

MARKET STATEMENT

**submitted by the
Delegation of Germany
to the**

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Federal Ministry of Food and Agriculture

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1. General economic trends ¹

The German economy is in very good shape. In 2016, the gross domestic product expanded by 1.9 % (price-adjusted), faster than in any year since 2011. The rise in employment is a German success story. In 2016, 43.5 million people were in gainful employment, and this figure is set to increase further in 2017 by 320,000. This means record figures not only for the number of people in work, but also for the number of those paying into social security insurance. Last year, the number of gainfully active persons was around 1.5 million higher than in 2013, and more than four million up on 2005. The high level of immigration onto the German labor market from the European Union will also contribute to the rise in employment. In contrast, the high level of immigration of people seeking protection will only impact gradually, in the form both of higher employment and of higher unemployment. The unemployment rate is currently at the lowest level for 25 years, and is likely to stabilize around the 6 % mark. The rate of youth unemployment is the lowest in the European Union.

The good economic situation will continue this year. The Federal Government expects a 1.4 % increase in the price-adjusted gross domestic product (**table 1**). The slight fall-off in growth is not a reflection of a deteriorating economic outlook, but is largely due to the effect of a smaller number of working days compared with last year. The rise in incomes which is going hand in hand with the labor market development, coupled with a moderate increase in consumer prices, offers a favorable situation for private households. These are increasing their spending on consumption at a higher rate than that seen in the recent past, and are investing strongly in residential property.

In 2016, the public-sector budget achieved a surplus of 0.6 % in terms of nominal gross domestic product. The good situation of the public budgets is creating scope for rising public-sector expenditure on consumption and investment. In the reference period, German companies will invest somewhat more in equipment and machinery in order to be able to meet the slowly rising demand from abroad. In view of the slightly above-average level of capacity utilization in industry, investment in expansion is likely to gain some significance alongside investment in replacements. In contrast, world trade will remain slow, and could also be hampered by protectionist tendencies. The risks, particularly from the external economic environment, remain considerable. This reduces the prospects for exports and thus also the pro-

¹ <http://www.bmwi.de/Redaktion/EN/Publikationen/jahreswirtschaftsbericht-2017.html>

pendency for companies to invest in equipment and buildings. All in all, however, there are no signs at present of an interruption to the steady upward trend.

Table 1: Selected key figures for macroeconomic trends in the Federal Republic of Germany ¹⁾	2015	2016	Annual projection 2017
	% change on preceding year		
Gross domestic product (output approach GDP, real)	1.7	1.9	1.4
Total employment	0.9	1.0	0.7
Unemployment rate in % (Federal Employment Agency definition) ²⁾	6.4	6.1	6.0
GDP by expenditure (real)			
Private consumption expenditure	2.0	2.0	1.4
Machinery and Equipment	3.7	1.7	1.2
Construction	0.3	3.1	1.9
Domestic demand	1.6	2.2	1.6
Exports	5.2	2.5	2.8
Imports	5.5	3.4	3.8
External balance of goods and services (contribution to GDP growth) ³⁾	0.2	-0.1	-0.1
Total gross wages and salaries per employee	2.7	2.5	2.5

¹⁾ Up to 2016 results of the Federal Statistical Office, National Accounts
Status: January 2017

²⁾ In relation to the total labor force

³⁾ Absolute change (stocks/external balance) in per cent of pre-year GDP (= contribution to change in GDP)

German exports are continuing to trend upwards. According to preliminary balance-of-payments statistics from the Bundesbank, Germany's exports of goods and services in May 2017 rose by 2.4 % compared to the previous month. The more significant three-month comparison also shows that exports are moving upwards (+ 2.7 %). At + 2.0 % in May, imports rose somewhat less strongly than exports. In the three-month comparison, however, they nominally expanded more strongly (+ 3.4 %) than exports. This means that the trend of a current-account surplus in slight decline that we have been observing since mid-2016 is continuing. The national indicators on foreign trade and the global economic recovery point to a further moderate expansion in German exports.

Despite the normalization in consumer prices, consumer spending remains a reliable pillar of the economy. As of June, consumer prices were 1.6 % up in year-on-year terms. Retail sales rose by 0.5 % in May and continued to point clearly upwards. Consumers' strong buying mood and the upbeat sentiment in retail trade confirm this positive impression. New vehicle registrations are also showing a rising trend. However, this trend seems to apply more to commercial rather than private vehicles. Overall, it can be assumed that consumer spending will continue to expand noticeably in the second quarter, not least due to the robust development of income and employment.

1.2. Public investment

Modern and efficient transport infrastructure is one of the key foundations for prosperity and economic growth in a modern economy. For this reason, the Federal Government is resolutely continuing its policy of substantially boosting investment in transport infrastructure. It has earmarked approximately € 12.8 billion for this this year. This represents a 25 % rise compared with the situation at the start of the legislative term. In the 2030 Federal Transport Infrastructure Plan, which was adopted in August 2016, the Federal Government is setting priorities for the future development of the transport infrastructure. It will include around 1,000 projects over the next 15 years, with a total volume of approximately € 270 billion.

In addition to the transport infrastructure, digital infrastructure is also a key strategic factor for Germany's economy. For this reason, the Federal Government has set itself the goal of making Germany one of the leaders in terms of digital infrastructure. The growing need for high-capacity digital data networks necessitates a rapid, nation-wide broadband rollout. The increase in the budgetary funding for the broadband funding programme means that the Federal Government is now providing approximately € 4 billion up to 2020 for the expansion of forward looking broadband networks with a minimum download rate of 50 Mbit/s.

In order to facilitate the expansion of high-speed digital networks, the Bundestag and the Bundesrat adopted the Digital Networks Act last year. It aims to reduce the cost of the broadband rollout by up to € 20 billion by ensuring that all public transport infrastructure projects will include the laying of optical fiber cables where needed and that all newly developed areas are fitted with optical fiber networks. Furthermore, it will be possible in future to use all the public supply networks (electricity, gas, waste water, road, rail) for the rollout.

The municipalities are responsible for the bulk of public investment. In order to put the trend of rising municipal investment activity on a permanent footing, the Federal Government has launched a large amount of relief for the *Laender* and municipalities in this legislative term.

The most important relief provided by the Federal Government for municipalities and *Laender* amounts to a combined total of approximately € 79 billion. In addition to this, the Federal Government has set up a special advisory service for municipalities in order to help them to control and implement investment projects.

1.3. Measures to promote the new economy and industry 4.0

An adequate availability of venture capital is an important prerequisite for the founding and growth of innovative young companies in particular. Since the beginning of this legislative term, the Federal Government has taken numerous measures to substantially expand the availability of venture capital. In total, various funds and support instruments are offering € 2 billion of additional venture capital in the coming years.

Also, at the end of last year, the Federal Government launched tax relief for the offsetting of corporate losses. In future losses can be carried forward, even following a change of owner or a capital increase. For this to apply, the operations of the corporation must be maintained and no other use of the losses can be possible. This will also benefit young, companies with innovative business models which often rely on fresh capital or a change in shareholders for their finance.

The digitalization of industry (Industry 4.0) offers enormous potential for innovation and business in Germany. The best possible use should be made of this potential in order to safeguard Germany's industrial strengths and build on them. In the forward looking Industry 4.0 project, the Federal Government is therefore supporting applied research projects. *Platform Industry 4.0* brings together all the key stakeholders from business, science and the social partners. It drafts recommendations for action by government and guidelines in order to provide practical and targeted support for the digital transformation of manufacturing companies.

The legal framework for business activities must also keep pace with the digital transformation. In the Second Act Amending the Telemedia Act, the Federal Government is therefore aiming to provide legal certainty for all providers of public "Wi-Fi hot spots", and thus to boost participation in the opportunities of digitalization. If innovative new business models of the digital economy are to meet with public acceptance, it will be vital to provide protection for personal data. The EU General Data Protection Regulation puts in place a largely uniform legal framework for the processing of personal data and will therefore make a significant contribution to establishing a level playing field in the EU. It delivers an appropriate balance between the right of the individual to have his data protected and the justified interests of companies in using these data.

The digitalization of modern societies is also increasing the demands placed on the security of the information technology systems. The Federal Government's cybersecurity strategy aims to make the risks related to digitalization manageable so that the opportunities and potential of digitalization can be fully utilized to benefit the whole of society.

Digitalization, a shift in social values, and demographic change are affecting the German labor market, as are international developments and the immigration of hundreds of thousands of workers. Even if the overall development on the labor market is extremely robust, numerous sectors are experiencing far-reaching change. The Federal Government is working actively on these dynamic processes.

1.4. "Industry 4.0" in the German forestry and timber sector

One of the leading sectors for the implementation of digital control and robotic in Germany is the automotive industry and its subcontractors. However, "Industry 4.0" holds great potential also for the forestry and wood manufacturing industry. The world's leading trade fair for wood working and wood processing plant, machinery and tools "LIGNA 2017" in Hannover, Germany, offered an impression of new impetus and the wave of digitalization, currently re-defining the forest and timber manufacturing structures.

Leading companies presented new soft- and hardware-concepts which combine nearly all elements of the production chain within the factory. One focus of the exhibition lied on detailed visualization of process- and working steps. Another important aspect of innovation presented in Hannover was the remarkably increased production efficiency with minimal demands on the operators. For the first time the complete genesis of a piece of furniture with only three mouse-clicks on an embedded computer system was demonstrated.

