

STATEMENT

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1. General economic trends ¹

1.1 German economy in good shape

Germany is enjoying solid growth. Despite the difficult international environment, Germany's economy grew by a total of 1.7 % last year. Unemployment is at its lowest level since the country's reunification. Last year, real gross wages and salaries per employee recorded the highest increase for more than two decades. The budget of the Federation, the Länder, the municipalities and the social insurance funds was close-to-balance in 2015 for the fourth year in succession. Working from what is a fundamentally favourable situation, the Federal Government is continuing its economic and fiscal policy aimed at investment and sustainable growth. A key role here is played by digitisation. The Federal Government is embracing the digital transformation and is working with businesses, trade unions, the scientific community and civil society to put the conditions in place for successful digitisation. There is a need to adapt the regulatory framework of the Social Market Economy to the requirements of the digital world and – both at national and at European and international level – to create scope for innovation and to permit the individual to retain control of his/her data.

The upturn in the German economy softened somewhat in the second half of last year. The slower growth in the emerging economies meant less dynamic exports and corporate investment. However, industrial demand picked up again towards the end of the year. At the same time, business sentiment improved. The labour market continued to develop favourably right up to the end of the year. The ongoing economic dynamism is mainly being driven by the domestic economy, and particularly by consumer spending and investment in housing construction. The low oil price and the comparatively weak euro exchange rate are also having a positive impact on economic development. On the other hand, the fall in growth in many emerging economies continued to reduce the rate of growth.

For 2016, the Federal Government expects an annual average increase in gross domestic product of 1.7 % (**table 1**). Adjusted for working days, gross domestic product will grow by 1.6 % this year, or 0.1 percentage points more than last year. The continuing expansion of employment, together with the appreciable rises in income, forms the foundation of the ongoing dynamism in Germany's domestic economy. As in previous years, the additional employment will chiefly be created in the services sectors.

¹ <http://www.bmwi.de/BMWi/Redaktion/PDF/J-L/jahreswirtschaftsbericht-2016-englisch,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf>

As demand picks up speed, the companies will gradually step up their investment over the course of the year. Despite this, inflationary tensions are not expected. Macroeconomic capacity utilisation will be generally normal. Profits will increase this year, not least due to falling oil prices; the share of wages is likely to decline slightly. Unit wage costs will mark a moderate rise.

Table 1: Selected key figures for macroeconomic trends in the Federal Republic of Germany ¹⁾	2014	2015	Annual projection 2016
	% change on preceding year		
Gross domestic product (output approach GDP, real)	1.6	1.7	1.7
Total employment	0.9	0.8	0.9
Unemployment rate in % (Federal Employment Agency definition) ²⁾	6.7	6.4	6.4
GDP by expenditure (real)			
Private consumption expenditure	0.9	1.9	1.9
Machinery and Equipment	4.5	3.6	2.2
Construction	2.9	0.2	2.3
Domestic demand	1.3	1.6	2.3
Exports	4.0	5.4	3.2
Imports	3.7	5.7	4.8
External balance of goods and services (contribution to GDP growth) ³⁾	0.4	0.2	-0.4
Total gross wages and salaries per employee	2.7	2.9	2.6

¹⁾ Up to 2015 results of the Federal Statistical Office, National Accounts
Status: January 2016

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)

The pick-up in growth is likely to result in a clear improvement in corporate profits this year. Unit wage costs will mark a moderate rise. In terms of the overall economy, no inflationary tensions are expected. Low oil prices are resulting in a moderate development of the price level. There are no signs of deflationary tendencies for Germany. A central assumption for the projection is that the financial sector will remain stable and there will be no negative devel-

opments in the eurozone or the world economy which will cause a significant rise in uncertainty.

