forest Strategy 2020 of creating a viable balance between the increasing demands being placed on the forests and their performance in the long term, which must be adapted to meet future requirements. Taking climate-conscious action also means eliminating the use of non-renewable resources to the furthest possible extent. The Federal Government formulated this goal in its National Policy Strategy on Bioeconomy, a substantial component of

which is utilising wood potentials that are available in the long term.

Within this context, the Charter for Wood 2.0 emphasises the potential of using wood sourced from sustainable forest management and the contributions it can make, meaning that the Charter is in direct support of international, European and national goals of mitigating climate change, creating value and utilising resources efficiently.

CHARTER FOR WOOD 2.0 – NEW EMPHASES, DIFFERENTIATED OBJECTIVES:

With the objectives of mitigating climate change, creating value and utilising resources efficiently, the Charter for Wood 2.0 focuses on qualitative growth to support central international, European and national political objectives.

The objective of the 2004 Charter for Wood was to increase average wood consumption in Germany by 20 per cent per inhabitant within ten years. This goal was set in light of unsatisfactory demand in the various fields of wood use. The goal of the Charter was in fact reached before the set period was over. Moreover, the forestry and wood sector was able to overcome the market slumps resulting from the financial and economic crisis of 2007. The focus is now on ensuring that there is a continuous supply of raw wood and on factors that will help increase the use of wood as a material, as well as on different aspects of the recycling economy and material and resource efficiency, in order to mitigate climate change and create value. The Charter for Wood 2.0 is a milestone in the Federal Government's Climate Action Plan 2050.

Objectives of the Charter for Wood 2.0

THE CHARTER FOR WOOD 2.0 PURSUES THE FOLLOWING PRIMARY OBJECTIVES:



MITIGATING CLIMATE CHANGE:

Goal: To increase the contribution the forestry and wood sector makes to mitigating climate change through sustainable forest management and wood use

Indicator: The contribution that the forestry and wood sector makes to climate change mitigation (storage and substitution)



CREATING VALUE:

Goal: To maintain and improve the value creation and the competitiveness of the forestry & wood cluster

Indicator: Value creation by forestry and wood



UTILISING RESOURCES EFFICIENTLY:

Goal: To conserve finite resources through the sustainable and efficient use of forests and wood

Indicators: Value creation in forestry and wood in relation to overall wood production and the amount of forest wood harvested in relation to economically viable forest land

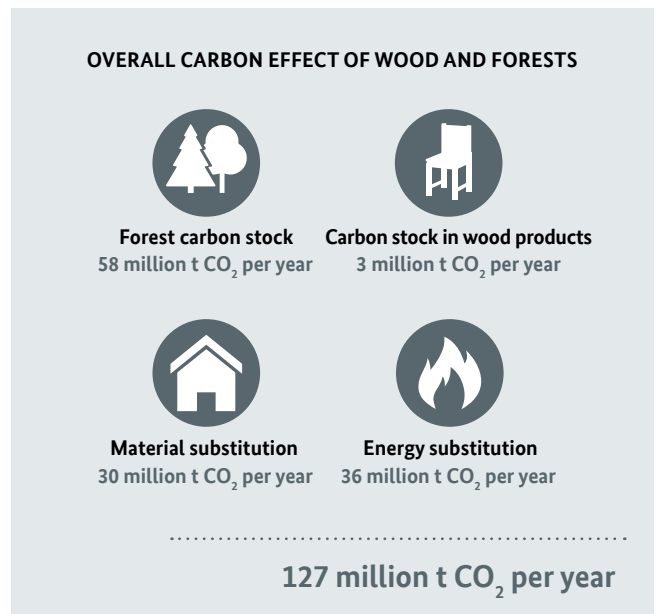
**Mitigating climate change – creating value – utilising resources efficiently:
The contribution made by sustainable forest management and wood use**

Mitigating climate change:

Sustainably managed forests play an important role in mitigating climate change. They absorb CO₂ through photosynthesis and wood growth and store carbon in the long term (forest carbon stock). When wood is used – in furniture or buildings, for example – the carbon remains stored in the resulting products (carbon stock in harvested products). In addition to these storage effects, using wood replaces finite fossil energy sources such as oil, gas and coal – through the burning of wood (energy substitution) and because wood products usually require less energy to manufacture and dispose of than products made from other materials (material substitution).

The contribution made by the German forestry and wood sector to climate change mitigation is 127 million t of CO₂ per year (2014). This is the equivalent of 14 % of the overall German GHG emissions of 903 million t of CO₂ equivalents

Source: Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection/Scientific Advisory Board on Forest Policy, 2016; values for Germany, 2014



The substitution effects of using wood illustrate why it makes sense to manage forests sustainably and use the renewable resource wood to mitigate climate change. The positive climate effects of a well-managed forest – forest carbon stock and carbon stock in wood products, as well as material and energy substitution – outweigh the effect that would be achieved in the long term solely by increasing the forest carbon stock in an unutilised forest. In unused forests gases emitted during rotting offset the CO₂ stored in wood in the long term. The only way to tap the climate change mitigation potential of the forestry and wood sector on a lasting basis is to use forests sustainably.

Compared with other sectors, climate change mitigation measures in the forestry and wood sector are not usually associated with high costs for the national economy. Measures taken in the forest with major positive relevance for the climate can be worthwhile for companies in the forestry & wood cluster while also having economic benefits for the economy as a whole.

The way that forests are managed and wood is used therefore has a significant impact on the climate change mitigation potential of the forestry and wood sector. The Charter for Wood 2.0 provides more detail about the issues that the Federal Government outlined in its Climate Action Plan 2050 for a sustainable forest

sector and sustainable wood use. Moreover, the recommendations made by the BMEL's scientific advisory committees¹ form an important basis for implementing the Charter.

Creating value

According to the European Union's definition, the forestry & wood cluster comprises the different sectors that have a connection to wood as a material: forestry, wood processing, woodworking, using wood in construction, paper manufacturing, publishing and printing, and wholesale, as well as the wood trade in raw and sawn wood. Approximately 1.1 million people work in the forestry & wood cluster in Germany, which generates revenues of almost EUR 180 billion and creates a gross value of about EUR 55 billion every year. Not including printing and publishing, the cluster – that is, the forestry and wood sector in a narrower sense – employs more than 700,000 people and generates revenues of over EUR 120 billion per year. The more than 125,000 companies in the forestry & wood cluster demonstrate that it is a sector shaped by SMEs, with many small enterprises. The forestry and wood sector is especially important in rural areas, where it makes a disproportionately large contribution to value creation and employment.

¹ Climate Change Mitigation in Agriculture and Forestry and in the Neighbouring Fields of Food and Wood use, report by the Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection and the Scientific Advisory Board on Forest Policy at the Federal Ministry for Food and Agriculture, July 2016





THE FORESTRY & WOOD CLUSTER IN 2014

- EUR 55 billion in gross value created
- EUR 180 billion in revenues
- 1.1 million jobs

The figures above illustrate the national economic significance of the forestry & wood cluster. Within the cluster, the forest is indispensable as a producer of raw materials. Moreover, forests in Germany perform important environmental and social functions, particularly in terms of soil conservation, water regulation, climate change mitigation, nature conservation and recreation. These functions need to be maintained and reconciled with the production of wood as a renewable resource.

However, we need to take a statement by the Scientific Advisory Board on Forest Policy seriously. In its position paper entitled “The Forest Strategy 2020 Reflected in the Third National Forestry Inventory”², the board

points out an impending imbalance: “Indicators in the fields of biodiversity and forest conservation point to thoroughly positive developments, while indicators in the fields of property, work and income point towards long-term deterioration.” This statement gains additional traction within the context of the Charter for Wood, as the structural drawbacks of the predominantly small-scale forestry and wood sector mean special challenges for the sector and policymakers with regard to value creation and competitiveness in globalised markets, especially in Germany.

Utilising resources efficiently

As Germany’s most significant renewable resource, wood makes an important contribution to resource efficiency, as using wood preserves and replaces fossil resources and finite materials. The fundamentally positive contribution that the forestry and wood sector makes to the bioeconomy could be intensified by increasing the amount of wood harvested from sustainably managed forest (land use efficiency) by responsibly taking into consideration the other functions of forests.

With limited land area, the resource-conserving and energy-saving use of materials in the forestry and wood sector gains significance. Wood use becomes particularly efficient if it takes place on more than one occasion in cascades, i.e. when the resources or the products manufactured from wood are used repeatedly with the goal of keeping them in the material and economic cycle for as long as possible. This extends the carbon cycle and increases value creation. Cascade use is already well established in the forestry and wood sector today. New forms of using wood in the bioeconomy will continue to significantly expand these cycles. The European Commission considers resource efficiency an important prerequisite for the European Union's competitiveness and launched the EU flagship initiative "Resource Efficient Europe" in 2011. At the G7 summit in Elmau in 2015, the German presidency placed resource efficiency on the agenda as a central topic for the first time, and it was adopted as one of the G7's ongoing tasks.

On a national level, the Federal Government adopted the German Resource Efficiency Programme II in March 2016. It sets out important goals that are also highly relevant for the forestry and wood sector, such as:

- safeguarding a sustainable supply of materials ("Environmentally friendly expansion of material use of renewable resources")
- improving resource efficiency in manufacturing ("Development of material-efficient and energy-efficient production and processing methods")
- expanding the resource-efficient recycling economy ("Cascading use and recycling, as well as environmental product design")
- resource efficiency as part of sustainable construction (e.g. "Increased use of building products based on renewable resources", "Creating information resources for planners and developers on sustainable building options and the use of environmental product services for construction products")
- sustainable procurement

These goals can only be achieved in the forestry and wood sector if resource efficiency is taken into account as a consistent principle in all fields of action presented in the Charter for Wood 2.0.

Priority fields of action in the Charter for Wood 2.0 – a chance to get involved

The implementation of political goals is concentrated around priority fields of action (see chapter 3: "Priority fields of action and important objectives"), in which the biggest impacts are expected or which have the greatest need for action.

The fields of action and the corresponding focus areas were devised together with experts from the Federal Government, the federal states and the fields of science and business in a joint federal and federal state working group. They are the foundation for substantiating and practically implementing the Charter for Wood 2.0.

All relevant players are invited to take part in the implementation of the Charter and to make an active contribution (see chapter 4: "Taking responsibility: players and tools"). In this sense, the Charter for Wood is understood to be an open process for people in positions of responsibility at the federal, state and municipal level, as well as in politics, business, science and civil society.

"This is why we recommend that everybody involved in policy, business and civil society should work together to pursue, develop and implement the specific vision of a complete recycling economy and of abstaining – in the long term – from the consumption of finite, non-renewable resources."

Council for Sustainable Development, 2011

² Short Statement of the Scientific Advisory Board on Forest Policy of the Federal Ministry for Food and Agriculture, Berlin, 19 February 2016

THE CHARTER FOR WOOD 2.0 IN THE CONTEXT OF SELECT POLITICAL STRATEGIES

International



“Parties should take action to conserve and enhance, as necessary, sinks and reservoirs of greenhouse gases [as referred to in Article 4, paragraph 1 (d), of the Convention,] including forests.” Excerpt from the Paris Agreement on Climate Change (2015)

“The protection and efficient use of natural resources is vital for sustainable development. We strive to improve resource efficiency, which we consider crucial for the competitiveness of the respective sectors, for economic growth and employment, and for the protection of the environment, climate and planet.” Leaders’ Declaration G7 Summit (Elmau 2015)

United Nations:
2030 Agenda for Sustainable Development (2015)
United Nations:
The Paris Agreement on Climate Change (2015)
G7 Summit Elmau Leaders’ Declaration from 8 June 2015

EU



“Wood is a natural, renewable, reusable and recyclable raw material. However, the future competitiveness of the EU’s forest-based sectors requires new resource- and energy-efficient, and environmentally-sound processes and products.” EU Forest Strategy (2015)

EU Forest Strategy (2015)
Flagship initiatives
“Innovation Union” (2010)
“Resource efficient Europe” (2011)
EU Circular Economy Action Plan (2015)



National

Management rules for sustainability: “Renewable natural goods (e.g. forests or fish populations) should, on a longterm basis, only be used within the limits of their ability to regenerate.