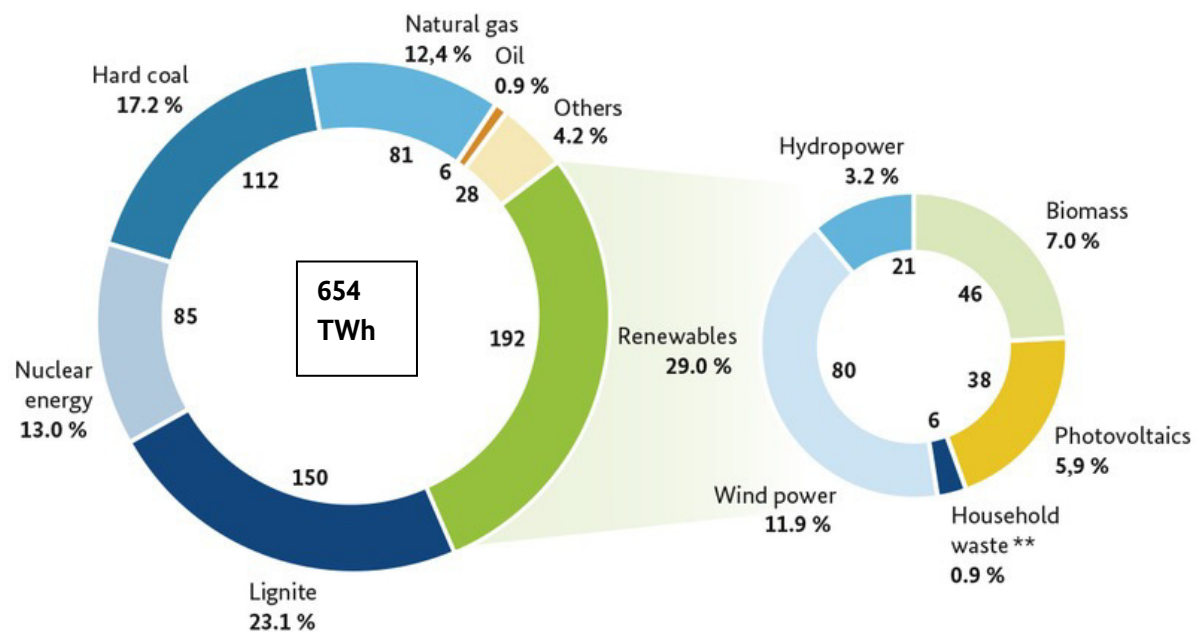
The intensified implementation of "Industry 4.0" will inevitably lead to a shift from manual work to automation of technical processes. As an effect the replacement of industrial jobs that are simple and highly repetitive will continue. On the other hand this process will be accompanied by the creation of new job opportunities for development, design, production, installation and maintenance of new technologies along the whole production chain.

2. Policy measures and market drivers affecting the forest sector

2.1 Developing renewable energy and securing energy supply

The expansion of renewable energy is one of the central pillars in Germany's energy transition. We want to make our electricity supply more climate-friendly and, in light of an increasing scarcity of resources, become less dependent on fossil fuels. Germany's electricity supply is becoming "greener" every year as the contribution made by renewable sources is constantly growing. As **figure 1** demonstrates, renewable energy already covered roughly 29% of gross electricity generation in 2016 (total volume of electricity generated in Germany).

Figure 1: Gross electricity generation in Germany 2016 (terawatt-hours and per cent) *



* Preliminary figures ** Regenerative part

Gross electricity generation in Germany (2016*, status: March 2017)

© Working Group on Energy Balances

The growing significance of renewable energy sources in the power sector is largely due to the Renewable Energy Sources Act (EEG). The EEG has the aim of enabling young technologies such as wind and solar energy to enter the market with support provided by fixed tariffs and a purchase guarantee. Since the adoption of the EEG, the proportion of gross power consumption (total volume of electricity consumed in Germany) accounted for by renewable energy has risen from roughly 6 % in 2000 to 31.7 % in 2016 (according to preliminary data). This means that renewable energies have advanced to become the most important source of energy in Germany's electricity supply.

Germany wants to tap more of its potential to boost electricity generation from solar and wind energy and to substantially expand the use of renewable energy. By the year 2025, 40 to 45 % of electricity consumed in Germany is to derive from renewables. The figure for 2035 is to be 55 to 60 %. Development of renewable energy sources over the last years in Germany is shown in **table 2**.

Table 2: Development of renewable energy sources in Germany		
Share of renewable energy sources (%)	2012	2016
in total primary energy consumption	10,3	12,6
in total final energy consumption	12.6	14.8
in total gross electricity consumption	22.9	31.7
in final energy consumption heating and cooling	9.8	13.4
in total fuel consumption	6,1	5,1

Source: BMWi according to Working Group on Renewable Energy-Statistics (AGEE-Stat)

2.2 Energy sources that drive forward the energy transition

Biomass in solid, liquid and gaseous form is being used for electricity and heat generation and for the production of biofuels. Almost 65 % of the total final energy from renewable sources was generated by the different types of biomass used to this end in 2016. The consumption of wood and wood pellets to generate heat in private households is mainly driven by price movements of fossil energy sources and the particular weather conditions during winter season. As a result the steady increase between 2000 and 2010 from 12 to 32 million m³ per year was followed by a decline to around 27 million m³ in 2014.

Biomass remains the dominant renewable energy source in the heat sector, particularly the use of fuelwood in wood-burning stoves. The use of modern wood pellet combustion systems also continued to increase in 2016 up to nearly 430.000 installations (+ 6.8 % against 2015). As a result, the overall consumption of heat generated from renewable energies rose by 6.3 % to approximately 168 terawatt-hours (2015: 158 terawatt-hours), growing faster than overall heat consumption. The share of renewables in Germany's total final energy consumption for heating and cooling therefore rose to 13.4 % (2015: 13.2 %).

Solar power: In photovoltaic installations (PV), solar panels directly transform sunlight into electricity. Only a few years ago solar power was still one of the most expensive forms of renewable energy. Technological innovation has led to solar installations becoming more effective and much cheaper, and they are now among the most affordable renewable energy technologies. And the development is still ongoing, which means that the cost of these installations will probably fall even further in future. At the end of 2016, more than 1.5 million photovoltaic installations with a total capacity of 41 gigawatts (GW) accounted for the second

largest amount of electricity generation capacity in Germany, behind approximately 28,000 wind energy installations (overall capacity of about 50 GW).

Also, further progress was made on the use of heat from the sun, near-surface geothermal energy and ambient heat. In 2015, for example, more than 100,000 solar installations with a combined total of 806,000 square meters of solar collector area were newly installed; the number of electric heat pumps also grew by a further 57,000 installations, with air-to-air heat pumps accounting for around 70% – far exceeding the number of geothermal systems being used.

Wind energy plays a crucial role in expanding renewables. It now accounts for about 12 % of the German power supply. Apart from expanding wind energy in suitable onshore locations and replacing older, smaller turbines with modern and more powerful ones – known as re-powering – expanding offshore wind energy is playing a growing role. At the end of 2016, Germany's wind power capacity in the grid increased by around 5,443 megawatts (MW) within one year. The Federal Government is aiming to bring this figure up to 15,000 MW by 2030.

2.3 Making the right choices

The 2014 revision of the EEG was an important further step towards setting the energy transition on a path to success. It thus built a platform for the expansion of renewables in the electricity sector, enabling them to emerge from being a niche to become the mainstay of Germany's power supply. The German government's 2014 EEG aimed not least to ensure the ongoing expansion of renewable energy by defining deployment corridors for each of the various technologies.

Also, the 2014 EEG stated that the rates of remuneration should be determined via competitive auctions from 2017 at the latest. To this end, pilot auctions have successfully been held for ground-mounted photovoltaic installations since 2015. These have proved their worth, generating competition and leading to falling costs. A total of six pilot auctions were held for large ground-mounted PV installations. The average amount of the award dropped from 9.17 cent per kilowatt-hour (kWh) in April 2015 to 6.90 cent per kWh in December 2016. Following the successful trials, the auctions are now to be extended to cover other technologies, and particularly wind energy, under the new 2017 EEG, which was adopted on 8 July 2016 and entered into force on 1 January 2017 (only exemption is for installations with an output of below 750 kilowatts).

Hence, the revisions of the Renewable Energy Sources Act EEG

- stipulated a binding expansion corridor
- sharply reduced the costs via concentration on the cheap technologies of wind power and photovoltaics,

- claimed that new large-scale installations are responsible for marketing the electricity they generate (better integration into the electricity market) and
- halted the rapid rise in electricity prices.

A major instrument for heating/cooling is also the Renewable Energies Heat Act (EE-WaermeG), the funding details of which are fleshed out in the Market Incentive Programme (MAP). Finally, the use of renewable energy in the transport sector is largely determined by the Biofuel Quota Act. When it comes to the use of electricity in transport, mention should also be made of the Electric Mobility Strategy and, from 2016, the purchase premium for electric vehicles.