1.2 The energy transition in Germany continues

The energy transition is the way into a secure, environmentally friendly, and economically successful future. At present, a third of the electricity comes from wind, solar and other renewable sources. The output of harmful greenhouse gases was cut by almost 25% between 1990 and 2012. The energy transition has furthermore opened up important fields of business. New global markets have arisen in the wake of the expansion of renewable energy sources and efficient use of energy. By 2050, some 230,000 new, forward-looking jobs will be created by German enterprises especially in the renewables sector. Germany is fully on track with the schedule set out in a specific 10-Point energy agenda. Nevertheless, a number of key issues had to be settled, as there are important tasks ahead: Expanding the grid quickly and in a citizen-oriented way, setting up a viable electricity market, providing clear prospects for combined heat and power generation (CHP) and rigorously implementing climate mitigation targets.

Federal Government putting key policies in place for the energy transition

- Mitigating climate change: The national climate target of cutting carbon emissions by 40% by 2020 remains in place. To achieve this, it is necessary to cut an additional 22 mt of CO₂ emissions by 2020, and therefore various options and their impact on companies and their employees (particularly in the electricity sector) have been discussed in detail. The 22 mt of CO₂ is to be attained by a combination of various measures. The alternative to introducing the "climate contribution" involves the following: Lignite power station units with a total capacity of 2.7 GW (or 13% of installed lignite capacity) are to be gradually shifted into a capacity reserve and then closed down after four years. In doing so, the contribution towards mitigating climate change and a socially and economically acceptable process of structural change will be carried on. Further carbon emission reductions are to be attained through the use of combined heat and power (CHP), the introduction of efficiency measures in buildings, the municipalities and industry, and through energy conservation in the railway sector.
- The electricity market and energy security: Germany aims at making the electricity market fit for the energy transition. The fundamental decision in favour of an electricity market 2.0 guarantees security of supply at the lowest possible costs. This draft legislation on the continued development of Electricity Market paves the way for a viable electricity market 2.0 and is the outcome of broad-based discussions, many scientific studies and the Green and White Papers that are the product of a wide-ranging consultation process.

- Capacity reserve as additional security: Taking a "belt and braces approach", the capacity reserve safeguards the electricity market 2.0. Several power stations with a total capacity of up to 5% of the annual peak load (i.e. approx. 4.4 gigawatts) will be ready to step in. The reserve serves to absorb any unpredictable, extraordinary extreme situations. After all, security of supply is of key significance for an industrialized country like Germany.
- Co-generation of heat and power: CHP plants are very efficient and are making an important contribution to the energy transition. Many CHP installations run by public utilities are barely profitable due to the low price of electricity on the exchange. The Federal Government will help the existing installations whose economic viability is at risk, promote the conversion from coal-fired to gas-fired CHP, moderately increase the funding rates for new installations and thus giving CHP a prospect for the future without the costs running out of control.
- Grid expansion: The expansion of the power grid is the bottleneck holding back the energy transition. Many people are concerned about the building of new overhead powerlines. We take these concerns very seriously. From now on, underground cables will be given priority over overhead powerlines in the case of new DC routes. This will not change the fundamental need to build new powerlines, particularly from the north to the south. The reason is that cheap renewables-based electricity from the north also needs to get through to the consumers in the south of Germany.
- Nuclear energy provisions: The energy utilities are responsible for bearing the costs of decommissioning the nuclear power plants and disposing of the radioactive waste. It is decisive to ensure that they remain capable of this in future (after having carried out a stress test to assess the financial reserves and the adoption of legislation to counteract any possible reductions in the assets held to meet liabilities, the final step was to set up the Commission to Review the Financing for the Phase-out of Nuclear Energy). The Commission was tasked with drawing up recommendations as to how secure financing for the dismantling of nuclear power stations and the disposal of nuclear waste in the long term. It presented its recommendations on 27 April 2016. The Federal Ministry for Economic Affairs and Energy is now examining the recommendations with the other relevant federal ministries, in order to clarify the steps to be taken.

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 main pillars in Germany's energy transition. Germany's energy supply is becoming "greener" from year to year, and the contribution made by renewable sources is constantly growing. In 2015, renewable energy covered 30 % of

gross electricity generation (2014 figure: 25.8 %). The growing significance of renewable energy sources in the power sector is largely due to the Renewable Energy Sources Act (EEG), in force since 1 April 2000, and its revision in 2014. Almost one in four kilowatt-hours of electricity now derives from wind, solar, biomass and other regenerative sources of energy.