Non-renewable natural goods (such as mineral raw materials or fossil fuels) should, on a longterm basis, only be used to the extent that their functions cannot be replaced by other materials or fuels.”

German Sustainable Development Strategy (2012)

“By means of a close-to-nature and environmentally compatible increase in forest productivity, (...) a major contribution can be made to increase the stability and vitality of forests and secure the future wood supply.” Forest Strategy 2020 (2011)

“The substitution of mineral and fossil raw materials through sustainably produced biomass can contribute significantly to the careful management of finite resources in the bioeconomy and in the Green Economy.” Green Economy Research Agenda (2014)

“The 21st century is characterised by major challenges, such as a sufficient and healthy food supply for a growing global population, climate change and the loss of soil fertility and biodiversity. The ‘knowledge-based bioeconomy’ – also termed the ‘biobased economy’ – offers an opportunity to make an important contribution to resolving these challenges while also fuelling the transition

from an economy based largely on fossil resources to an economy based on the efficient use of renewable resources.”

German National Policy Strategy on Bioeconomy (2013)

“The first step in dealing with dwindling resources is their more efficient, i.e. material-saving, use. The essential prerequisite for improving resource efficiency is the avoidance of waste and the return of recyclable materials from waste to the economic cycle. In principle, the sensible cascaded use of scarce resources in the wood and paper sector should be increased further.”

Forest Strategy 2020 (2011)

Forest Strategy 2020 (2011)
National Policy Strategy on Bioeconomy (2013)
Climate Action Plan 2050 (2016)
Green Economy Research Agenda (2014)
National Sustainable Development Strategy (2012)
German Resource Efficiency Programme Progress II (2016)
National Programme for Sustainable Consumption (2016)
Alliance for Affordable Living (2014)

A photograph of a forest with a white rectangular text box overlaid on the right side. The forest features a mix of green and yellowing leaves, suggesting an autumn setting. The text box contains a large number '2' at the top, followed by a horizontal line, and the text 'Principles and guidelines' below it.

2

Principles and guidelines

Principles and guidelines



The new edition of the Charter for Wood further develops and substantiates the Federal Government's Forest Strategy 2020 with regard to using wood sourced from sustainable forestry.

The Charter for Wood 2.0 focuses on maintaining and expanding the benefits of sustainable, efficient consumption and long-term utilisation of wood to help mitigate climate change and create value, especially in rural areas. But the forest is far more than the sum of its trees and is more than just a source of wood.

The Charter for Wood 2.0 is therefore shaped by the following basic understanding:

Forests are important ecosystems and habitats.

- Site-adapted, vibrant and productive forests, adapted to climate change and consisting primarily of native tree species, are the foundation of sustainable forest management and wood use in Germany.
- Forests are important ecosystems and habitats for many animal and plant species, some of which are rare. Sustainable forest management means protecting

forests by using them as well as expanding and conserving biodiversity efficiently and effectively.

- Forests also play an important role in soil protection, the drinking water supply, air purification and a balanced local climate.

Forests have owners.

- Around 50 per cent of the forests in Germany are privately owned. The other 50 per cent are predominantly owned by the federal states, cities and municipalities.
- The protection of private property, entrenched in Germany's Basic Law, is an important basis for taking forest management action in private forests.
- The forest and forest owners provide society with a number of unpaid services.

Forests provide space for leisure, sport and recreation.

- For people in cities and in the country, forests are important spaces for recreation, sport and experiencing nature.
- The basis of this is the right of public access to forests for the purpose of recreation and a huge network of rural roads and hiking paths in forests.

Using wood from sustainable, legal forestry.

- The Charter for Wood 2.0 is based upon the idea of sourcing wood from sustainable forestry.
- In Germany, forest management takes place “properly and sustainably” in accordance with federal and state forest law. Moreover, forest owners help document the sustainability of forest management by taking part in voluntary certification programmes.
- Import of wood is subject to EU law and international agreements. They form the basis for importing wood in a way that prevents the destruction of tropical rain forests, overexploitation and the sale of illegally logged wood.
- The Federal Government uses the 2010 Federal Procurement Decree for Wood Products (Bundesbeschaffungserlass für Holzprodukte) to promote the greater use of wood sourced from sustainable, legal forestry sectors.

Science and research are the basis for making knowledge-based decisions.

- Insights from the fields of science and research provide important data for the implementation of the Charter for Wood 2.0 and therefore determine the framework for taking action.
- Science and research specifically help eliminate knowledge deficits and provide decision-making criteria.
- The Scientific Advisory Board on Forest Policy advises the Federal Government in all important matters pertaining to the forests, forestry and wood use.

Utilising environmental benefits and taking non-prejudicial action.

- With a view to climate change and ongoing population growth, finding ways to mitigate climate change and consume commodities and materials while conserving resources has become one of the central challenges of our time.
- The issue at stake is not only fair competition between resources, construction materials, industrial materials and energy sources, but also the benefits of the products and/or materials used and their combinations for mitigating climate change (carbon storage and environmental footprint) and conserving resources.

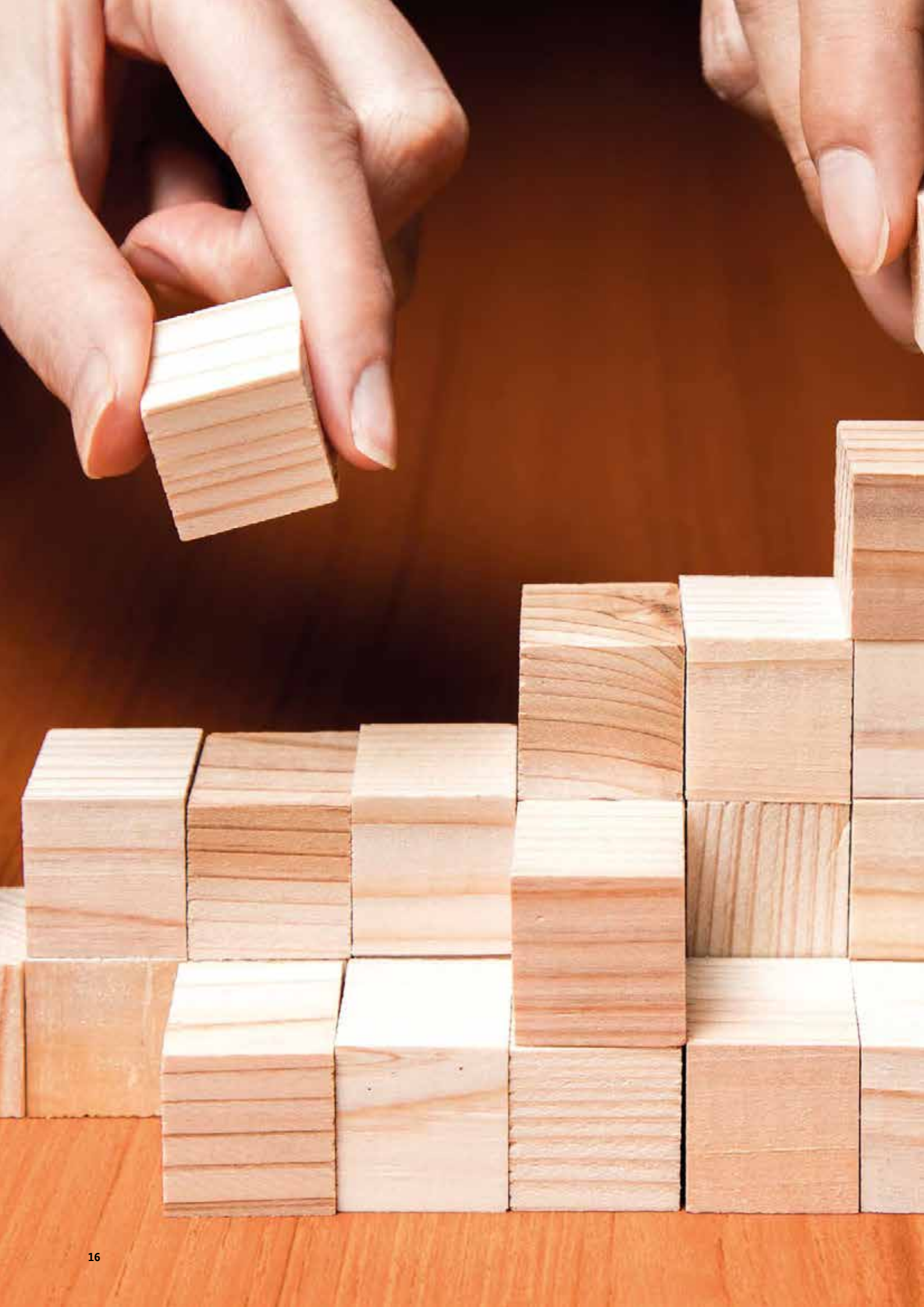
Committing to treating consumers fairly.

- Transparency and reliability about the origins and properties of wood products are the basis for allowing consumers to make well-informed purchasing decisions.
- Consumer information, consumer protection and continuous dialogue strengthen sustainable consumption.

Maintaining transparency and social dialogue.

- It will take broad social commitment to achieve the political goals of improved climate change mitigation and efficient resource utilisation.
- Interested societal groups are therefore invited to take part in implementing the Charter for Wood.





A close-up photograph of a hand placing a wooden block on a stack of other wooden blocks. The blocks are light-colored wood with visible grain. The background is dark, making the wood stand out. The hand is positioned at the top left, with the thumb and index finger holding the block. The stack of blocks is on the left side of the frame, and another block is being placed on the right side. The overall scene suggests a process of building or construction.

3

Priority fields
of action and
important goals

Field of action

Using wood in urban and rural construction

The construction sector is one of the most resource-intensive industries in Germany. Ninety per cent of all utilised mineral resources are used to manufacture construction materials and products. This means that the construction sector accounts for a significant share of the required energy and the CO₂ emissions they cause. Less fossil energy is usually required to manufacture and dispose of construction materials made from wood than materials made from finite mineral resources. Building with wood can therefore make a considerable contribution to reducing CO₂ emissions and, consequently, to climate change mitigation. More than half of all finished products made from wood (excluding paper) are used in the construction sector. This makes the construction sector the most significant area in which wood products are used. Increased demand has led to wood construction becoming the driving force in wood use – with positive effects on employment and value creation for the entire forestry & wood cluster. As a result, the number of people employed in wood construction has risen by more than 10 per cent within a period of ten years.



New buildings and renovations

While only 6 per cent of single-family and two-family houses were built from wood at the beginning of the 1990s, this percentage has tripled to around 18 per cent in the past 25 years. But the use of wood in multi-family residential construction paints a very different picture. The percentage here is still only 2 per cent. In high-rise apartment building construction, wood construction is limited to a few reference buildings and flagship projects. In cities, wood construction is therefore still clearly under-represented, although the technical and economic advantages of wood as a construction material are obvious when it comes to meeting the growing demand for affordable urban housing. These advantages, especially in urban densification projects, include short building periods, high load capacity in spite of its light weight and flexibility when it comes to adding new storeys or extensions.