2.4 On the way to a “green economy”

Green economy, according to UNEP, is a system which results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive. Sustainably managed forests play an essential role in the carbon cycle and provide essential environmental and social values and services beyond their contribution as a source of wood (e.g. biodiversity conservation, protection against erosion, watershed protection and employment in often fragile rural areas). The forest sector has therefore a key role to play in the transition towards a more sustainable economy.

2.5 The Rovaniemi Action Plan of UNECE and FAO

The “Rovaniemi Action Plan for the Forest Sector in a Green Economy” (RAP) was adopted on 13 December 2013 at the joint session of the UNECE Committee on Forests and the Forest Industry (COFFI) and the FAO European Forestry Commission (EFC). It proposes a vision, strategies and objectives for the forest sector in the UNECE region and possible actions towards a green economy. Possible actions could be implemented by international organizations, governments of Member States, the private sector, civil society and other stakeholders. For each action, possible actors were identified by the stakeholder meetings. The Action Plan is meant to inspire voluntary action and provide the basis for plans and activities to focus on the contribution of forests in a green economy. It provides suggestions and is not a work programme for any of the bodies mentioned².

Strategies and concepts like this have been initiated in order to tackle future challenges (e.g. climate change, energy savings, exit from nuclear power, balance different interests of society on forests). They offer suitable framework conditions for the access into a green economy at the same time offering opportunities to renewable raw materials and energy as well as to bio-

² <https://sustainabledevelopment.un.org/partnership/?p=2584>

based product composites. Against this backdrop, actions within those strategies may also contribute to the RAP-targets simultaneously. The following selection of actions and projects on national and subnational level may offer a first impression about possible national German contributions to the targets of the Rovaniemi Action Plan (**table 3**).

Table 3: Possible contribution to the targets of the Rovaniemi Action Plan (RAP)	RAP
Legality of wood origin (Timber Trade Safeguard Act as of 15 July 2011; Thünen Centre of Competence on the Origin of Timber)	A.0 A.7
Certification sustainable sources of wood and wood products	A.1
Adaption of forests to the ongoing climate change	B.3
Forest protection (e.g. against fires, storms, pests, beetles)	A.3
Maintenance of forest genetical resources, breeding fast growing tree species	A.3
Forest inventories	B.4
Improve harvest techniques including cost reduction	C.3
Greenhouse gas monitoring forests and timber	A.5
Life-cycle-assessment incorporating the whole value-added-chain from forests via timber products to recycling	B.4
Contribution to the development of green building standards	A.6
Cluster and market analyses forest and timber sector	E.0
Wood mobilization; rawmaterial supply timber and paper industry	A.3
Wood-cascading, energy efficiency and avoidance of waste	B.2
Product innovations (e.g. wood-polymer composites, sustainable building movement, lignocellulose biorefinery)	A.4 A.6
Emissions and emission control of harmful substances	B.1
Energetic use of wood including combined heat and power	A.4
Research and development (e.g. http://www.fnr.de/ , Wood-Wisdom era net)	A.4
Communication on benefits of forests and timber for society and the environment competitions/awards timber construction (all media)	E.2 E.4

2.6 The National Policy Strategy on Bioeconomy ³

The concept of bioeconomy takes natural cycles of materials as its point of orientation. It encompasses all sectors of the economy that produce, work and process, use and trade with renewable resources. This includes raw materials produced in the agricultural, forestry and fisheries sectors, as well as in aquaculture or in microbial production. Increasingly, biogenic waste materials and residual materials are also taken into consideration. The bioeconomy is thus also resource-efficient recycling. Renewable resources are worked and processed to form

³ The National Policy Strategy on Bioeconomy
http://www.bmel.de/SharedDocs/Downloads/EN/Publications/NatPolicyStrategyBioeconomy.pdf?__blob=publicationFile

a variety of products, also by means of industrial application of biotechnological and microbiological processes. Additionally, the use of sustainably produced biomass also acts as a significant renewable source of energy - with preference given to incinerate at the end of the cascading processes of material utilization. The Policy Strategy on Bioeconomy builds upon the Federal Government's Sustainability Strategy. This dovetails with the "National Research Strategy Bioeconomy 2030 – our route towards a biobased economy", adopted in 2010, providing the foundation for innovations in the bioeconomy by means of research and development.

2.7 The National Forest Strategy 2020 ⁴

Whereas the National Policy Strategy on Bioeconomy covers the whole range of topics regarding renewable sources, the National Forest Strategy 2020 concentrates on forest resources. The National Forest Strategy 2020, developed in an open process by interested stakeholders and adopted by the Federal Cabinet in September 2011, is the latest initiative aimed at evaluating the different demands in an overall context and establishing the underlying conditions that enable forestry and timber management to meet the challenges in a sustainable and, if possible, optimum manner. The Strategy therefore contains a number of different approaches for possible action in order to specifically define the forest management goals and to identify ways of solving the problems and conflicts thrown up by the wide-ranging, different social interests. The strategy identifies 9 main areas of action and related subordinated goals. They range from silvicultural approaches to measures for timber mobilisation, intensification of "cascaded use of wood", increased efficiency of timber use and optimisation of the closed substance cycle to the cultivation of fast growing species outside forests and an increase in timber imports.

By means of an close to nature and environmentally compatible increase in forest productivity, the tapping of additional land potential and the sustainable use of large timber reserves, particularly in small private forests, a major contribution can be made to increasing the stability and vitality of forests and securing the future timber supply. The National Forest Strategy mentions the following approaches as suitable ways of achieving this:

- Creation of diverse, stable and high yield mixed forests
- Risk reduction by avoiding unstable density or excessive stocks as a consequence of consistent forest tending (cleaning, thinning)
- Planting of site-adapted species of trees with a high level of resistance and growth rate
- Forest planting concepts and production periods which lead to optimum yields in harmony with nature conservation and environmental protection requirements
- Use of high quality, site-adapted, resistant and high yield forest plants

⁴ The National Forest Strategy 2020

http://www.bmel.de/SharedDocs/Downloads/EN/Publications/ForestStrategy2020.pdf?__blob=publicationFile

- Maintaining the genetic diversity of forest plants.

Research and development represent another key element in the implementation of this strategy. Via the Agency for Renewable Resources, the Federal Ministry of Food and Agriculture provides funding for a large number of projects under the Renewable Resources Funding Programme⁵. These projects are inter alia targeted at increased timber mobilisation and efficient use of wood (tapping additional potential through fast-growing tree species, pilot plant lignocellulose biorefinery etc.).

The National Forest Strategy 2020 should, furthermore, be in harmony with the Federal Government's other strategies such as the National Sustainability Strategy, the National Biodiversity Strategy, the Biomass Action Plan and measures to mitigate climate change. Attempts to improve the efficiency of raw material utilisation and to reduce energy consumption in the timber sector also constitute core activities in the Federal Government's Action Plan for the Industrial Use of Renewable Resources⁶ that are also currently being put into practice.

2.8 German “Charter for Wood 2.0”⁷

The objective of the 2004 “Wood-Charter” was to increase average timber utilization per inhabitant by 20 % within ten years. This goal was set in light of unsatisfactory demand in the various fields of wood use. The goal of this meanwhile terminated first national “Wood-Charter” was in fact achieved before the set period was over. Moreover, the German forest and timber cluster was able to overcome the market slumps resulting from the financial and economic crisis of 2007.

The “Wood Charter 2.0”, which was published on 26 April 2017, focusses on ensuring of a continuous raw material supply and on factors that will help increase the timber demand, as well as on different aspects of a cycle-driven economy and resource efficiency, in order to mitigate climate change and create additional value. It has become a milestone in the Federal Government’s “Climate Action Plan 2050”⁸. With the objectives of mitigating climate change, creating value and utilizing resources efficiently, the German “Charter for Wood 2.0” focuses on qualitative growth in order to support vital international, European and national political objectives. In this context the “Charter for Wood 2.0” further develops and substantiates the German Federal Government’s “Forest Strategy 2020”.

⁵ Renewable Resources Funding Programme <http://international.fnr.de/index.php?id=152>

⁶ Action Plan for the Industrial Use of Renewable Resources http://www.bmelv.de/SharedDocs/Downloads/Broschueren/AktionsplanNaWaRo.pdf?__blob=publicationFile

⁷ <https://www.charta-fuer-holz.de/>

⁸ http://www.bmub.bund.de/themen/klima-energie/klimaschutz/klima-klimaschutz-download/artikel/klimaschutzplan-2050/?tx_ttnews%5BbackPid%5D=3915

The following priority fields of action and their central topics provide the framework for specific action and create the basis for further development:

- Using wood in urban and rural construction (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).
- The potential of wood in the bioeconomy (increasing the number of patent registrations, increasing the proportion of hardwood used as a material).
- Material and energy efficiency (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).
- Forests and wood as resources (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 unutilized as well as alternative sources of raw materials, ensuring that imported wood products are sourced legally and sustainably).
- The forestry and wood cluster (increasing revenues and value creation in the forestry and wood cluster, safeguarding employment, especially in rural areas).
- Forests and wood in society (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 for society).
- Research and development (increasing investments in research and development by the forestry and wood cluster as well as by public sponsors, maintaining and expanding staff capacities in research, science and teaching).

2.9 Forest Climate Fund⁹

The Forest Climate Fund is part of the programme associated with the Energy and Climate Fund. A decision by the German Bundestag called for it to be established from 2013 under the joint responsibility of the Federal Ministries of Agriculture (BMEL) and the Environment (BMUB).