Since the adoption of the Renewable Energy Sources Act, the proportion of power generation accounted for by renewable energy has risen from 6% in 2000 to 31.6% in 2015. 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	2015
in total final energy consumption	12.6	13.5
in total gross electricity consumption	22.9	27.4
in total heat supply	9.8	12.2
in total fuel consumption	6,1	5,6
in total primary energy consumption	10,3	11,3

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

2.2 Renewable energy in the heat and transport sector

Renewable sources of energy are to be increasingly used not only to generate electricity. Renewable energy is to be increasingly used also to generate heat and in the transport sector. Within the heat market, the use of renewable energies is regulated by the Renewable Energies Heat Act: under this law, builders of new buildings are required to generate a percentage of their heating requirements from renewable sources of energy, to undertake certain compensatory measures such as installing additional insulation, or to use combined heat and power systems or district heating.

In addition to the Renewable Energies Heat Act, the Federal Government uses the Market Incentive Programme (MAP) to increase the proportion of heat generated from renewable sources. Under this programme, assistance is provided primarily for existing buildings to promote the use of renewable energy technology in the heat market, such as solar thermal installations, wood pellet heating systems and efficient heat pumps.

In the transport sector, biofuels like bioethanol, biodiesel and biogas have been helping to cover the energy supply and to mitigate climate change for several years now. Renewables accounted for 5.3% of the fuel used in the German transport sector in 2015. In this context, 'renewables' is almost synonymous with biofuels, which are used to power cars, trucks, trains, ships, and aeroplanes. But renewables are also becoming ever more important when it comes to powering more electric vehicles. Electric mobility is low-carbon mobility and helps to bring electricity from renewable sources, such as solar and wind energy, into the transport sector.

2.3 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, such as 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.

2.3.1 The Rovaniemi Action Plan of UNECE and FAO

The Rovaniemi Action Plan for the Forest Sector in a Green Economy 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 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. Subsequently some German activities are introduced, which may contribute to support the targets of the Rovaniemi Action Plan.

2.3.2 The National Policy Strategy on Bioeconomy³

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 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.

2.3.3 The National Forest Strategy 2020⁴

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 identi-

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

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

⁴ The National Forest Strategy 2020
http://www.bmel.de/SharedDocs/Downloads/EN/Publications/ForestStrategy2020.pdf?__blob=publicationFile

fy 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
- 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 Programme ⁵. 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 ligno-cellulose 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

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

timber sector also constitute core activities in the Federal Government's Action Plan for the Industrial Use of Renewable Resources ⁶ that are also currently being put into practice.

2.3.4 Forest Climate Fund ⁷

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 Ministry of Food and Agriculture and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

Due to carbon storage, build-up of carbon stocks in forests and the prevention of 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. The Federal Ministry of Food and Agriculture and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety therefore regard it as a necessity to promote measures aimed at tapping the potential of forests and timber for CO₂ reduction and energy generation 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.

2.3.5 Possible contribution to the Rovaniemi Action Plan

Strategies like those mentioned above 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 rawmaterials and energy as well as to bio-based products. Against this backdrop, actions within those strategies may also contribute to the targets of the Rovaniemi Action Plan. The following selection of actions and projects on national and subnational level may offer a first impression about possible national German contributions to the Rovaniemi Action Plan (**table 3**).

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

⁷ Forest Climate Fund
<http://www.bmel.de/EN/Forests-Fisheries/Forests/Texte/ForestClimateFund.html>

Table 3: Possible contribution to 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
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

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 450 controls of operators have been conducted in Germany until the end of last year. This year a similar magnitude of controls is expected. In alignment with EUTR and the “German Timber Trade Protection Act” a science-based wood identification institution was established in Hamburg (“Thünen Centre of Competence on the Origin of Timber”). With the implementation of EUTR, the number of requests has been strongly increased there, particularly from foreign authorities and wood trading companies (**figure 1**).