Alongside new construction, the modernisation and renovation of existing buildings also plays an important role. Roughly

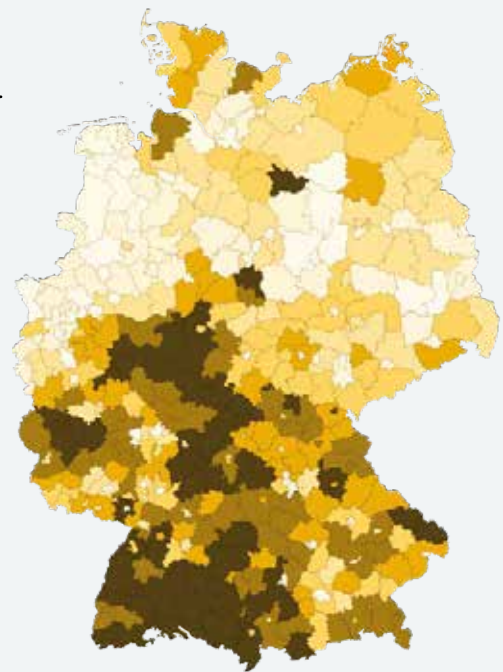


two-thirds of the wood used in the construction sector is used in modernisation and renovations, such as to create extra living space or to renovate buildings in a way that increases their energy efficiency. More than 60 per cent of German residential buildings are older than 35 years and are therefore in greater need of renovation. This is where wood can provide energy-efficient solutions (e.g. energy-efficient insulation).

THE PERCENTAGE OF PRIVATE HOMES MADE FROM WOOD

Private home construction permits

This representation of administrative districts and urban districts shows that wood construction still has a lot of catching up to do in northern Germany and in the big cities.



Share in %	
under	07.30
07.30	to 10.60
10.60	to 14.50
14.50	to 17.70
17.70	to 22.30
22.30	to 28.60
28.60	and more

Source: Kaiser/Mantau 2017

Mitigating climate change

Buildings made from wood store carbon. This effect is of special significance since the wood products used in the construction sector remain part of the buildings for a long time, meaning that the carbon they contain also remains locked in. Moreover, wood can be used to replace construction materials that are more energy intensive, thereby reducing CO₂ emissions.

Creating value

The steps taken to process raw wood into a finished building and the fact that wood can be utilised after it has been used in buildings create a lot of value for the national economy. In 2013, the roughly 300,000 employees in wood construction generated revenues of EUR 28 billion. The socio-economic effects from the upstream stages of the value chain in the forestry, sawmill and engineered wood sectors are an additional factor.

Utilising resources efficiently

Wood can be used in the construction sector to replace materials that are produced from finite resources. This not only has a positive effect on climate change mitigation, but also helps improve overall economic resource efficiency. At the same time, wooden buildings are characterised by their high energy efficiency and are often constructed in line with the passive house standard.

Utilising the potentials of wood construction

Although wood construction is already established in single-family and two-family house construction and has been enjoying growing popularity for years, apartment buildings and non-residential buildings (e.g. office and administrative or industrial buildings) are far more rarely made from wood. Therefore, this area offers a special potential, which the Charter for Wood addresses in two of its focus areas, namely “urban construction” and “wood construction markets with high potential”.

A number of different measures will need to be taken to tap this potential. For example, advances need to be made in gaining expertise in mixed development methods. At the same time, the structural drawbacks of the wood construction sector, which is characterised by a high prevalence of small and medium-sized

enterprises (SMEs), need to be overcome, for example in high-volume construction or when it comes to awarding public building contracts.

Alongside this specific need for development, there are a number of overarching obstacles related to building with wood. A further focal point of the Charter for Wood is eliminating these obstacles so that wood construction is not disadvantaged when compared to other building methods, thus enabling fairer competition with other sectors and materials.

Another of the Charter’s focus areas, namely “the impact of the construction sector on climate change mitigation”, entails a multi-layer examination of ways to assess, improve and appropriately consider the potentials and impacts of using wood to mitigate climate change.

Focus areas and important objectives

1 Urban construction

- Densification and redevelopment (raising and expanding)
- Multi-storey construction
- Energy efficiency in new and existing buildings
- Affordable high-quality housing

2 Wood construction markets with high potential

- High-volume construction
- Mixed material construction
- Public building construction
- Agricultural construction
- Temporary buildings made of wood

3 Eliminating obstacles

- Status seminars in wood construction for building authorities (Federal Government, federal states and municipalities)
- Reviewing/adjusting Model Building Code (Musterbauordnung, MBO), guidelines, the Fee Structure for Architects and Engineers (Honorarordnung für Architekten und Ingenieure, HOAI), building regulations of federal states
- Norms and standardisation
- Assessing the service life of wooden buildings and wooden construction components

4 Impact of the construction sector on climate change mitigation

- Life cycle assessment
- Sustainable construction
- Procurement and tenders

Important objectives:

- ▶ increasing the share of wooden buildings in the various building categories
- ▶ increasing the use of wood in building renovations
- ▶ curbing prejudice against wood in leading regulations and guidelines
- ▶ more consideration of the effects on climate change mitigation in strategies, programmes, manuals and guidelines for the construction sector



Best practice

High-volume wood construction that makes a large contribution to climate change mitigation through storage and substitution

Around 549 tonnes of wood were used to build the Tax Office in Garmisch Partenkirchen, permanently removing 920 t of CO₂ from the atmosphere. Another 970 t of CO₂ of emissions were prevented by substituting certain construction materials with other more environmentally friendly materials. Overall, the positive climate effects now amount to approximately 1,900 t of CO₂. At the end of its useful life, the wood used in buildings can be recycled or reused as thermal energy, both of which are outcomes that have positive effects on the climate. For example, burning prevents emissions of 600 t of CO₂, for example (energy substitution).

Source: Forestry and Wood Cluster Initiative in Bavaria 2016

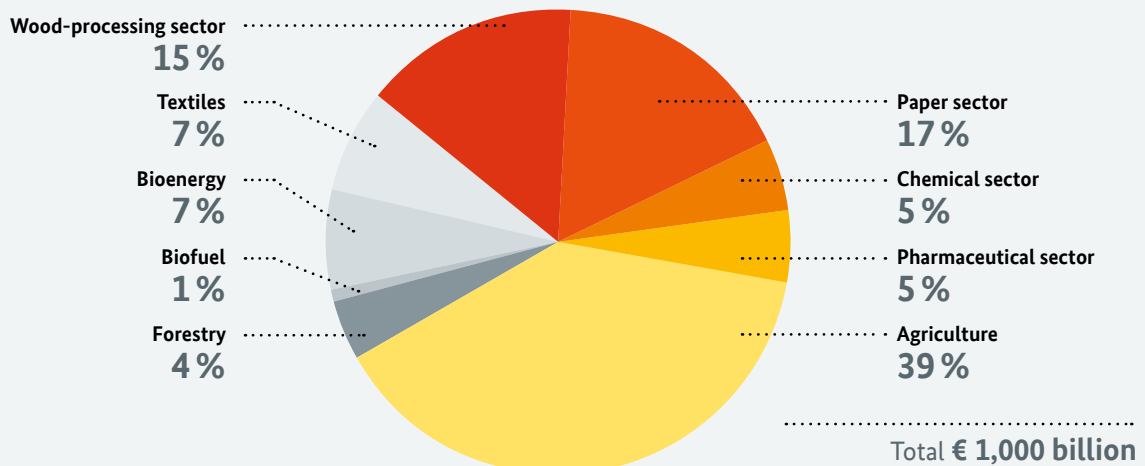
Field of action

The potential of wood in the bioeconomy

The “bioeconomy” means the knowledge-based production and utilisation of renewable resources in order to provide products, processes and services in all economic sectors that are part of a sustainable economic system. As the most important renewable resource, wood forms an indispensable foundation in this regard. In traditional uses, such as in the construction sector or in the furniture and paper sectors, product and process innovations are continuously making it possible to meet new requirements. At the same time, the development of innovative products and processes has the potential to give rise to completely new fields of application for wood. Combining wood with other materials and working with other sectors therefore contribute to the advancement of a biobased economy.

Making use of hardwood

Ecological forest conversion will lead to an increased supply of hardwood and therefore to a change in the range of resources available to the wood sector in the future. With a decreasing supply of softwood, there is significantly more small diameter hardwood available, especially beech. Although hardwood now accounts for about one-third of the wood supplied by the forest sector, the wood and paper sectors have only been utilising hard wood in small amounts. More than 80 per cent of wood-based products are made from softwood. Hardwood is currently predominantly used for energy purposes. Unlike the use of wood in higher-quality products that can be used repeatedly (cascade wood use), there are fewer positive climate change mitigation effects associated with using raw wood from the forest as a direct source of energy. Moreover, there are fewer national economic benefits.

TURNOVER IN THE BIOBASED ECONOMY (EU-28, 2013)*

Source: nova-Institut, 2016; *excluding food, beverages and tobacco products


Mitigating climate change

The topics of climate change mitigation and energy efficiency are important drivers of innovation in the development of wood products. Expanding the use of hardwood as a material will help intensify the effects of substitution and carbon storage in the interests of enhanced climate change mitigation.


Creating value

New, innovative products are making it possible not only to replace other wood products, but also to tap into new fields of applications for wood. This could lead to the creation of more value overall. Moreover, increasing the use of hardwood as a material could also form the basis for creating more value.


Utilising resources efficiently

By developing new, innovative products, we can also establish the renewable resource wood in areas that have so far been dominated by finite materials. Wood could help advance developments towards the bioeconomy. The increased use of hardwood as a material will also help utilise resources efficiently.

The development of new, innovative, marketable hardwood products is therefore one of the most important and demanding challenges facing research and development in the forestry and wood sector. It would be impossible to replace conventional softwood products entirely with products made of hardwood. The main reason for this has to do with technology, but economic reasons and market acceptance also play a role. This means that innovations are required to process hardwood differently so as to tap into new fields of application. Hardwood could become the basis for developing new, innovative products, helping us to even better utilise the potentials of wood in the bioeconomy.





Opening up additional opportunities and potentials in the bioeconomy

A further focus area, entitled “innovative products and processes”, will examine the additional potentials of wood in the bioeconomy. Here we will primarily focus on applications where wood is currently of little or no significance, but where we expect potential to create more value. These applications will be viewed from a market and product perspective in relation to market opportunities and potentials, as well as from the perspective of manufacturing technology. Alongside products created from hardwood (addressed by the Charter in the focus area entitled “creating value from hardwood”), the development of innovative products and processes also includes new potential applications for the by-products of the sawmill and paper sectors. The goals here include the high-value utilisation of the constituents of wood or their use in biocomposites, as well as the opportunities provided by combining them with other materials and using them in other sectors. Generally speaking, important environment factors, such as life cycle assessment, will be taken into account.