Due to carbon storage, build-up of carbon stocks in forests and the prevention of greenhouse gas emissions as a result of an enhanced use of timber, recycling and energy recovery, German forestry and forest industries are playing an important role in combating climate change. Bearing in mind the productive, protective and recreational functions of forests, the Forest Climate Fund is intended to maintain and increase this positive impact on the climate.

⁹ Forest Climate Fund

<http://www.bmel.de/EN/Forests-Fisheries/Forests/Texte/ForestClimateFund.html>

Adapting our forests to climate change is a precondition for achieving this aim. Given that forests stretch across very large areas and due to their great vulnerability to climate changes and their long life cycles and production periods, we need to take swift and sustainable adaptation measures immediately. BMEL and BMUB therefore regard it as a necessity to promote measures aimed at tapping the potential of forests and timber for CO₂ reduction as well as measures aimed at adapting German forests to climate change, and in this way to help the Federal Government achieve its climate goals.

The measures are designed to achieve the greatest possible benefit in terms of protecting the climate and adapting forests to the consequences of climate change, while taking both ecological and economical aspects into consideration. Wherever possible, the intention is to harness synergies between climate protection, the preservation of biodiversity and the adaptation of forests to climate change. Measures are to be funded in the following priority areas:

- Adaptation of forests to climate change,
- Safeguarding of carbon storage and increasing the CO₂ sequestration of forests,
- Increase of storage in and reduction/substitution of CO₂ via wood products,
- Research and monitoring,
- Information and communication.

3. Underlying conditions for the forest product markets sector

Globalization means that there are challenges and opportunities that are not limited to within national borders. The demand for natural resources will increase on a global scale and it is of growing interest to use these resources responsibly. While ensuring food supply as well as a supply of raw materials and energy for a growing world population it is necessary to face additional global challenges, such as the mitigation of climate change and the preservation of biological diversity and the natural environment. Industrial and other uses of renewable and sustainably used resources are important contributions to protecting the climate and the environment, to saving fossil fuel reserves and to sustaining rural areas. In view of finite fossil resources, sustainable forest management plays an important role to securing future needs.

3.1 Sustainable and legal wood-trading policies

An important initiative at EU level is the EU-FLEGT (Forest Law Enforcement, Governance and Trade) Action Plan on Illegal Logging. The Federal Government is backing preparations and negotiations with interested countries of voluntary FLEGT partnership agreements (VPA) with the EU.

The EU-FLEGT approach is supplemented by the “European Timber Regulation” (EUTR). The regulation prohibits the placing of illegal timber on the common market and commits operators who place timber and wood-based products on the market to furnishing proof of

legality by applying due diligence systems. The regulation is effective since 3 March 2013 and about 600 controls of operators have been conducted in Germany until the end of last year. This year a further number of about 200 controls is expected. The “Thünen Centre of Competence on the Origin of Timber”¹⁰, which has been founded 2013, offers services for authorities, timber trade, associations and consumers. The number of requests, especially in the field of identification of tree species that have been used for the production of timber products, has strongly increased there, particularly from foreign authorities and wood trading companies (**figure 2**). The “Thünen Centre of Competence on the Origin of Timber” has been strengthened further in 2016 so that it will be able to cope with the still strongly increasing demand for its services.

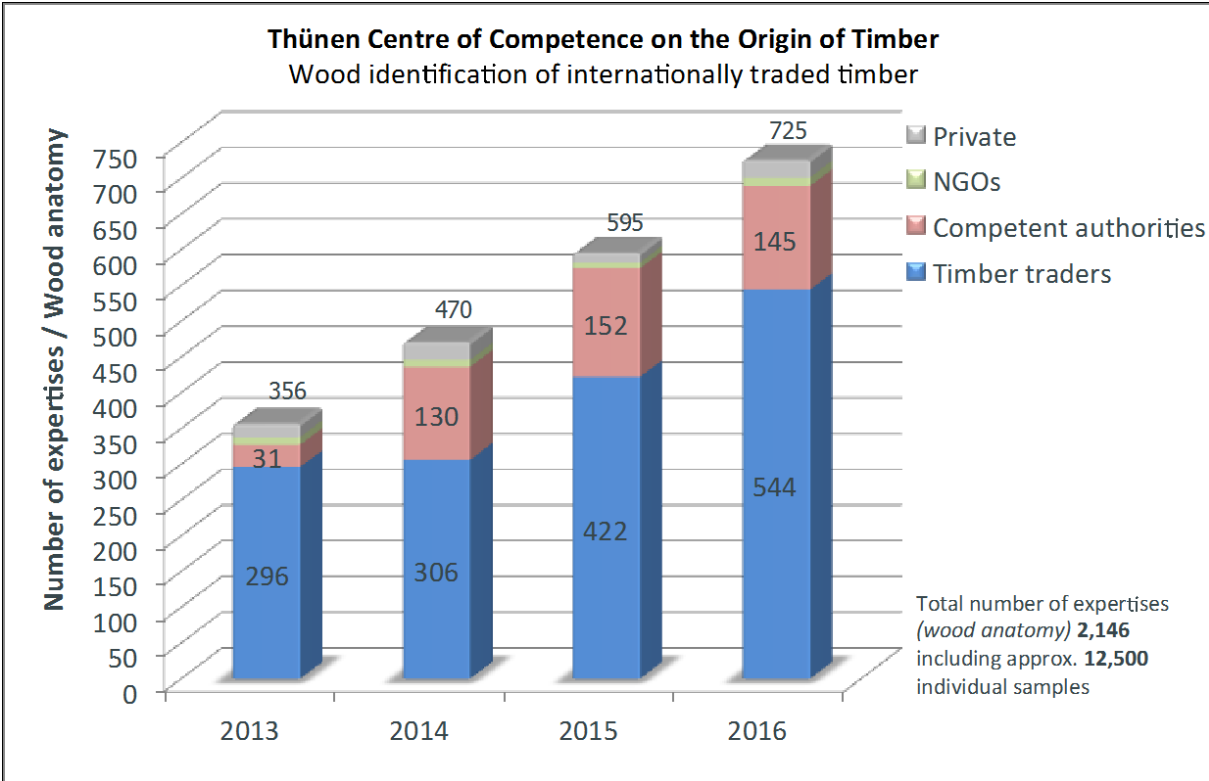


Figure 2: Development of number of surveys at the Thünen Centre of Competence on the Origin of Timber

Also at international level Germany is especially engaged in work on improved methods for timber species and origin identification. Based on international projects with ITTO and Biodiversity International a global partnership was founded at the World Forestry Conference in Durban in September 2015. Founding members are, besides Germany, Australia, the EU Commission and the USA with the World Resources Institute. The mission of the partnership is to connect scientific and technological experts, and catalyze information and progress on

¹⁰ <https://www.thuenen.de/en/infrastructure/the-thuenen-centre-of-competence-on-the-origin-of-timber/>

wood and wood fiber identification in order to use these innovative methods more widely in tracking timber and fiber supply chains and preventing illegal logging and associated trade. At the core of the global partnership is the project Global Timber Traffic Network phase 2 (GTTN 2)¹¹, which is financed by Germany and conducted by the European Forest Institute (EFI). Interested institutes and organizations are invited to engage with this initiative.

3.2 Wood demand and raw material potential

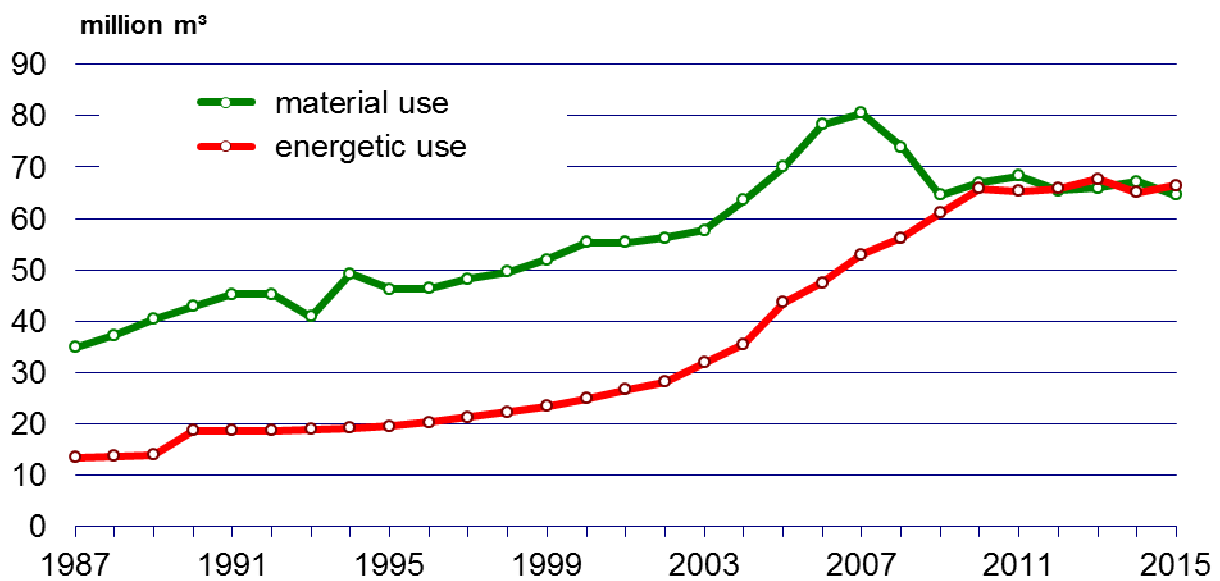
According to the results of the third National Forest Inventory¹² (covering the years 2002 to 2012) Germany has about 11.4 million hectares of forests (32 % of territory) which have been sustainably managed for about 300 years now. The fact that increment (average of about 11.2 m³/ha * year) has been higher than the amount of removals has again led to the creation of substantial timber stocks (3.7 billion m³; average about 336 m³/ha). In comparison with the results of the second Forest Inventory this means + 7 % within 10 years in spite of intensive wood utilization.