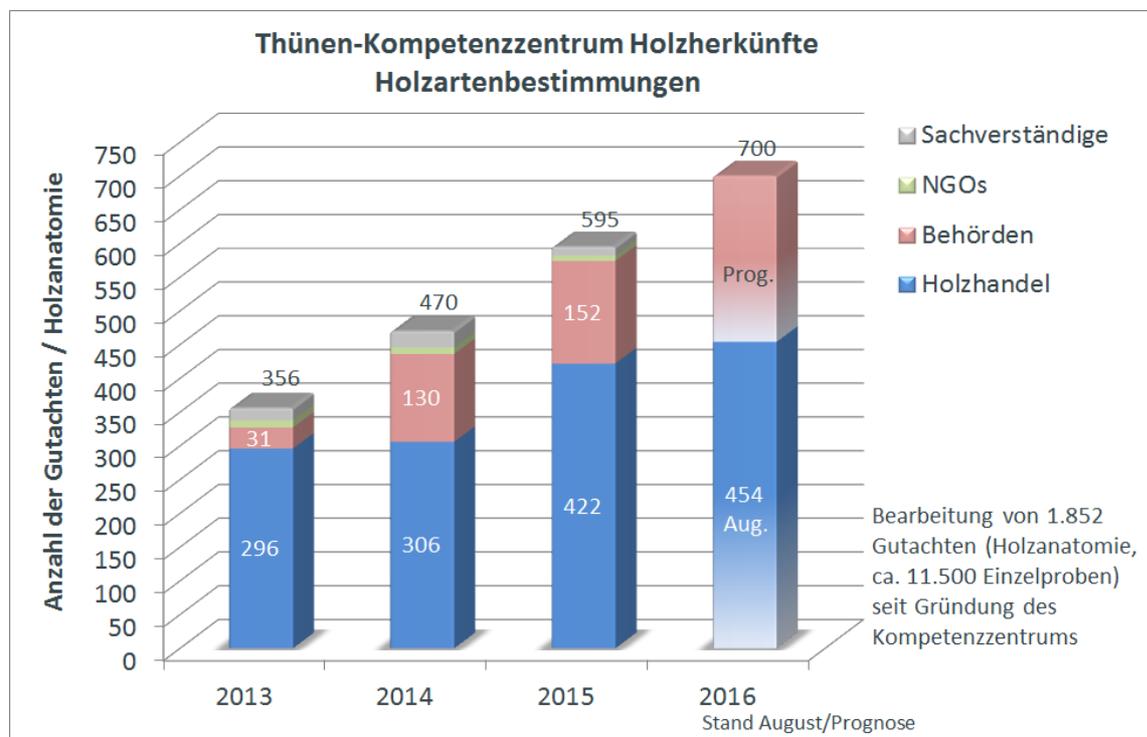


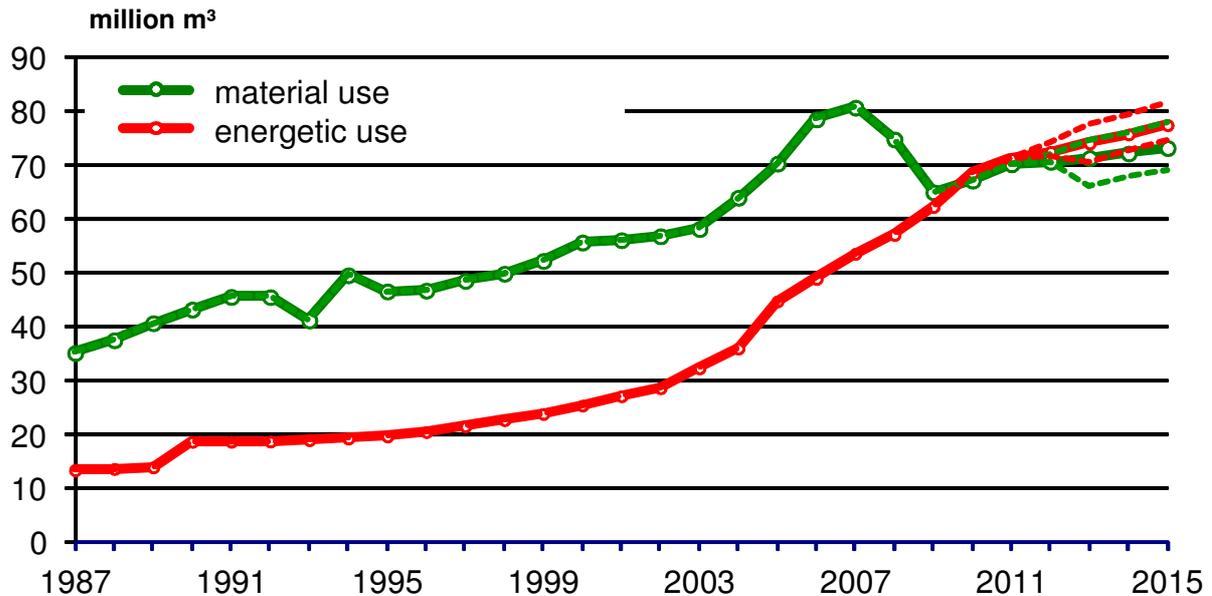
Figure 1: Development of number of surveys at the Thünen Centre of Competence on the Origin of Timber