Focus areas and important objectives

1 Innovative products and processes

- Market opportunities and potentials
- Combining wood with other materials
- Creating value with the by-products of the paper and the sawmill sectors
- Utilising the constituents of wood
- Biorefinery concepts
- Life cycle assessment/sustainability analyses

2 Creating value from hardwood

- Valorisation of (small-diameter) hardwood
- Hardwood in construction
- Biocomposites
- Hardwood in outdoor applications

Important objectives:

- ▶ increasing the number of patent registrations
- ▶ increasing the proportion of hardwood used as a material



Best practice

Beech as a raw material in the clothing sector

Innovations and technology in the fields of pulp production and fibre manufacturing have also made wood the basis for producing materials used in clothing and home textiles. Wood-based cellulose fibres combine the natural properties of natural fibres with the processing benefits of synthetic fibres.



Field of action

Material and energy efficiency

By using the renewable resource wood, the forestry and wood sector is helping to increase the resource efficiency of the national economy. This means that fewer finite mineral resources are being used. Furthermore, the use of wood as an energy source and the lower amounts of energy consumed to manufacture products made from wood help conserve fossil energy sources. Wood is currently the most important energy source for the energy transition (Energiewende). Approximately one-quarter of the power and two-thirds of the heat made available by renewable energies comes from wood or biomass. With the supply of raw materials only capable of growing to a limited extent, the forestry and wood sector must aim to utilise wood sourced from sustainably managed forests as efficiently as possible. At the same time, there is potential to reduce the amount of energy being consumed in the wood and paper sectors and to increase the energy efficiency of using wood as a source of energy in general.

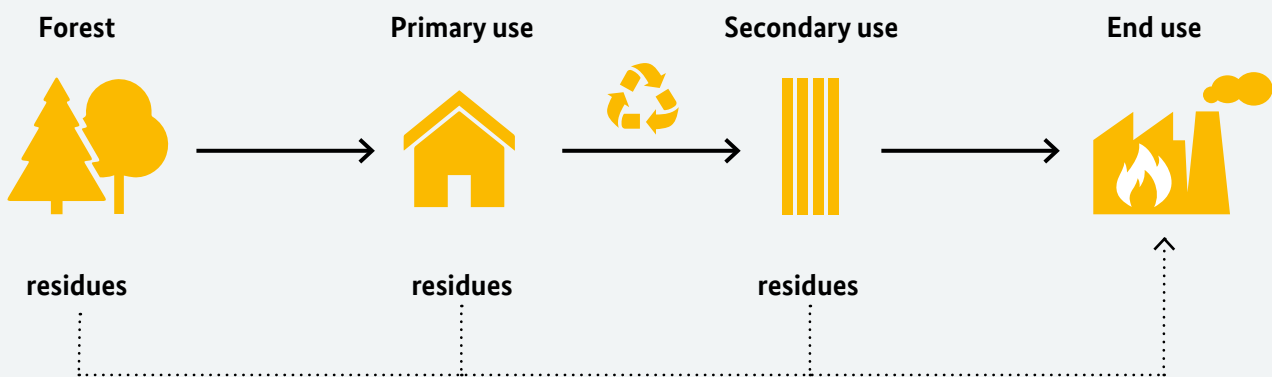
Optimising properties – creating more value

Ways of achieving the objective of using wood as efficiently as possible include using less wood in products that offer the same technical performance, such as using lighter wood materials to build furniture. This can be achieved by continuously optimising processes and products and by developing innovative new materials, for example by combining wood with other materials.

Moreover, cascading wood use leads to an increase in material efficiency by initially using wood repeatedly to manufacture products and only using it as a source of energy at the end of its life cycle.

Compared to other industries, the wood sector consumes relatively low levels of energy, which are also covered for the most part by renewable energies. However, there is still room for optimisation in this regard. For many years, the wood and paper sectors have been successfully working to reduce their specific energy consumption, i.e. the

THE PRINCIPLE OF CASCADING USE



The most efficient way to utilise wood is to first use it as a material, i.e. to manufacture products, before using it as a source of energy.

Source: in line with MKLUNV NRW, 2013

energy required to manufacture a product. In spite of all of the technical and physical constraints, improvements can still be made to increase energy efficiency in manufacturing. For example, there is great potential in reducing the amount of energy required to dry wood.

The efficiency of using wood as an energy source could also be improved beyond the wood sector, for example, by improving the low efficiency of power

plants that do not utilise the heat while they generate electricity. Efficiency could also be improved in private households, thereby increasing the efficiency of domestic wood-fired combustion units. These measures could also have positive side effects, such as reducing particulate matter emissions.

Mitigating climate change

Increasing material productivity – by improving cascading use as well – opens up opportunities to increase the effects that substituting materials and energy sources can have on climate change mitigation. Increasing energy efficiency in the wood and paper sector and during the use of wood for energy purposes will immediately reduce the amount of primary energy and fossil energy sources being consumed – directly or indirectly by expanding the possibilities of substitution – and therefore reduce CO₂ emissions.

Creating value

Using less energy and materials could reduce manufacturing costs and therefore lead directly to an increase in value. If material efficiency is increased in the forestry and wood sector, there will be more wood available as a resource. This could create additional value, either by manufacturing traditional wood products or by launching product innovations that contribute to the further development of the biobased economy.

Utilising resources efficiently

The measures suggested in the priority field of material and energy efficiency are targeted towards improving the resource efficiency of the forestry and wood sector as a whole. This will also increase the potential for conserving finite resources and therefore contributing to an increase in resource efficiency.

The resource-efficient recycling economy

Another focus area of the Charter is entitled “the resource-efficient recycling economy”; this focus area deals with improving cascading use in the forestry and wood sector, i.e. the repeated use of wood-based raw materials and the products manufactured from them with the goal of keeping wood in the material and economic cycle for as long as possible. Essential factors for achieving this goal include improving product design and the collection and sorting of waste wood.

The strategy of using fewer raw materials to carry out the same functions is at the heart of the focus area entitled “resource and material productivity/material flow management”. The activities described in this focus

area start with the development of products that use fewer materials and increase manufacturing yields.

Optimising energy consumption in industrial processes is the goal of the focus area entitled “energy efficiency in the wood and paper sectors”. Alongside energy consumption in manufacturing processes, this topic also deals with transport and logistics.

Beyond the forestry and wood sector, there is also potential to increase energy efficiency by using wood as an energy source. These opportunities will be addressed in the focus area entitled “generating energy from wood”.

Focus areas and important objectives

1 The resource-efficient recycling economy

- The potentials of cascading use
- Waste wood/used wood (sorting, urban mining)
- Product design

2 Resource and material productivity/ material flow management

- Wood supply
- Products that use fewer/lighter materials
- Manufacturing yields/process optimisation
- Product design

3 Energy efficiency in the wood and paper sectors

- Reducing process energy
- Transport and logistics

4 Generating energy from wood

- The potential of wood as a source of energy and its use as a material
- Life cycle assessments and sustainability analyses
- Plant management/efficiency
- Emissions
- Reviewing funding tools

Important objectives:

- ▶ increasing raw material yields and reducing the use of materials in the wood sector
- ▶ reducing energy consumption in the forestry and wood sector
- ▶ increasing the efficiency/reducing emissions of wood combustion plants

Best practice

Lighter wood materials

The desire to use wood as a resource in a more efficient way is an important driver of innovation in the manufacture of lighter wood materials. Alongside optimisations in process technology, combining materials provides special advantages. For example, the amount of wood in a piece of chipboard, and therefore its weight, can be reduced by more than half by using paper honeycomb as a core layer. Lighter wood composite materials like these can be used especially in non-weight-bearing constructions in the furniture and interior construction sectors. Another environmental benefit of significantly reducing product weight is that it lowers transport costs.

Field of action

Forests and wood as resources

Sustainable forestry has a long tradition in Germany and Europe and is a role model for responsible management. The forest laws of the Federal Government and the federal states guarantee that the forests are maintained and managed sustainably. They ensure that society receives a continuous supply of wood as a resource, while simultaneously preserving the protective and recreational functions of Germany's forests. The sustainable use of raw wood allows the forestry & wood cluster to have positive, long-term socio-economic effects, such as employment and value creation, and makes an important contribution to mitigating climate change. If the forestry sector succeeds in increasing the amount of wood it harvests, it could further increase these socially significant factors. Domestic forestry is an integral part of the global economy. After China and the US, Germany is the third largest exporter of wood products (by value). Eighty per cent of these wood products are exported to the EU. Since 2009, Germany has been a net importer of softwood logs. This market development suggests a further increase.

Permanently securing the softwood supply

The third National Forest Inventory (BWI 3), published in 2014, confirmed that Germany's forests are being managed sustainably. According to the report, reserves in German forests have increased to 3.7 billion cubic metres – even though the benefits of wood as a renewable resource have led to an increase in its use. No other country in the European Union has forests that are as rich in reserves, structure or species. Today, forests in Germany are being managed more naturally than before. The trend to move away from pure coniferous tree populations towards richly structured mixed forests that are suited to their locations is intended to facilitate climate change adaptation and make forests more stable. The share of coniferous trees in native forests is now 54 per cent. In young forest cover (trees up to four metres high), they only account for 27 per cent.

The decrease in the number of coniferous trees, especially spruce, will reduce the supply of softwood sourced from German forests. The availability of softwood has special significance for the long-lasting use of wood

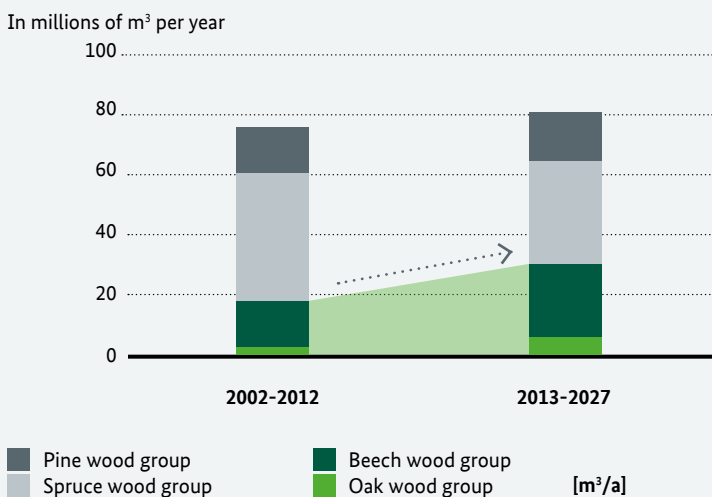
products to minimise CO₂, especially in the construction sector. This is why the wood sector is reliant on having a sufficient supply of round softwood. More than 80 per cent of its products are made from softwood. According to experts, there are technological and economic reasons why hardwood is currently only capable of replacing softwood to a limited extent in this wide range of applications, especially in the construction industry. A combination of long-term measures, supported by campaigns of shorter durations, could help safeguard and expand the supply of softwood as a material. Mixed forest concepts and the implementation of the results of forest tree selection provide solutions and also make it possible to maintain and improve the protective functions of forests (including biodiversity factors).

Alongside long-term silvicultural decisions like these, the amount of wood harvested must be increased in the short to medium term. To do so, it is necessary to do a better job of harnessing the existing unused potential of

raw wood. The use of reserves from small private forests (i.e. forests of less than 20 hectares), which account for approximately one-quarter of forested land in Germany, is of particular interest here. Due to their small size and the make-up of the generations that will inherit them (who, increasingly, live further away from the forests and have fewer sentimental ties to them), small forest owners often lack the ability or motivation to manage their forests.

As a consequence, the opportunities and requirements of sustainable forest management are not being recognised and valuable round wood is not being used efficiently. Logs are often used for energy, although it would be possible to use them as stemwood with much better effects on value creation and climate change mitigation. There is an increasing need to boost the support being provided to small private forest owners by offering them targeted information and advisory services, and adapted forest management concepts.