Forests play the key role in timber and fuelwood supply, which has increased significantly during the two decades since 1990. After the boom period 2003 to 2007 and the downturn in the wake of the subsequent financial crisis, the material use of wood is largely stable at around 65 million m³. In recent years the energetic use of wood has been more or less balanced at the same level as the material timber use. The levelling of fuelwood utilization is mainly attributable to the declining application in private households as a result of warm winter seasons and lower oil prices (**figure 3**).

¹¹ <https://globaltimbertrackingnetwork.org/>

¹² http://www.bmel.de/SharedDocs/Downloads/EN/Publications/ForestsInGermany-BWI.pdf?__blob=publicationFile

Figure 3: Development of material and energetic utilization of wood in Germany (million m³)



Source: Mantau, U. (2016): Holzrohstoffbilanz Deutschland, Entwicklungen des Holzaufkommens und der Verwendung 1987 bis 2015 (preliminary results)

3.3 Manifold advantages of multifunctional forests and sustainable timber

Renewables like timber and woody biomass offer significant opportunities to mitigate the effects of the ongoing climate change, secure raw material supply and promote economic development. CO₂ is sequestered not only while trees grow, but also stored as carbon in timber products. Every cubic meter of timber is the result of nearly 1 ton CO₂-sequestration (from the atmosphere) and storage in trees in the form of different carbon compounds - in some cases over many decades after tree harvest (e.g. timber building construction).

In Germany the build-up of carbon stocks in forests and the prevention of emissions as a result of an enhanced use of sustainably managed timber, recycling and energy recovery currently prevent the release of about 127 million tons of CO₂ per year into the atmosphere (i.e. avoidance of about 14 % of national greenhouse gas emissions). Hence, responsibly managed forests and sustainable material use of timber is favorable regarding climate protection and energy saving. Its carbon balance is mostly superior to those of competing raw materials. In addition, it helps to reduce energy consumption and to replace fossil fuels at the end of the life cycle. Finally, the whole wood product chain serves to boost domestic value creation, especially in rural areas. Against this backdrop renewables are becoming increasingly important in a society geared towards sustainable development.

As a multi-purpose raw material, the demand for woody biomass has increased greatly, with it being put to several major uses. Due to its many different utilization possibilities it has the

potential to successfully break into new markets. Against the backdrop of economic growth scenarios and due to the ongoing ambitions to achieve the given climate protection targets 2020 and beyond (“bio-based economy”), some studies expect a shortage in timber supply in the medium and longer term^{13 14}. Depending on the degree of mobilization of existing biomass stocks, worst-case scenarios are indicating supply deficits. However, these estimated supply “gaps” must be considered as theoretical figures because in real terms, markets as well as enterprises will react to an ongoing shortfall of timber and woody biomass in due time. Besides price movements, such developments may cause suitable reactions on the markets, such as reduction of production capacities, shutdown of facilities or relocation of investments to more favorable raw material supply regions.

One key to preventing such developments from coming true is to mobilize existing timber and woody biomass stock not only in forests but also to tap additional raw material sources outside forests (e.g. re-use of residues and recovered wood, fast growing species on arable land, landscape care wood). Policy efforts are aimed at tapping such additional potentials of forest timber. However, the prospects of success are uncertain and the subject of intensified political discussion. They are largely determined by market development as well as by the underlying economic and political conditions.

3.4 Competing requirements of society as a challenge for multifunctional forestry

Following moderate growth in the 1990s, the use of timber as a raw material and fuel in Germany has risen substantially since the turn of the millennium. The use of wood resources has been based on domestic availabilities, especially those of forest resources. Further growth in demand is expected due to the economic development in general and the political environment for the promotion of resource efficiency, energy efficiency, cycle-driven economy and bioeconomy.

Fuelwood demand of private households has intensified raw material competition, especially in respect of the availability of softwood. During the last years market pressure weakened, because mild winter seasons and lower prices for fossil energies reduced fuelwood demand from 32 million m³ (2010) to 27.6 million m³ in 2014¹⁵. Against the background of a growing demand for timber, the safeguard of wood supply remains a challenge. In general, the annual timber harvest in German forests is still below increment. There is space for mobilizing additional domestic forest resources e.g. regarding hardwood species and small forest holdings.

¹³ Mantau, U. et al. 2010: EUwood - Real potential for changes in growth and use of EU forests. Final report. Hamburg/Germany, June 2010. 160 p.

¹⁴ The European Forest Sector Outlook Study EFSOS II
http://www.unece.org/fileadmin/DAM/timber/efsos/data/Country_profiles.pdf

¹⁵ Döring P., Glasenapp S., Mantau U. (2016); Energieholzverwendung in privaten Haushalten 2014. Marktvolumen und verwendete Holzsortimente. Hamburg S. 37

Subsequently some arguments are listed, which are being considered in current forest policy discussion:

- Sustainable forestry is closer to nature in comparison to other forms of land use. High nature conservation standards for forestry are anchored in the Federal Forest Act and Federal Nature Conservation Act and the corresponding laws of the Laender. When it comes to forest management, stiff requirements are imposed today on the protection and the preservation of nature and the environment. In Germany's forests as a rule measures for the preservation and the protection of biodiversity are integrated into use. This means that, in principle and outside of protected areas, no distinction is made between commercial forests and conservation forests. This is one of the main components of modern multifunctional forestry. Forest conservation and species protection will continue to be an integral part of modern forestry in the future.
- In contrast to the generally growing timber stock in German forests spruce is the only tree species of which the stock declined, and that was by 4 %. At the same time the area of spruce shrank. This corresponds to the silvicultural and forestry policy target objective of recent years (e.g. promotion of deciduous trees/mixed stands). In case of spruce, which is (in terms of quantity and for the profitability of the forest sector) the most important tree species, stock reduction means a real challenge for future raw material supply of the softwood industry.
- Given the comparatively high level of timber stocks accumulated in historical and regional terms, these could even be reduced to a certain extent without violating the principles of sustainability. Yet, such a cutback in stocks is subject to controversy. A general reduction in stock could only be achieved by a general shortening of rotation periods. In this regard it is important to know that in Germany it is not the Federal Government but the forest owners concerned who stipulate the rotation periods. Finally in its National Forest Strategy 2020 German Federal Government has recorded that timber harvesting could be auctioned up to the maximum average annual growth.
- In 2016 the German "Climate Action Plan 2050" was developed as a long-term strategy to face the commitments from the Paris agreement under the UNFCCC. The plan elaborates inter alia upon the importance of forests for climate protection and renders most relevant the conservation and enhancement of forest sinks and unlocking the CO₂-mitigation potential of sustainable forest management and linked timber use. Thus, the productivity of German forests and their sustainable management has to be maintained and supported, and the contribution to climate protection through the use of sustainably produced timber should be optimized. The current German GHG-Emissions would be 14 % higher without the contributions of our forests and the manifold timber products.
- Shorter rotation periods have so far been inconsistent with the Federal Government's and the Laender forest promotion policies that have been in force for decades (close-to-nature silviculture with a high percentage of hardwood and long rotation periods, old tree and habitat tree schemes etc.). It would, at present, be difficult to enforce market and funding policy incentives fostering shorter rotation periods. Moreover, regulatory policy requirements in this regard would interfere with property rights. Nevertheless, to tackle the risks

of climate change in forestry, shorter rotation periods could be one approach to minimize damages caused by extreme weather events.

- A possible reduction in stocks/shorter rotation periods meets with strong opposition from nature conservationists. Requirements and policy decisions for nature conservation are increasingly curbing timber production in forests (e.g. the setting-up of national parks in forests, implementation of the target of "5 % set-aside for natural forest development" of the National Biodiversity Strategy and restrictions on timber use in Natura 2000 areas). In addition, nature conservation would like to have the very hardwood potential set aside that is intended for increased use. Further potential that is presumed to lie in small private forest properties is difficult to mobilize.
- Demographic processes suggest that this situation will tend to worsen rather than improve. The general trend for the percentage of forest owners who take either little or no interest in forestry as a source of income is to rise. This holds true for urban forest owners and increasingly for forests owned by nature conservation organizations and foundations (e.g. National Natural Heritage). Incidentally, the decision on whether to harvest or to market wood rests solely with the forest owner.
- The options for increasing forest increments seem to be limited. Opportunities lie in a replacement of tree species and provenances by more vigorous alternatives, fertilization and modification of silvicultural treatment. This is called into question by the following factors: The size of the annual regeneration area is small. It is only after several decades that the change of tree species or provenances will result in an increase in raw wood potential. It is also disputed whether this could be an alternative, given the role played by other factors such as production security, falsification of flora and nutrient sustainability. These measures are furthermore subject to the targets set by owners and are inconsistent with current forest policy goals which championed close-to-nature silviculture with a high proportion of hardwood and long rotation periods.
- Another aspect to satisfying demand is to increase imports of wood, semi-finished and finished products. The option to cover the forecast demand for raw wood via the global market on a lasting basis seems uncertain. Regarding increased raw material imports there may be only limited options due to a generally growing global demand, additional costs for transport and adverse impacts on life-cycle-balances. However, examples of major export countries round the globe demonstrate that there is some potential in this respect.