Furthermore Germany is especially engaged in work on improved methods for timber origin identification (genetic and isotopic fingerprinting methods). Based on international projects with ITTO and Biodiversity International an international 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 acting as interim Secretariat. The mission of the partnership is to connect scientific and technological experts, and catalyze information and progress on 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 national level a further strengthening of the Thünen Centre of Competence on the Origin of Timber is foreseen so that it will be able to cope with the still strongly increasing demand for its services.

3.2 Wood demand and raw material potential

According to the results of the third National Forest Inventory⁸ (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 past decade (**figure 2**). Besides timber demand, this is mainly due to the renaissance of bioenergy with woody biomass as the most important raw material source.

⁸ http://www.bmel.de/SharedDocs/Downloads/EN/Publications/ForestsInGermany-BWI.pdf?__blob=publicationFile



Mantau, U. (2012): Holzrohstoffbilanz Deutschland. Entwicklungen und Szenarien des Holzaufkommens und der Holzverwendung 1987 bis 2015, Hamburg, 2012, 65 S.

Figure 2: Development of material and energetic utilization of wood in Germany (million m³)

Renewable raw materials like timber and woody biomass offer significant opportunities to mitigate the effects of climate change, secure supply and promote economic development. CO₂ is sequestered not only while trees grow, but also stored 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). Hence 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.

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 protec-

tion targets 2020 and beyond (“bio-based economy”), some studies expect a shortage in timber supply^{9 10} in the medium and longer term.

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.

3.3 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, rising energy prices and the political environment for the promotion of renewables.

The rising use of fuelwood in private households increases raw material competition, especially in respect of the availability of softwood. According to current evaluations, nearly 34 million m³ of wood resources (this figure has tripled within 10 years) and thereof 22 million m³ of split logs directly from forests were used for energy generation in private households

⁹ 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.

¹⁰ The European Forest Sector Outlook Study EFSOS II
http://www.unece.org/fileadmin/DAM/timber/efsos/data/Country_profiles.pdf

(2010)¹¹. 9.5 million m³ of softwood were used in this context. This timber is, however, also partially in demand for use as a material (industrial roundwood, industrial wood). Consequently, the timber industry has had to face some regional bottlenecks in spruce supply over the past years in spite of the fact that a comparably mild winter season and relenting energy prices at last took some pressure from timber markets. As a result, in 2014 only 27.6 million m³ of fuelwood has been used for energy generation in households¹².