CHANGE IN THE AMOUNT OF RAW WOOD HARVESTED



The results of the forest development and wood yield modelling project (WEHAM) carried out by the Thünen Institute show that, compared with the use of wood between 2002 to 2012, the potential of raw wood will increasingly be found in hardwood rather than in spruce in the future.

Source: Thünen-Institute, 2014

Mitigating climate change

Forest management and the raw wood that the forests produce are the foundation of the positive contribution that the forestry and wood sector is making to climate change mitigation. Safeguarding the raw wood supply while preserving the protective functions of the forest will be the basis for keeping these contributions sustainable in the future. In terms of climate change mitigation, it therefore makes sense to increase the amount of wood being harvested.

Creating value

Managing forests and the raw wood that they produce is the foundation for creating value in the forestry and wood sector. Safeguarding the raw wood supply while preserving the protective functions of the forest will therefore secure the economic foundation of the forestry & wood cluster.

Utilising resources efficiently

Because there is a limited amount of forest land available, both the question of expansion and measures to increase the productivity of forest land, in spite of its scarcity, are gaining in significance. The amount of wood harvested could be sustainably increased while preserving the protective functions of the forest.

Protection through use

The positive socio-economic and important climate-relevant benefits of the forestry & wood cluster derive from the use of the raw wood supplied by forestry. This is why safeguarding and expanding the amount of wood harvested is of high priority, which is the issue examined in the focus area entitled “a sustainable supply of raw materials”. This comprises both long-term measures that are yet to be developed, such as the cultivation of productive tree species that are well adapted to the climate as alternatives to spruce, and measures that safeguard or increase wood production in the short

and medium term, such as tapping the unutilised potentials of private forests. Another of the Charter’s focus areas, namely “protecting the forests by using them sustainably” focuses on the protective functions of the forest, which can be safeguarded through multi-functional forest management (e.g. integrated management concepts, use and environmental forest conservation). The focus area entitled “forestry in small private forests” is intended to help overcome structural drawbacks such as fragmented land units and the lack of expertise in small private forests.

Focus areas and important objectives

1 A sustainable supply of raw materials

- Tapping unutilised potentials
- Land productivity and land management
- Enlarging forest land area
- Cultivating productive tree species
- Securing the supply of softwood
- Forest tree selection/forest genetics
- Alternative sources of raw materials (short rotation coppices, agroforestry, landscape conservation, imports)

2 Protecting the forests by using them sustainably

- Minimising risks (forest protection, rotation periods, forest restructuring ...)
- Adapting forests to climate change
- Crisis management
- Integrated concepts for utilisation/biodiversity
- Nutrient sustainability
- Soil and groundwater conservation (wood harvest/wood extraction)

3 Forestry in small private forests

- Sustainable forest management
- Advising/activating forest owners
- Improving land structures
- Forward-looking structures for wood marketing
- Professionalisation of forest owners’ management cooperatives, collaborations

Important objectives:

- ▶ increasing viable forest wood potential in the long-term
- ▶ safeguarding the long-term availability of softwood
- ▶ increasing the amount of raw wood harvested in small private forests
- ▶ increasing the short-term and medium-term potential of wood by tapping unutilised and alternative sources of raw materials
- ▶ ensuring that imported wood products are sourced sustainably and legally



Best practice

Mixed populations of Douglas fir and beech

Mixed populations of beech and Douglas fir grow faster than pure populations. Their increased growth is primarily accounted for by the Douglas fir. They also store more organic carbon in the mineral soil layer than softwood or pure beech populations.

Sources: Thurm, Uhl, Pretsch (2016) / Cremer, Prietzel (2017)



Field of action

The forestry & wood cluster

With more than 1.1 million employees and more than EUR 180 billion in revenues, the forestry & wood cluster is a national economic heavyweight. The people employed in this cluster work at more than 125,000 companies. As a result, each company has less than nine employees on average. This number highlights the structures and characteristics of the cluster. It is dominated by small and micro enterprises that often have to measure up to companies from other sectors, some of which are more organised and more professional. The demanding task of continuing to develop wood as an industrial and construction material and trying to create new marketable products for the future bioeconomy represent major challenges for the forestry & wood cluster. Improved collaboration structures, especially at small and medium-sized enterprises (SMEs), will play a major role in mastering these challenges.

Strengthening collaboration and safeguarding the future

The cluster concept pursues an economic and regional policy approach that examines the connections between different sectors – in this case, the sectors that use wood as a raw material – throughout the entire value chain.

This holistic perspective is the foundation for finding efficient economic processes for using wood as a resource and material, which will enable improvements to be made in resource efficiency and value creation. In order to reap the benefits identified using this method in practice, improved networks and collaboration between companies and the different stages of the cluster's value chain are needed. Cluster initiatives at both regional and federal state levels are working on improving sector networks and overcoming structural drawbacks in the forestry and wood sector, which is dominated by SMEs.

The forestry & wood cluster in Germany

Sector	Revenue [in € billions]	Gross value added [in € billions]	Companies	Overall employees
Forestry (national report tables)	5.78	3.13	33,906	64,414
Woodworking sector	12.32	1.84	3,352	44,898
Wood-processing sector	34.29	10.42	23,237	227,916
Wood in the construction sector	19.80	7.29	40,561	229,957
Paper sector	41.44	10.41	2,222	131,348
Publishing and printing sectors	54.87	20.77	19,609	370,475
Wood trade	9.14	1.15	2,517	16,320
Forestry & wood cluster excluding publishing and printing	122.78	34.24	105,795	714,853
Forestry & wood overall	177.64	55.01	125,404	1,085,328

Source: Becher, 2016

Mitigating climate change

Thanks to its holistic approach, viewing the entire forestry-wood value chain as set out in the definition of the forestry & wood cluster provides a basis for optimising the impact that the forestry and wood sector has on climate change mitigation.

Creating value

If the companies in the forestry & wood cluster strengthen their networks and collaborate with each other, they can overcome these challenges, some of which can only be mastered by working together. This will be the basis for creating more value in the cluster overall.

Utilising resources efficiently

Material and energy flows can be improved by incorporating the entire forestry and wood value chain, thereby helping to improve resource efficiency.

There is already a skills shortage and a lack of new recruits in many sectors in the German economy. This problem will continue to worsen in the next 10 to 15 years as demographics change and the baby boomers enter retirement, as illustrated by developments in the fields of carpentry and joinery. In 1999, there were more than 39,000 carpentry and joinery apprentices. However, this figure only reached 17,000 in 2015. Declines like this jeopardise the competitiveness of the forestry & wood cluster in the long term. Retaining skilled workers and attracting qualified apprentices therefore also constitutes a challenge for the companies in the forestry and wood sector even though they will further increase in significance in the future.



Increasing competitiveness

The field of action addressing the forestry & wood cluster pools the activities that, above all, the companies and associations within the sector can use to work on improving their competitiveness. The focus area entitled “sector networks” outlines an important cluster strategy for overcoming the drawbacks resulting from the sector’s small scale through collaboration.

This includes measures such as strengthening collaboration among federal states, intensifying transfers between practice and science and research, and engaging in dialogue and exchanging information with other sectors. With the benefits it provides in terms of transparency, networking and making operating decisions, digitalisation (forest and wood 4.0) will also become increasingly important.

The focus area entitled “education and training” is also of paramount importance for the companies in

this cluster. It deals with the ways in which qualified apprentices and skilled workers can be attracted and retained in the long term, in particular by increasing the appeal and improving the image of the sector.

Another focus area, “competitiveness in globalised markets”, analyses competitive factors and develops strategies to eliminate structural drawbacks of the forestry and wood sector in Germany and increase competitiveness.

The focus area entitled “communication” promotes the exchange of information between parties such as the sector and the general public. The education and innovation offensive strives to improve the information and advice offered to external influencers such as architects, planners and universities, and therefore to ensure the necessary transfer of innovation.

Focus areas and important objectives

1 Sector networks

- Expanding collaboration structures
- Strengthening collaboration among federal states
- Engaging in dialogue and transferring knowledge between practice and research
- Digitalisation – forest and wood 4.0
- Dialogue/collaboration with other sectors

2 Competitiveness in globalised markets

- Overcoming the structural drawbacks of SMEs
- Germany’s international standing

3 Education and training

- Attracting apprentices/skilled workers
- Appeal/image

4 Education and innovation offensive

- Expanding offers for influencers, authorities and decision makers
- Offers for architects/planners
- Establishing wood sciences/wood construction at universities

5 Communication

Important objectives:

- ▶ increasing revenues and value creation in the forestry & wood cluster
- ▶ safeguarding employment in the forestry & wood cluster, especially in rural areas



Best practice

Woodworking apprenticeships

Attracting apprentices is of high priority in the forestry & wood cluster. The forestry and wood sector is actively trying to counter the skills shortage and promote employment in fields that work with wood through a range of different measures and campaigns.



Field of action

Forests and wood in society

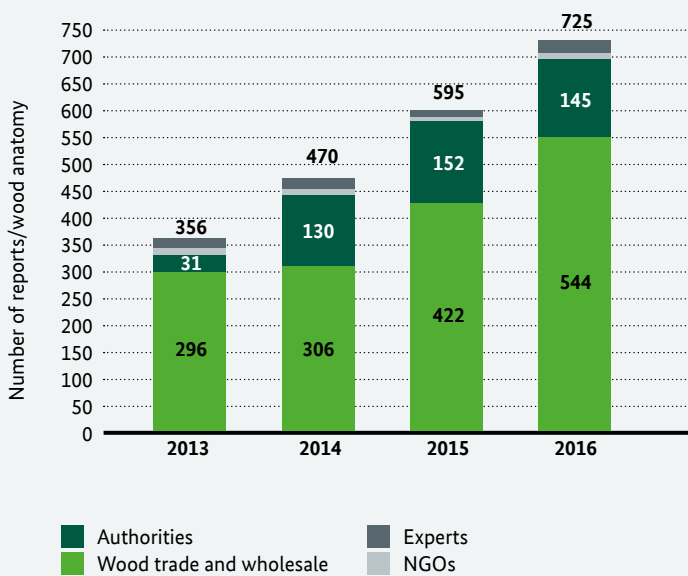
The transition from a formerly agrarian and industrial society to a knowledge-based service society has led to the critical evaluation of industrial processes and the way that resources are produced in the agriculture and forestry sectors. Forests are first and foremost seen as places of recreation and as important habitats and natural environments. But they also supply raw materials and play a significant economic role. However, the opportunities and benefits offered by sustainable forest management and wood use are precisely what will help mitigate climate change, conserve finite fossil resources and create value. Providing objective consumer information and engaging in open dialogue with society help strengthen this awareness. Taking these steps will help reduce our dependency on finite resources and shape our joint path towards a biobased economy.

Information creates transparency and trust

Using wood has many positive effects on the environment and the economy. However, consumers need to be able to rely on the fact that the wood does not have a negative environmental impact and that they can use it with a clear conscience. The state and companies in the forestry and wood sector have a responsibility to provide objective consumer information and protect consumers. In Germany, forest management takes place “properly and sustainably” in accordance with federal and state forest law. By taking part in voluntary certification programmes, forest owners also fulfil an important role-model function, especially when it comes to supporting international forest conservation. They document and communicate a particularly responsible sustainability of forest management that exceeds the regulations set out by the forest laws of the Federal Government and the federal states. Verifications of legality and sustainability certificates are important tools for reviewing the origin of wood in the international wood and wood product trade.