3.5 How to best meet future challenges

The above-mentioned arguments clearly demonstrate the complex initial situation for identifying best possible solutions. Expectations of society on forest functions are increasing not only due to a higher demand for timber and woody biomass as renewable materials, but also as a consequence of more stringent requirements regarding nature conservation, adaptation of forests to climate change, their possible contribution to reducing greenhouse gas emissions and services for recreation. Taking into account those expectations and keeping in mind the needs of future generations as well as the acceptance of possible decisions and actions, initiatives should in principal be based on the equal consideration of the three dimensions of sus-

tainability (ecological, economic and social matters). As renewable resources will gain importance in a society based on green economy, this raises the question as to how forests can best contribute towards meeting the numerous future challenges within the framework of multifunctional forestry. One major task of future forest policy, as pursued with the “National Forest Strategy 2020”, is to aim at striking a resilient balance between differing interests and growing demands made on forests and their sustainable performance. The “Charter for Wood 2.0” should become one of the most important instruments to achieve the goals of the “National Forest Strategy 2020” in the field of timber utilization.

4. Development in forest products sectors

4.1 Roundwood markets

The domestic use of roundwood is dominated by softwood. Roughly three quarters of the used roundwood were coniferous species. The German timber industry is even more based upon softwood processing. Roundwood utilisation accounts for about 90 % softwood and only 10 % hardwood species. Predicted growth of global wood demand on the one hand and limited softwood potentials in German forests on the other hand suggest that there will be a major future challenge for the enterprises (e.g. to open up additional import opportunities for softwood; to develop new markets for hardwood products). It is necessary to develop alternative utilisation and supply strategies with specific emphasis on improved raw material efficiency and intensified “cascaded” use of wood.

According to official harvest statistics, in 2016 about 52.5 million m³ commercial volume under bark were felled (-6.1 % compared with 2015). The species group “spruce” accounted for 51 % of the total felling, “pine” for 24 %, “beech” for 21 % and “oak” for 4 %. Comparing the development of felling in recent years with German forest resource assessment data seems to show that in comparison with potential coniferous wood resources (in particular potential resources of spruce) in hardwood there is still considerable untapped potential. However, the official felling statistics (average of the last decade: about 56 million m³) do not completely cover the volumes, harvested in and removed from the forest. Especially removals in enterprises managing smaller forest areas (*inter alia* registration problems) and fuelwood removals are underestimated (it is particularly unlikely that the use of forest residue volumes is fully recognized).

In order to provide more realistic accounts of harvesting volumes additional methodological approaches can be used. Results from the most recent third Federal Forest Inventory Study estimate the average annual harvest in the period 2003 to 2012. The third Federal Forest Inventory allows at a ten-year interval the determination of felling and verifies the derivation on the demand side. The new data from the third Federal Forest Inventory allows, for the first time for the entire German forest area, a detailed verification of timber use in forests broken down by the Laender and categories of forest ownership. Another method for determining the

real felling is based on the recalculation of the used amount of roundwood (Jochem et al. 2015)¹⁶. Databases are official statistics, statistics of industry associations, and results of various empirical studies. Results for the most recent years are provided in **table 4**.

Table 4: Comparison between official felling statistics with results of Federal Forest Inventory 2012 and WEHAM-potential (in million m³ of solid wood under bark per year)				
Year	official statistics	Federal Forest Inventory 2012 (Ø 2003-2012)	WEHAM-potential	Thünen Estimation on Roundwood Fellings
2012	52.3	75.7	78.3	73.8
2013	53.2			72.1
2014	54.4		77.7	68.7
2015	56.5			68.8
2016	52.5			66.2

BMEL, Thünen-Institute (based on Jochem et al. 2015)

4.2 Positive development in timber construction

Roundwood markets are closely linked to developments in the construction sector. Regarding wood consumption this industry sector is most important, for in Germany almost 2/3 of removals are transformed into products designed for building construction and housing elements. The German construction, housing and property industries form a key sector for growth and employment. With a workforce of around 1.6 million and a gross value added of about 434 billion euros, it is among the most important sectors in the national economy. In Germany there are about 18.8 million buildings, of which 80 % are older than 25 years. This means a huge dormant potential to be mobilized. In 2016 the number of residential building permits has increased against the previous year (+ 4,442 units) up to 125,213 units. Latest figures for the year 2016 with a 16.2 % share of wooden buildings stand for a new record (2015: 16.1 %). This has been announced by the Germany Timber Federation of Carpenters within the Central German Building Association in their annual report 2017.

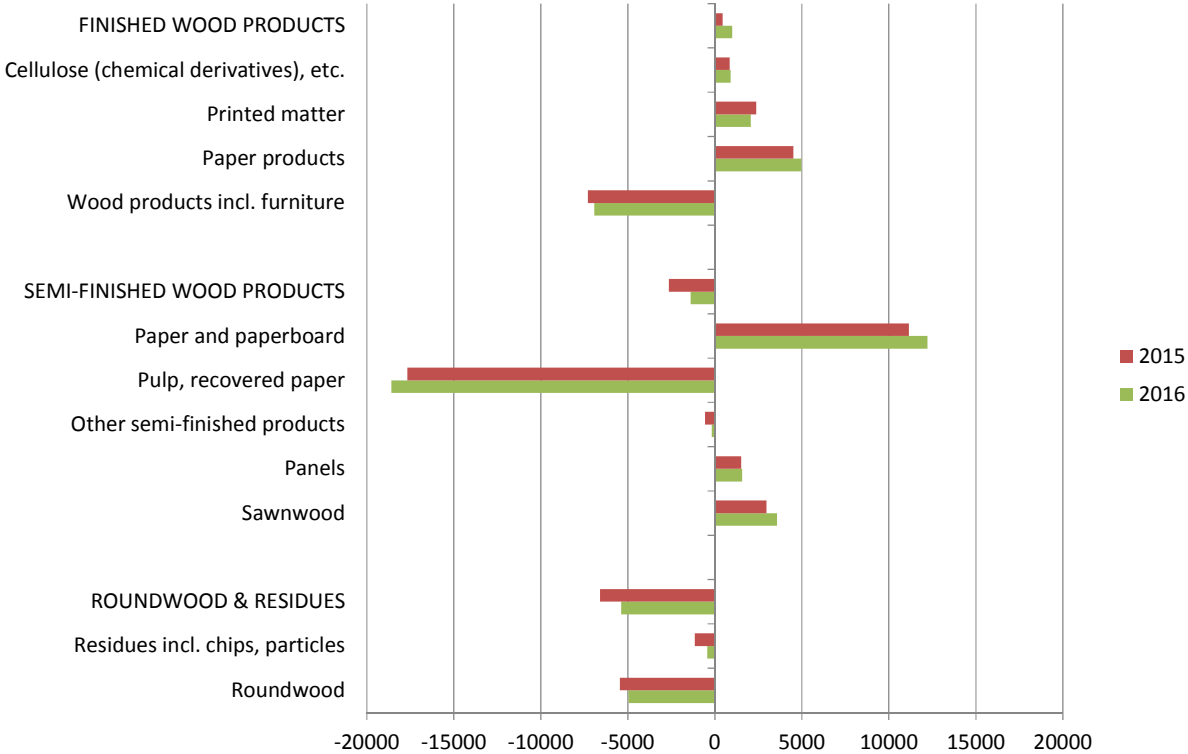
4.3 Trade policy issues - Trade with wood and wood based products

German trade with wood and wood based products showed in the period 2011 to 2015 a rise in net imports, measured in roundwood equivalents (m³(r)). After many years of net exports, in 2011 trade was nearly balanced (2011: net imports of 0.1 Mio. m³(r)). In the following

¹⁶ Jochem D, Weimar H, Bösch M, Mantau U, Dieter M (2015) Estimation of wood removals and fellings in Germany: a calculation approach based on the amount of used roundwood. Eur J Forest Res 134(5):869-888, DOI:10.1007/s10342-015-0896-9

years net imports continued to increase: 1.9 million m³(r) in 2012, 6.4 million m³(r) in 2013, 8.4 million m³(r) in 2014 and 8.8 million m³(r) in 2015. Preliminary data for 2016 show net imports of 5.8 million m³(r). In monetary terms, however, exports show a surplus in all recent years - but with a decreasing trend. In 2011 net exports of 8.2 billion Euros of wood and wood based products could be achieved. 2012, 2013, 2014 and 2015 show a further decrease to 7.0, 6.7, 6.0 and 5.5 billion Euros, respectively. Preliminary data for 2016 describe a slight increase of net exports to 5.9 billion Euros. The following **figures 4 and 5** show the German trade balance of wood and wood based products of different product groups in the time period 2013 to 2016 in million m³(r) and in 1,000 million Euros.