VERIFYING LEGALITY BY DETERMINING THE ORIGINS OF WOOD



Since the German Timber Trade Protection Act (Holzhandels-sicherungsgesetz, HolzSiG) came into effect in mid-2011, there has been a significant increase in the number of expert reports being written at the Thünen Institute for Wood Research on the scientific identification of wood origins.

Processing of 2,146 reports (wood anatomy, approx. 12,500 samples) since the Centre of Competence was founded

Source: The Thünen Centre of Competence on the Origin of Timber

Mitigating climate change

Achieving climate change mitigation targets depends to a great extent on consumers behaving in a climate-conscious way. Knowledge-based information and service offers will provide consumers with the ability to make conscious decisions in favour of products that are more environmentally and climate friendly.

Creating value

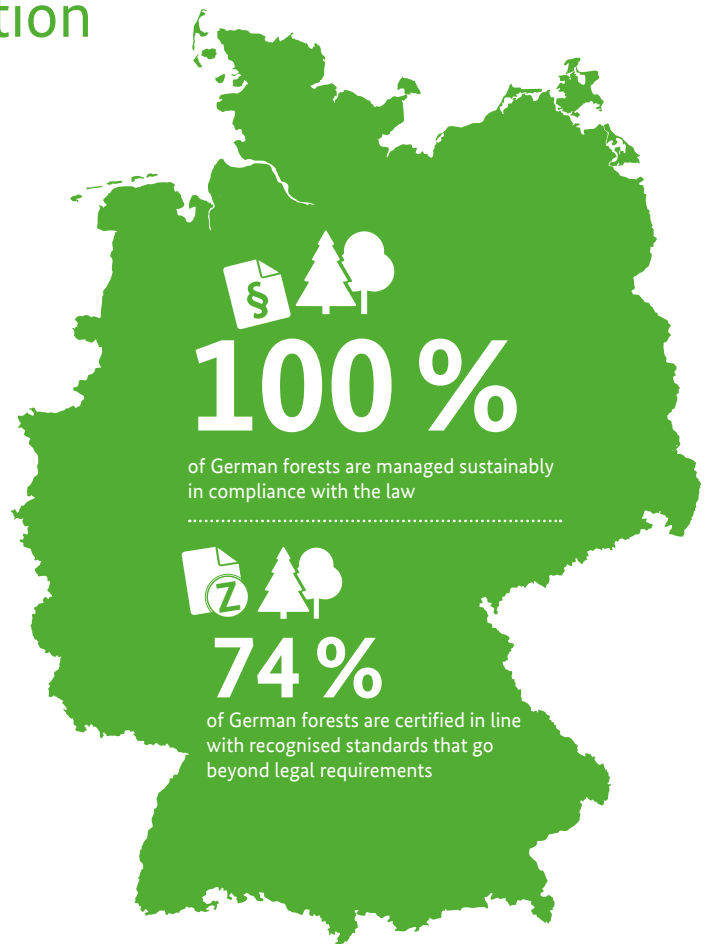
Investing in consumer information and education efforts helps increase the acceptance of sustainable products and manufacturing processes. Sustainable consumption therefore contributes to maintaining and increasing competitiveness in the long term.

Utilising resources efficiently

Conserving scarce, finite resources serves sustainability objectives. Using environmentally friendly alternatives also plays a crucial role in this respect.

Dialogue and communication

The priority field of action devoted to “forest and wood in society” aims to intensify social dialogue about the impacts of sustainable forest management and wood use. Development towards a bioeconomy and the economic significance of the forestry and wood sector when it comes to climate change mitigation and rural areas are important issues in this respect. The focal topic of consumer protection/ consumer information pools the factors that enable consumers to use wood safely with a clear conscience. The focus area entitled “origins and availability of wood sourced from sustainable forestry” is addressed to illustrate the role that the use of wood sourced from certified, legal forestry plays in purchasing decisions and in public wood procurement and to ensure that the various certificates provide consumers with the transparency they need. The focus area entitled “wood and health” shines a light on issues that deal with impacts that are potentially beneficial or detrimental to health.



Focus areas and important objectives

1 Social dialogue

- Social attitudes and expectations
- Relevance of forest management and wood use
- Climate-conscious consumption
- Wood as a natural and regional product
- Forestry and wood in rural areas

2 Consumer protection/ consumer information

- Sustainability/certification
- Purchasing and using wood
- Origins and availability of wood sourced from the sustainable forestry
- Wood and health

Important objectives:

- ▶ expanding the scope of communication with consumers and the information available to them in order to promote awareness of the positive aspects of forest and wood use in society



Best practice

Dialogue forum with citizens

When players from the fields of politics and business exchange information and engage in dialogue with citizens, it helps clarify open questions and create mutual trust. Dialogue events dealing with the topics of forestry and wood provide good opportunities to convey fact-based information, strengthen reciprocal understanding and build trust.

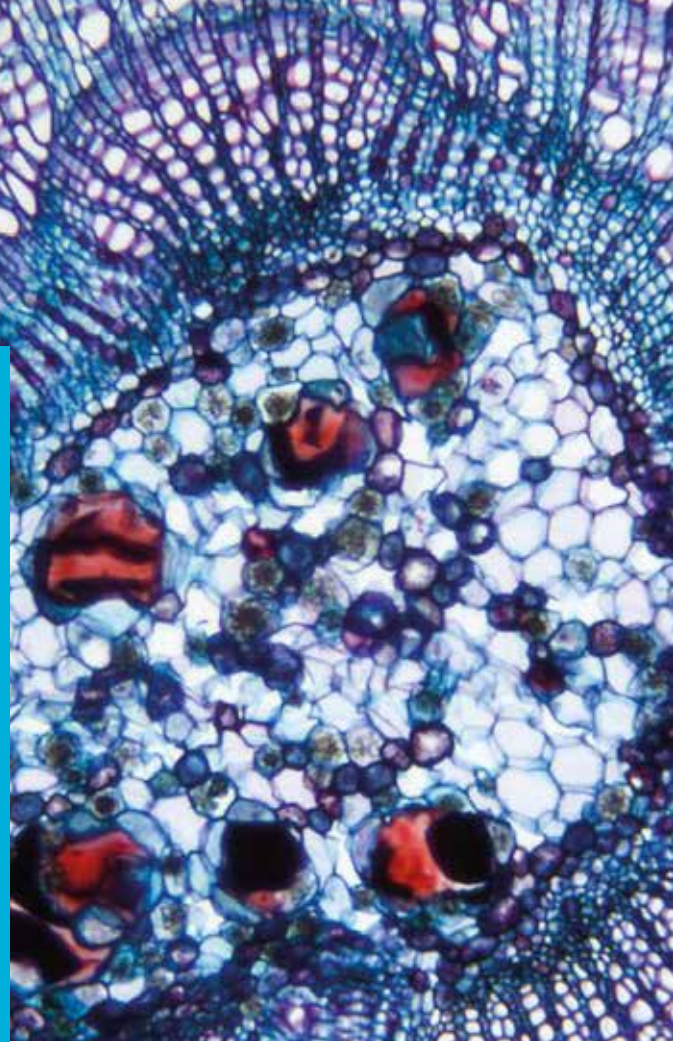
Field of action

Cross-sectoral issue:

Research and development

The Federal Government sees investing in research and development as the key to the competitiveness of the German economy, long-term economic growth, prosperity and creation of new jobs. It therefore aims to spend 3 per cent of gross domestic product on both public and private research and development.

Viewed across all sectors, this goal has now been reached. But the forestry and wood sector lags far behind this target. Innovation transfers from other sectors, such as engineering and plant construction, are partially able to compensate for this lower rate of innovation activity in the forestry and wood sector. However, greater spending on research and development will be necessary in the medium and long term to drive the economy's development towards becoming a bioeconomy. Furthermore, the SMEs in the forestry and wood sector often lack a culture of innovation due to their structures. Collaboration with scientific institutions and universities, as well as transfers of innovation and research will therefore be of particular importance. Collaboration with sectors that have an affinity for innovation, such as the chemical and mechanical engineering sectors, will also be crucial.

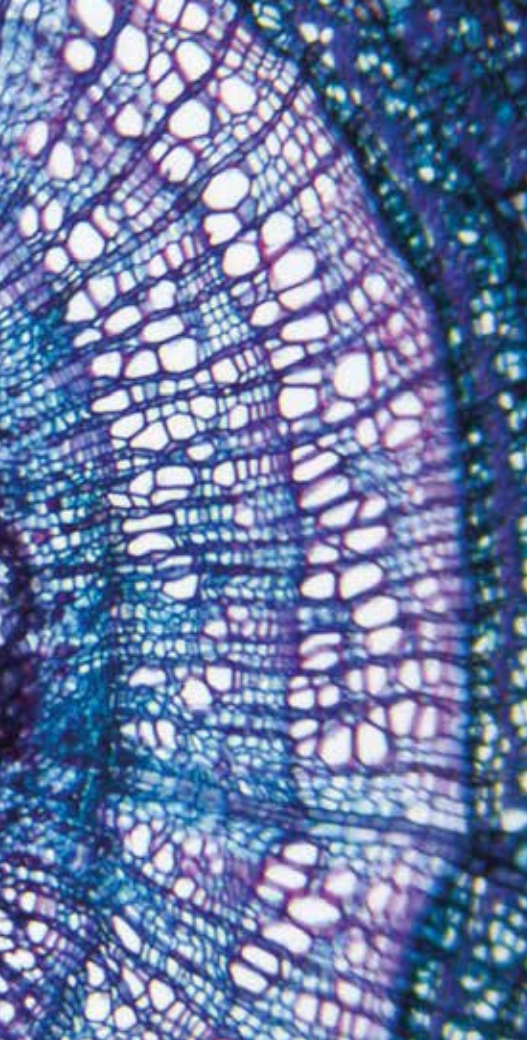


Research is relevant in all fields of action

The topic of research and development is set out as a cross-sectoral topic in addition to the Charter for Wood's six fields of action and supports the topics and measures defined therein.

Traditional forestry/wood research is just as necessary as scientific support for socio-empirical and socio-economic issues within the context of sustainable forest management, wood use and the relevance of the forestry & wood cluster for environment and society.

The action required from and contributions made by research should be identified and prioritised in each field of action in exchange with experts from science and practice (see chapter 5 "Charter for Wood 2.0 as a process – Outlook").

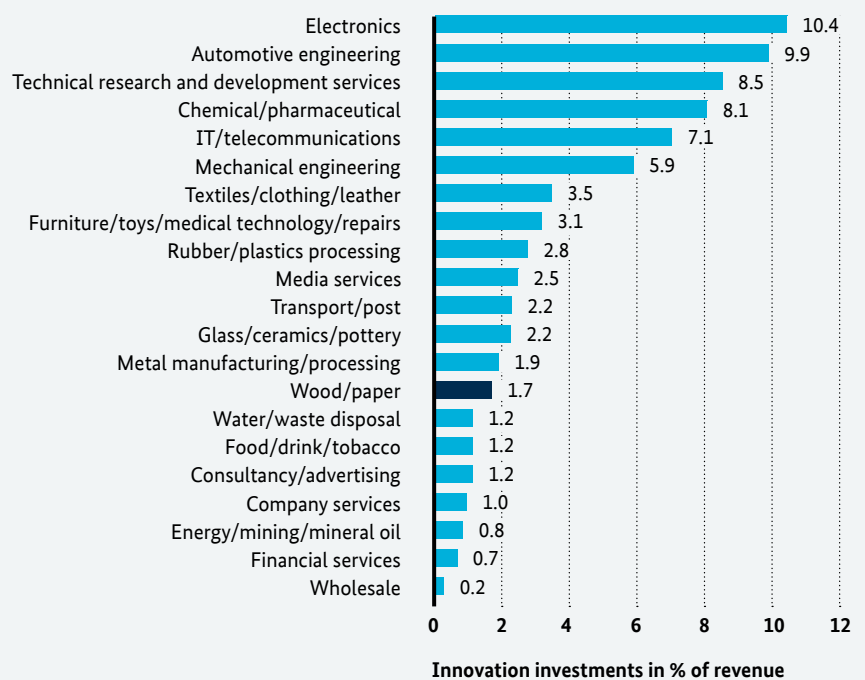


Important objectives:

- ▶ increasing investments in research and development by the forestry & wood cluster and public sponsors
- ▶ maintaining and expanding staff capacities in research, science and teaching

In 2015, the companies in the wood and paper sectors only spent 1.7 per cent of their revenue on innovation projects. This percentage is well below average compared to all of the other industries in the manufacturing sector.