Figure 4: Trade balance of product groups of wood and wood based products 2015 and 2016 (in 1,000 m³ (r))



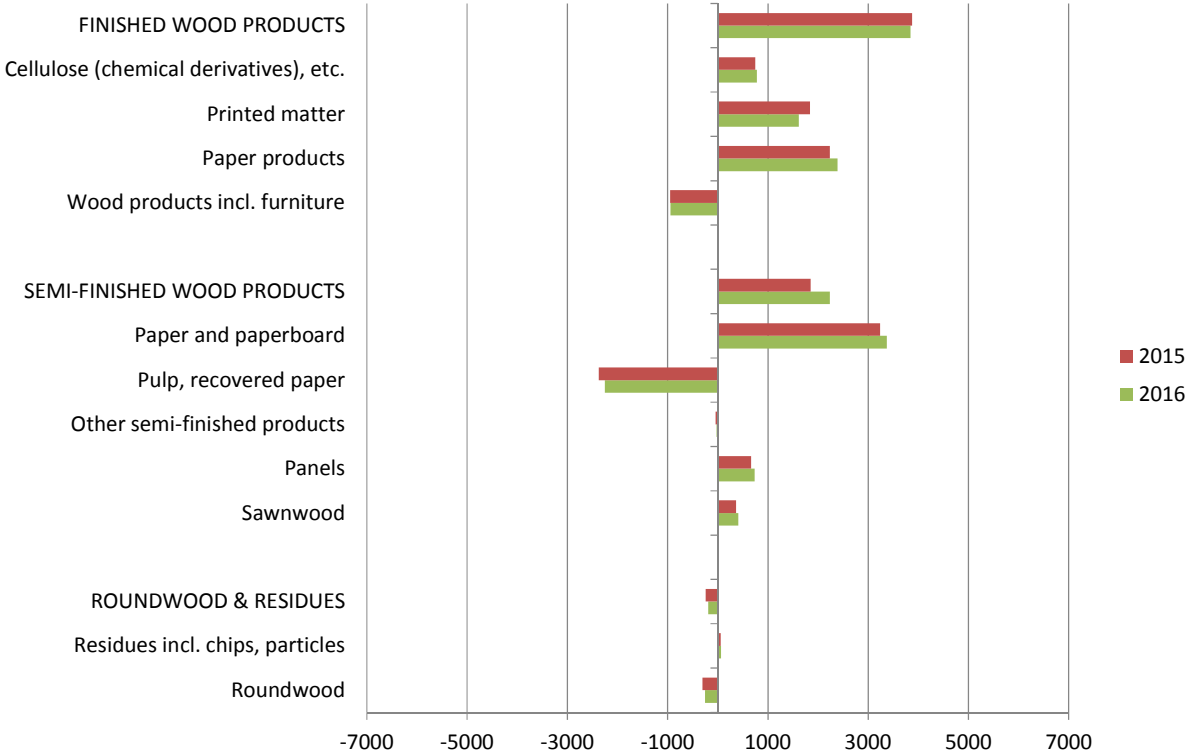
Federal Statistical Office, calculated by Thünen Institute. 2016: Preliminary data

The main product group of roundwood and residues shows net imports in the period considered. Within this main group the products had significantly different trade balances until 2013. While roundwood showed net imports, residues had an export surplus. Since 2013 also residues have a net import in quantity, while monetary values still show net exports.

Trade with semi-finished wood products was nearly balanced until 2013 but shows net imports since then (measured in roundwood equivalent m³ r). However, in monetary values semi-finished wood products still have a constant annual export surplus of about two billion

Euros per year. Within this main product group, pulp and recovered paper show significant net imports, while the export surplus is mainly based on paper and paperboard and to a minor degree on panels and sawnwood.

Figure 5: Trade balance of product groups of wood and wood based products 2015 and 2016 (in million Euros)



Federal Statistical Office, calculated by Thünen Institute. 2016: Preliminary data

The main product group of finished products basically shows net exports in volume and in value. The only exceptions are wood products including furniture which have an import surplus. Paper products, printed matter and chemical derivatives show net exports in both quantity and value.

4.4 Sawnwood (softwood/hardwood)

In 2016, about 17,368 people were employed in the German sawmilling industry (+2.8 % against 2015). The total turnover amounted to 5.6 billion euros (+ 3.0 % against previous year. With an export quota of 27.0 %, the export turnover amounted to 1.5 billion euros.

Compared with 2015, the entire export turnover increased by 4.3 % (companies with 20 and more employed persons)¹⁷.

With about 21.1 million m³, the domestic production of sawn softwood (coniferous) increased by 3.3 % in 2016 compared with 2015. The apparent consumption of coniferous sawnwood slightly increased to 18.7 million m³ (+1.0 % compared with 2015). German exports of sawn softwood amounted to 7.0 million m³ and the imports to 4.6 million m³ in 2016. The annual apparent consumption of sawn hardwood amounted to 0.7 million m³ and shows a slight increase of 0.4 % compared to 2015. The domestic production increased about 3.3 % and is at a level of 1.1 million m³ of sawn hardwood.

4.5 Wood-based panels (particle board, fibreboard, MDF, OSB, plywood)

In 2016, the German panel industry employed approximately 13,580 people (+0.9 % against 2015) and recorded a total turnover of 5.0 billion euros. Compared with 2015, the total turnover decreased by 1.0 %. About 34.9 % of the turnover depended on foreign trade (1.7 billion euro). Compared with 2015, the entire export turnover decreased by - 0.5 % (companies with 20 and more employees)¹⁸. The annual production of the German panel industry amounted to 7.0 million m³ of particle boards (including OSB) and to 5.4 million m³ of fiberboards. The apparent consumption of particle boards (including OSB) was estimated to be 7.6 million m³ (+2.4 % compared with 2015) and of fibreboards to be 3.2 million m³ (+8.3 % compared with 2015).

4.6 Pulp and paper

In 2015, approximately 38,387 people were employed in the German pulp and paper industry (- 0.4 % compared with 2015) at about 181 production sites (- 1.1 % against 2015). The total turnover amounted to 16.5 billion euro (change from previous year: - 0.4 %). With an export quota of 58.4 %, the export turnover amounted to 9.7 billion euro. Compared with 2015, the entire export turnover increased by 6.7 % (companies with 20 and more employed persons)¹⁹. The annual production of paper and paperboard amounted to 22.6 million tons (+ 0.1 % against 2015)²⁰. The apparent consumption of graphic papers, papers and boards for packaging, sanitary and household papers and other papers and board in total was calculated to be 20.5 million tons (- 0.1 % compared with 2015 and according to actual data of the German Pulp and Paper Association). Wood consumption by German pulp and paper mills was estimated to be 9.7 million m³ in 2016, which is a minus of 2.0 % compared with 2015²⁰.

¹⁷ „16.1 Säge-,Hobel-u.Holzimprägnierwerke“ (StBA-genesis table 42271-0003)

¹⁸ „16.21 H.v.Furnier-,Sperrholz-, Holzfaserplatten-und-spanplatten“ (StBA-genesis table 42271-0003)

¹⁹ „17.1 H.v.Holz-u. Zellstoff, Papier,Karton u.Pappe“ (StBA-genesis table 42271-0003)

²⁰ VDP (2015): Paper 2015: Annual Report. Tab. N8; N16, N18

4.7 Pellet industry

German producers of wood pellets basically benefited from growing demand for renewable energy generation in the long term, but were at last suffering from relatively mild winters. Producing 0.3 million tons in 2005 (of which domestic consumption was about 0.2 million tons) it was possible to increase production up to 2.25 million tons until 2013, subsequently followed by a decrease in production in three consecutive years now (2016: 1.95 million tons). About 0.4 million tons of pellets have been exported in 2016 (- 48.0 % compared with 2015). Domestic consumption increased in 2016 to 2.0 million tons (a plus of 14.8 % compared with 2015). Main raw material sources for pellet production are wood residues originating from softwood sawmills. Additional sources only play a minor role (e.g. residues from forests, fast growing species, hardwood species).

4.8 Value added wood products (including furniture)

The German woodworking and furniture industry (manufacturers of assembled parquet floors, of other builders' carpentry and joinery, of wooden containers and of other products of wood and manufacturers of office and shop furniture, of kitchen furniture and of other furniture ²¹) employed approximately 147,186 people in 2016 (+ 1.1 % compared with 2015). 50,268 of these were employed in the woodworking industry, 96,918 in the furniture industry. The total turnover amounted to 27.8 billion euro, an increase of 3.1 % compared with 2015. The increase is mainly due to the furniture industry (+ 4.0 %). The increase in the woodworking industry was only about 0.6 %. The turnover of the furniture industry is significantly higher (18.9 billion euro in 2016) than turnover of the woodworking industry (8.9 billion euro). With an export quota of 25.1 % the export turnover amounted to 7.0 billion euro in 2016. The export quota of the furniture industry is considerably higher than the export quota of the woodworking industry (31.1 % compared to 12.2 %). The export turnover of the woodworking industry shows a decrease compared with 2015 (- 10.6 %) while the export turnover of the furniture industry increased by 5.2 %.