INNOVATION INTENSITY BY SECTOR IN 2015



Source: ZEW/ISI (2017): Mannheim Innovation Panel, Survey, 2016



4

Taking responsibility:

players and tools



Taking responsibility: players and tools

“Mitigating climate change. Creating value. Utilising resources efficiently” – the Charter for Wood 2.0 relies on the responsibility, involvement and constructive collaboration of all relevant players. The Charter’s priority fields of action illustrate the challenges facing the forestry & wood cluster, but also the opportunities it provides for society, the climate and the environment overall.

An important task for policymakers in the Federal Government, federal states and municipalities is to set the proper course. Business (beyond the forestry &

wood cluster) needs to play its part. Yet officials with the Federal Government, federal states and municipalities also need to be active, as do research institutes, universities and those social groups that have the ability to help shape the transition towards a bioeconomy. Those in charge of the forestry & wood cluster also play a special role as dialogue partners, instigators and pacesetters. The penultimate chapter (chapter 6, starting on p. 56) provides information about the role the Federal Ministry of Food and Agriculture (BMEL) plays as an initiator, coordinator and one of the players in the Charter for Wood 2.0.



Steffen Rathke
Speaker for the Forestry and Wood Platform (Plattform Forst und Holz), the joint committee for the leading associations in the forestry and wood sector:

“I expect the players in the cluster to develop specific measures to intensify wood use as part of the Charter process and implement them actively and boldly with the support of policymakers.”



Prof Dr (I) Elisabeth Merk
Head of the Munich Municipal Planning and Building Control Office:

“Our environmentally friendly model housing estate made of wood at Prinz Eugen Park is making a substantial contribution towards climate change mitigation and is establishing modern wood construction for sustainable urban development.”



Ulrike Silberberg
Editor-in-chief of DW Die Wohnungswirtschaft:

“Building with wood holds a lot of potential in store for the housing sector. The challenges to its success lie in the way that the awarding of contracts and work processes is structured.”

Courses of action for different players

The objectives of the Charter 2.0 can be achieved in a number of different ways. The overview below provides an outline of the important courses of action that can be taken by players in business (beyond the forestry & wood cluster), the public sector (Federal Government, federal states, municipalities), research institutes, universities and civil society. The following list is not intended to be exhaustive at this point. Instead, it is to be understood as a recommendation and inspiration for implementing additional original ideas.

Player: business

Based on the political goals of promoting climate change mitigation and resource efficiency, business is called upon to critically review its services, products and processes and to take responsibility. This challenge goes far beyond the forestry & wood cluster.

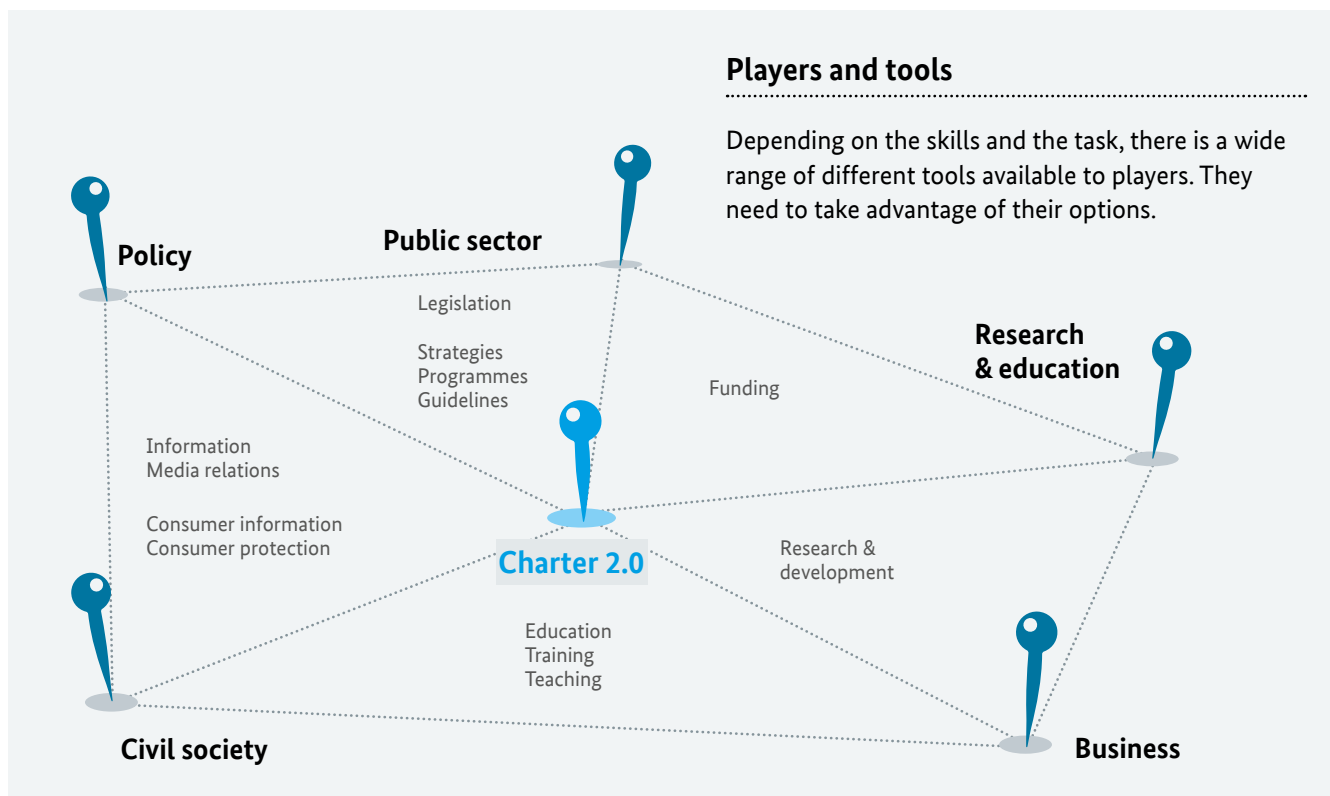
→ Modern wood construction – particularly in urban areas – provides numerous opportunities for climate-conscious, sustainable building. The real estate sector, architects and engineers could take these factors into much closer consideration.

→ In industry and trade, building stock provides a variety of opportunities to visibly document their sense of responsibility and the sustainable action that companies are taking by using the renewable resource wood.

→ Banks and insurance providers can review their loan and assessment criteria on the basis of existing scientific insights and technological advances to eliminate obstacles and ensure that wood construction receives equal treatment.

→ Agricultural operations should take wood into closer consideration as a natural construction material when expanding their buildings for modern animal husbandry, but also as a formative design element in farm holiday buildings.

→ Those responsible in the various construction materials sectors have the opportunity to engage in constructive dialogue to further tap the potential of composite materials in the construction sector and to utilise the chances provided by collaboration in research and development.





Helmut Brunner
Bavarian State Minister of Food, Agriculture and Forestry:

“Pooling the forces in the forestry & wood cluster strengthens the competitiveness and viability of the entire sector in the long term. The sector’s voluntary commitment to our marketing initiative proHolz has shown in an exemplary manner how successful collaboration can be.”



Dr Till Backhaus
Minister of Agriculture and the Environment for the federal state of Mecklenburg-Vorpommern:

“Using the renewable resource wood is a social commitment to securing and increasing jobs, especially in rural areas. Maintaining and expanding the forestry and wood sectors supports the development of economically disadvantaged rural areas. Thanks to the multifaceted applications of wood, there is further potential for generating employment in the area of value creation.”



Peter Hauk
Minister of Rural Areas and Consumer Protection for the federal state of Baden-Württemberg:

“The success of silviculture rises and falls with the liberalisation of the model construction ordinances of the Federal Government and the federal states. The prompt adaptation of construction law will play a crucial role in successfully realising the positive contributions that wood use can make to climate change mitigation, resource conservation and employment.”



Ulrike Höfken
Minister of the Environment, Energy, Food and Forestry for the federal state of Rhineland-Palatinate:

“Due to their long lifespans that can last for hundreds of years, forests will be hit especially hard by climate change. The natural, sustainable management of our forests provides us with an environmentally friendly resource that could replace materials such as concrete, steel and aluminium, which are detrimental to the environment. The long-term use of wood therefore helps mitigate climate change.”

Player: the public sector (Federal Government, federal states, municipalities)

The task facing the public sector – especially with a view to the construction sector – is to acknowledge the use of the renewable resource wood as a climate and environmentally friendly alternative for conserving finite resources. As government authorities and economic players, the Federal Government, the federal states and municipalities have a special responsibility and act as a role model:

- Government strategies, programmes, guidelines and funding instruments for the construction sector should address climate change mitigation impacts and resource efficiency issues even more strongly than they have so far. They need to investigate potential incentives to honour environmental and climate change mitigation performance.
- Existing legal frameworks (model construction ordinances, guidelines, federal state construction ordinances, statutes, etc.) need to be reviewed and adapted accordingly with a view to obstacles and drawbacks.
- In the case of public building plans and their tenders, governments need to take life cycle aspects more strongly into account than they have so far. Existing specifications (e.g. BNB guidelines) should be reviewed and adapted. Alongside conventional

examinations of building operations, factors such as the impacts of reducing greenhouse gas emissions and saving energy are also relevant when it comes to constructing and demolishing buildings.

- Building administrations at Federal Government, federal state and municipal levels could incorporate status seminars on the state of wood construction technology as an integral part of education and training programmes for employees and decision makers.
- By setting the fundamental course in the fields of training and teaching, the potentials of wood as a renewable resource, building material and industrial material could be taken into stronger consideration.
- The federal states could provide incentives for universities to integrate wood construction and the bioeconomy into their curricula – e.g. in subjects such as architecture, engineering and materials science – more intensively than they have so far.
- As disseminators of consumer information and dialogue partners for citizens, government agencies are predestined to integrate the advantages of sustainable forest management and wood use into their own public relations work. This should be done with more emphasis than so far using examples that have already been implemented.



Prof Joachim von Braun
Chairman of the
Bioeconomy Council:

“There are all kinds of exciting sustainability innovations when it comes to the topic of wood. The Bioeconomy Council has recommended integrating the use of this resource into chemical, biochemical and thermochemical processes while also improving material efficiency in the classic fields of application.”



Prof Dr Annette Hafner
University of Bochum, Chair of
Resource-Efficient Building:

“Increasing the use of renewable resources as building materials helps reduce the greenhouse gas emissions of the construction sector in the long term and improve resource efficiency.”