²¹ In accordance with NACE Codes 16.22, 16.23, 16.24, 16.29, 31.01, 31.02, 31.09



UNECE

TF1

TIMBER FORECAST QUESTIONNAIRE
Roundwood

Country: Germany	Date:
Name of Official responsible for reply:	
Official Address (in full):	
Telephone:	
Fax:	
Email:	

Product Code	Product	Unit	Historical data		Revised	Estimate	Forecast
			2015	2016	2016	2017	2018
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS						
	Removals	1000 m ³ ub	27.025	24.712		27.500	27.800
	Imports	1000 m ³ ub	4.300 #	4.200 #		4.200	4.400
	Exports	1000 m ³ ub	1.400 #	1.300 #		1.200	1.200
	Apparent consumption	1000 m ³ ub	29.925	27.612		30.500	31.000
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS						
	Removals	1000 m ³ ub	3.357	3.471		3.100	3.150
	Imports	1000 m ³ ub	200 #	150 #		150	200
	Exports	1000 m ³ ub	900 #	850 #		850	850
	Apparent consumption	1000 m ³ ub	2.657	2.771		2.400	2.500
1.2.1.NC.T	of which, tropical logs						
	Imports	1000 m ³ ub	16 #	15 #		15	15
	Exports	1000 m ³ ub	2 #	2 #		2	2
	Net Trade	1000 m ³ ub	14	13		13	13
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS						
	Removals	1000 m ³ ub	8.176	8.256		8.350	8.500
	Imports	1000 m ³ ub	2.600 #	2.650 #		2.650	2.700
	Exports	1000 m ³ ub	800 #	800 #		800	700
	Apparent consumption	1000 m ³ ub	9.976	10.106		10.200	10.500
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS						
	Removals	1000 m ³ ub	3.822	3.736		3.100	3.200
	Imports	1000 m ³ ub	200 #	200 #		200	200
	Exports	1000 m ³ ub	300 #	300 #		300	300
	Apparent consumption	1000 m ³ ub	3.722	3.636		3.000	3.100
3	WOOD CHIPS, PARTICLES AND RESIDUES						
	Domestic supply	1000 m ³	13.834 C	13.612 C		13.500	13.900
	Imports	1000 m ³	4.067 C	3.476 C		3.900	3.700
	Exports	1000 m ³	2.909 C	3.471 C		2.900	2.800
	Apparent consumption	1000 m ³	14.992	13.616		14.500	14.800
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS						
	Removals	1000 m ³ ub	1.540	1.417		1.420	1.450
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS						
	Removals	1000 m ³ ub	1.199	1.188		1.190	1.200
1.1.C	WOOD FUEL, CONIFEROUS						
	Removals	1000 m ³ ub	5.309	4.667		4.650	4.650
1.1.NC	WOOD FUEL, NON-CONIFEROUS						
	Removals	1000 m ³ ub	5.185	4.747		4.750	4.750

Please return (preferably by e-mail) to Timber Section no later than 8 September 2017.

By e-mail to stats.timber@unece.org.

Questions? Please contact Alex McCusker at the above address or telephone +41 22 917 2880.

The historical data are from the most recent Joint Forest Sector Questionnaire (blank) or the Timber Forecast Questionnaire (#). For explanations please see cover letter.

These data are flagged with E, R, N or C for secretariat estimate, repeat, national estimate or calculated totals (from subitems). If there is no flag, this indicates officially supplied data.

Country: Germany	Date:
Name of Official responsible for reply:	
Official Address (in full):	
Telephone:	
Fax:	
E-mail:	

Product Code	Product	Unit	Historical data		Revised	Estimate	Forecast
			2015	2016	2016	2017	2018
5.C	SAWNWOOD, CONIFEROUS						
	Production	1000 m ³	20.433	21.109	21.109	22.000	22.200
	Imports	1000 m ³	4.374	4.594	4.875	4.600	4.600
	Exports	1000 m ³	6.289	6.992	7.282	7.500	7.700
	Apparent consumption	1000 m ³	18.519	18.711	18.702	19.100	19.100
5.NC	SAWNWOOD, NON-CONIFEROUS						
	Production	1000 m ³	1.056	1.091	1.068	1.080	1.080
	Imports	1000 m ³	440	412	393	380	380
	Exports	1000 m ³	701	704	705	720	720
	Apparent consumption	1000 m ³	795	799	756	740	740
5.NC.T	of which, tropical sawnwood						
	Production	1000 m ³	3 N	3 N		3	3
	Imports	1000 m ³	102	93	91	90	90
	Exports	1000 m ³	44	41	39	40	40
	Apparent consumption	1000 m ³	60	55		53	53
6.1	VENEER SHEETS						
	Production	1000 m ³	90 C	87 C		85	85
	Imports	1000 m ³	112 C	121 C		120	120
	Exports	1000 m ³	64 C	63 C		60	60
	Apparent consumption	1000 m ³	138	145		145	145
6.1.NC.T	of which, tropical veneer sheets						
	Production	1000 m ³	0	0		0	0
	Imports	1000 m ³	14	15		15	15
	Exports	1000 m ³	6	5		5	5
	Apparent consumption	1000 m ³	9	10		10	10
6.2	PLYWOOD						
	Production	1000 m ³	108 C	114 C		115	115
	Imports	1000 m ³	1.412 C	1.440 C		1.440	1.440
	Exports	1000 m ³	334 C	347 C		350	350
	Apparent consumption	1000 m ³	1.186	1.208		1.205	1.205
6.2.NC.T	of which, tropical plywood						
	Production	1000 m ³	0 N	0 N		0	0
	Imports	1000 m ³	168	146		145	145
	Exports	1000 m ³	32	35		35	35
	Apparent consumption	1000 m ³	136	111		110	110
6.3	PARTICLE BOARD (including OSB)						
	Production	1000 m ³	6.737	7.016		7.020	7.030
	Imports	1000 m ³	2.904	2.857		2.850	2.850
	Exports	1000 m ³	2.207	2.258		2.260	2.270
	Apparent consumption	1000 m ³	7.434	7.615		7.610	7.610
6.3.1	of which, OSB						
	Production	1000 m ³	1.206	1.398		1.400	1.410
	Imports	1000 m ³	646	732		710	700
	Exports	1000 m ³	451	514		500	510
	Apparent consumption	1000 m ³	1.402	1.616		1.610	1.600
6.4	FIBREBOARD						
	Production	1000 m ³	5.288 C	5.443 C		5.460	5.480
	Imports	1000 m ³	1.089 C	1.167 C		1.150	1.150
	Exports	1000 m ³	3.455 C	3.447 C		3.450	3.460
	Apparent consumption	1000 m ³	2.921	3.163		3.160	3.170
6.4.1	Hardboard						
	Production	1000 m ³	2.313	2.396		2.400	2.410
	Imports	1000 m ³	194	218		210	210
	Exports	1000 m ³	1.444	1.427		1.430	1.440
	Apparent consumption	1000 m ³	1.064	1.187		1.180	1.180
6.4.2	MDF/HDF (Medium density/high density)						
	Production	1000 m ³	1.508	1.502		1.510	1.510
	Imports	1000 m ³	433	467		460	460
	Exports	1000 m ³	1.537	1.601		1.600	1.600
	Apparent consumption	1000 m ³	404	368		370	370
6.4.3	Other fibreboard						
	Production	1000 m ³	1.467	1.546		1.550	1.560
	Imports	1000 m ³	462	482		480	480
	Exports	1000 m ³	475	420		420	420
	Apparent consumption	1000 m ³	1.454	1.608		1.610	1.620
7	WOOD PULP						
	Production	1000 m.t.	2.553 C	2.485 C	2.485	2.410	2.410
	Imports	1000 m.t.	4.933 C	4.879 C	4.637	4.433	4.440
	Exports	1000 m.t.	1.238 C	1.217 C	1.197	1.244	1.240
	Apparent consumption	1000 m.t.	6.248	6.147	5.925	5.599	5.610
10	PAPER & PAPERBOARD						
	Production	1000 m.t.	22.601 C	22.633 C	22.630	22.856	22.900
	Imports	1000 m.t.	11.309 C	11.248 C	11.263	11.173	11.150
	Exports	1000 m.t.	13.346 C	13.332 C	13.352	13.512	13.550
	Apparent consumption	1000 m.t.	20.565	20.549	20.541	20.517	20.500
4.1	WOOD PELLETS						
	Production	1000 m.t.	1.998	1.950	1.932	2.300	2.300
	Imports	1000 m.t.	446	423	435	400	400
	Exports	1000 m.t.	688	358	367	500	400
	Apparent consumption	1000 m.t.	1.756	2.015	2.000	2.200	2.300

Please return (preferably by e-mail) to Timber Section no later than 8 September 2017.

By e-mail to stats.timber@unece.org.

Questions? Please contact Alex McCusker at the above address or telephone +41 22 917 2880.

The historical data are from the most recent Joint Forest Sector Questionnaire (blank) or the Timber Forecast Questionnaire (#). For explanations please see cover letter.

These data are flagged with E, R, N or C for secretariat estimate, repeat, national estimate or calculated totals (from subitems). If there is no flag, this indicates officially supplied data.