Andreas Klages
Deputy Division Head of Sport
Development, German Olympic
Sports Confederation, DOSB:

“The forest moves us: The forest is a popular place for sporting activities. As a recreational space, it contributes positively to our quality of life. It also provides an important basis for sustainably developing sporting venues using the renewable resource wood.”

→ As forest owners, the Federal Government, the federal states and municipalities are responsible for ensuring the benefits of sustainable forest management and wood use for future generations as well. Especially with a view to climate change, silvicultural guidelines and concepts need to take environmental, social and economic factors equally into account and ensure that there is an adequate supply of softwood with alternatives to spruce that are suitable for their location.

Player: research institutes and universities

The transfer of research and development findings to environmental, economic and social issues associated with sustainable forest management, wood use and wood utilisation plays a vital role in making balanced decisions in practice and administration. Research and development therefore play a crucial role in innovation and value creation:

- Research institutes have the opportunity to identify specific innovation potentials, knowledge gaps and obstacles by exchanging information with practice and to support the objectives of the Charter for Wood through research and development in all fields.
- Universities are encouraged to review the opportunities and take the options created by wood use

more strongly into account in their curricula within the context of future issues such as sustainability, resource management and the bioeconomy.

Player: civil society

Achieving climate change mitigation targets will be heavily dependent on consumers behaving in a climate-conscious way. The course is being set for sustainable consumption in everyday life and in the shaping of personal living environments:

- Every decision made in favour of wood sourced from sustainable forestry helps mitigate climate change and conserve finite resources with critical energy balances.
- When making purchasing and investment decisions, sustainable forest management certificates can provide security about wood's safe origins and should receive more attention.
- Organisations/associations in the fields of sport, recreation and tourism could better utilise the model of sustainable forestry and the forest itself as a backdrop for shaping their own environments to help people experience sustainability, the recycling economy and the responsible use of nature where they live.



A hand is shown holding a stack of wooden blocks. The hand is positioned at the top of the stack, with fingers gripping the top block. The blocks are stacked vertically, showing their natural wood grain and varying shades of brown. The background is a soft, out-of-focus light color.

5

The Charter for Wood 2.0 as a process

Outlook

The Charter for Wood 2.0 as a process – Outlook



The priority fields of action and focus areas addressed by the Charter for Wood were conceptualised together with experts from the Federal Government, the federal states and the fields of science and business as part of a joint working group between the Federal Government and the federal states. They provide the framework and create the foundation for the further development and implementation of the Charter for Wood.

A steering committee and various working groups are being set up to coordinate and implement the Charter.

Steering committee

The steering committee is being set up by the BMEL. Its tasks include, in particular:

- strategically supervising and steering the implementation of the Charter for Wood,
- appointing the working group members,
- coordinating and delegating work assignments to the working groups,
- carrying out its function as a clearing centre in the Charter process, and
- commissioning and approving evaluations.

The members of the steering committee are appointed by the BMEL based on recommendations made by institutions and organisations from the Federal Government, the federal states and the fields of science and business.

The Charter for Wood 2.0 has been set up for the long term in line with the Climate Action Plan 2050. Appropriate evaluations of progress and results to be determined by the steering committee are scheduled to take place during the Charter process. The Thünen Institute will carry out the evaluations. The results of the evaluations will be presented to and assessed by the steering committee. They form the basis for readjusting focus areas and activities.

Working groups

Working groups have been set up for six fields of action; the cross-sectoral topic of research and development is viewed as an integral component of these working groups.

STEERING COMMITTEE AND WORKING GROUPS (WGs)



The tasks of the working groups for each field of action include, in particular:

- prioritising the focus areas and activities named in the fields of action (content/time frame),
- planning measures (where needed as recommendations for action) and identifying the players responsible for taking them,
- developing additional indicators and objectives for the focus areas, and
- regularly reporting to the steering committee.

Depending on their thematic alignment, each of the working groups comprises experts from the Federal Government, the federal states, science, teaching and business who are appointed by the steering committee. Depending on the requirements and the

specific issue, they could be supported by additional experts or guests. The working groups choose their chairperson from the circle of those involved and report to the steering committee through this person.

- ▶ You will find information about the Charter for Wood 2.0. process, projects, events and other developments on the internet at www.charita-fuer-holz.de.



6

The role of the BMEL



The role of the Federal Ministry of Food and Agriculture (BMEL)

With the Charter for Wood 2.0, the BMEL is implementing the resolution passed by the Federal Government in the Climate Action Plan 2050 to “improve the contribution made by sustainable wood use to achieve climate change mitigation targets.”

In its role as the initiator and coordinator of the Charter for Wood, the BMEL identified the priority fields of action and focus areas together with experts from the Federal Government, the federal states and the fields of science and business in a joint working group involving the Federal Government and the federal states. These fields of action and focus areas form the basis for the development and implementation of the Charter for Wood in practice. During this phase, the BMEL will steer, help shape and supervise the process through the steering committee and its involvement in the working groups.

The BMEL’s involvement is based on knowledge and facts and is therefore sustained in particular by departmental research. The advice and research provided by the Thünen Institute and its wide range of scientific competencies in the fields of wood science, wood markets, forest management, forestry economics, forest tree selection and forest ecosystem research play a special role. The Thünen Institute will also assume responsibility for evaluating the Charter for Wood.

As part of project sponsorship, the established “Funding Programme Renewable Raw Materials” and the “Forest Climate Fund” provide targeted opportunities to support projects in line with the Charter for Wood 2.0.

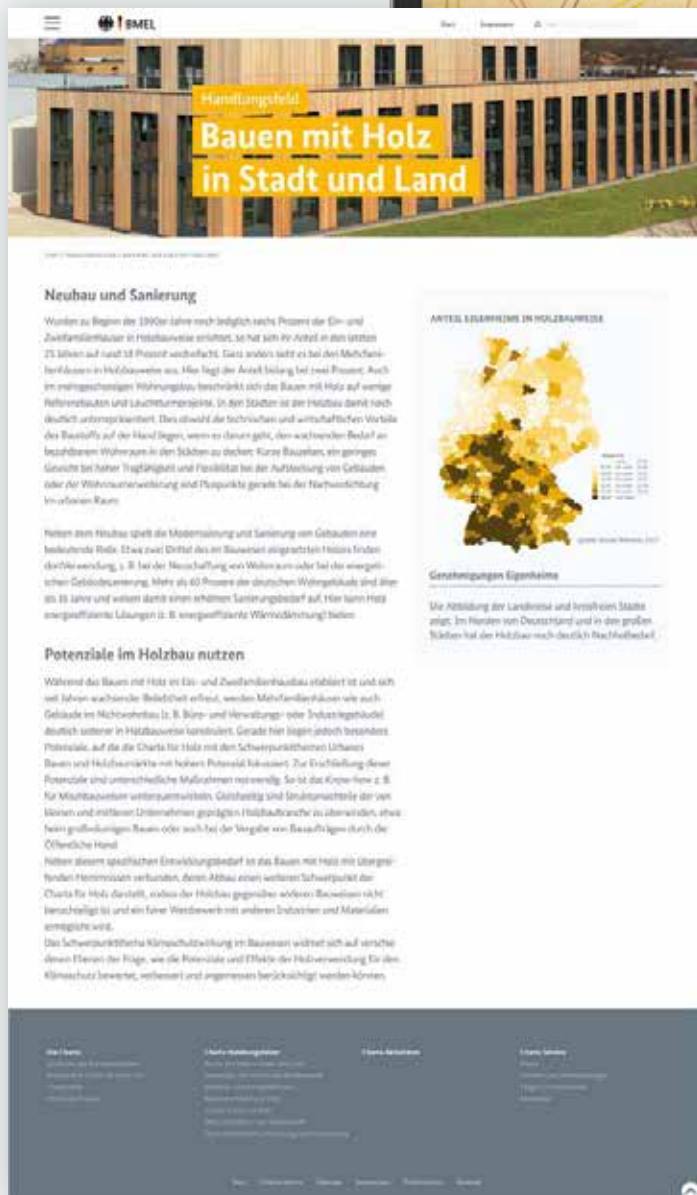
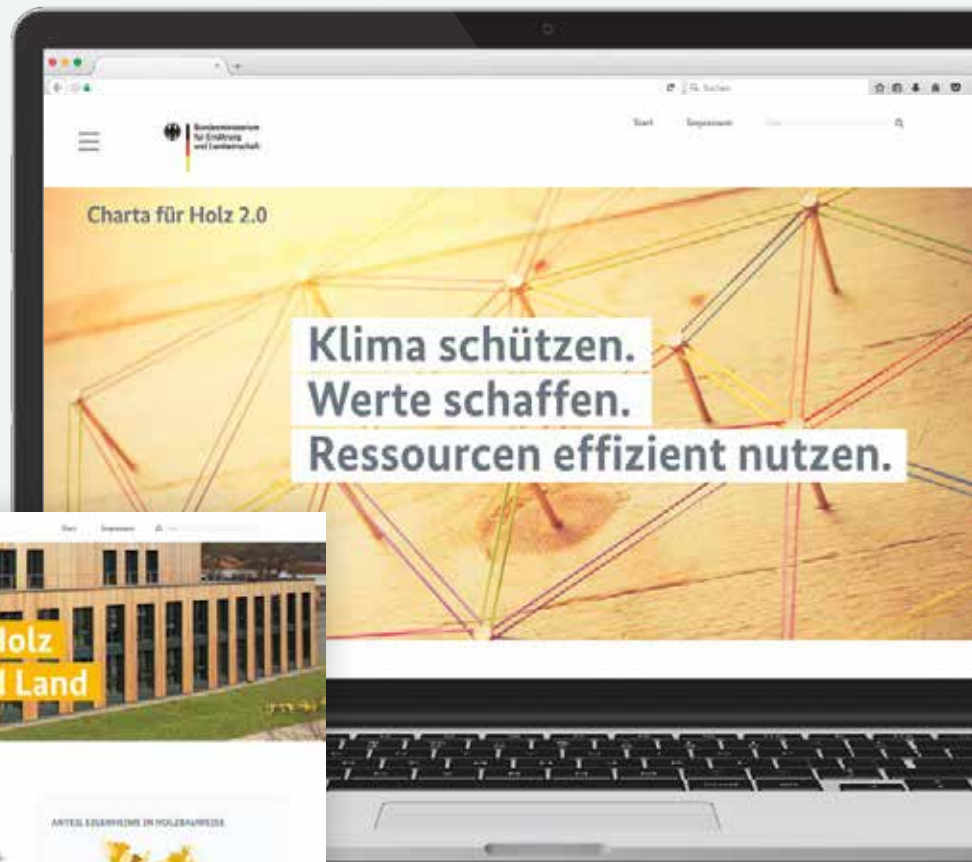
www.thuenen.de
www.fnr.de
www.waldklimafonds.de

In areas where the BMEL itself does not have any direct responsibilities, experts will be consulted to help prepare recommendations and specific courses of action for other departments, which will then be presented in inter-ministerial alliances and in the appropriate committees of the federal state and municipality representations.

The Charter process is intended to be visible from the outside and to create transparency and more opportunities to get involved through communication and dialogue measures.

To ensure the necessary management of the Charter, the BMEL has tasked the Agency for Renewable Resources (FNR) with supervising and supporting its implementation with appropriate activities in the fields of knowledge transfer, information for professionals, consumer information, events and public relations.

► More information is available online at www.charta-fuer-holz.de.



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