Nevertheless, ongoing demand resulted in some reduction of the respective timber stock in forests as well as in net imports of about 3.4 million m³ of roundwood. This process was also backed by a policy of promoting more close to nature and mixed stands. Against this backdrop, momentum is increasing in the ongoing debates on maximum sustainable harvesting potential, the identification of wood resources being available for sustainable mobilisation and the growing competition between material and energetic use of timber. 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. One decisive question is to what extent German forests will be able to contribute to meet future demand without jeopardizing sustainability rules. Subsequently some arguments are listed, which are being considered in current forest policy discussion and represent major future challenges:

- 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, no distinction is made between commercial forests and conservation forests. This is one of the main components of modern multifunctional forestry. Forest conservation will continue to be an integral part of modern forestry in the future.
- In contrast to the generally growing timber stock in German forests the spruce is the only tree species of which the stock declined, and that was by 4 %. At the same time

¹¹ Mantau U. (2012); Energieholzverwendung in privaten Haushalten 2010; INFRO Informationssysteme für Rohstoffe, Universität Hamburg

¹² Döring P., Glasenapp S., Mantau U. (2016); Energieholzverwendung in privaten Haushalten 2014; INFRO Informationssysteme für Rohstoffe, Universität Hamburg

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). It was accelerated by storms and the mass propagation of beetles. The spruce stock declined particularly intensely in Nordrhein-Westfalen, where in January 2007 the windstorm Kyrill uprooted or fractured approximately 15.7 million m³ of mainly pure spruce stands over an area of roughly 50,000 hectares. However, in the 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 should increase up to the maximum average annual growth.
- 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.

3.4 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 sustainability (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.

4. Development in forest products sectors

4.1 Wood raw materials

An overview of supply and use of all wood raw materials is provided in the wood resource balance (**table 4**). It shows the relevance of the different assortments of wood raw materials for satisfying the demand for material and energetic use. The following table reveals the developments which have taken place in the period 2000 to 2010 (more recent data are not available yet).

Supply	Wood Resource Balance			Wood Resource Balance			Use
	2000	2010	Δ	2000	2010	Δ	
	mill. m ³			mill. m ³			
Sawlogs	30,3	37,3	7,0	30,3	37,3	7,0	Sawmill industry
Other roundwood	17,8	36,5	18,7	14,3	16,9	2,6	Pulp industry
Forest residues	3,1	8,0	4,9	7,2	10,6	3,4	Panel industry
Bark	3,6	4,7	1,0	3,7	2,3	-1,4	Other material uses
Landscape care wood	1,9	4,5	2,6	0,4	4,6	4,3	Solid wood fuels
Short rotation coppice	0,0	0,0	0,0				
saw mill by products	11,5	15,0	3,5	8,6	22,6	14,1	Large-scale firing plants (≥ 1MW)
Other industrial residues	3,9	5,8	1,8	4,3	7,2	2,9	Small-scale firing plants (< 1MW)
Black liquor	2,0	3,6	1,6				
Post consumer wood	5,5	14,0	8,4	12,0	33,9	21,9	Private households
Solid wood fuels	0,4	4,6	4,3	0,0	0,1	0,1	Other energetic uses
Balance adjustment	0,7	1,5		0,0	0,0		Balance adjustment
total	80,8	135,4	54,6	80,8	135,4	54,6	total

Mantau, U. (2012): Holzrohstoffbilanz Deutschland : Entwicklungen und Szenarien des Holzaufkommens und der Holzverwendung von 1987 bis 2015. Hamburg: Universität Hamburg, 65 p

Total supply and use of wood raw materials increased about 55 million m³ in the period 2000 to 2010. Supply of primary wood raw materials from forests increased about 30.6 million m³. This increase is mainly driven by higher demand of sawlogs for the sawmill industry and higher demand of other roundwood (fuel wood) for private households and firing plants. Energetic use of wood resources accounts to 47% of the total wood resource use in 2010. A significant increase can also be stated for the supply of postconsumer wood. The major share of the increased supply is used by large-scale firing plants, while the material use of post-consumer wood in the panel industry for the production of particle boards remains on a quite constant level.

4.2 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 2015 about 55.6 million m³ commercial volume under bark were felled (+2.3 % compared with 2014). The species group “spruce” accounted for 53 % of the total felling, “pine” for 23 %, “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 57 million m³) do not completely cover the volumes, harvested in the forest. Especially removals in enterprises managing smaller forest areas (*inter alia* registration problems) and fuelwood consumption 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)¹³. Databases are official statistics, statistics of industry associations, and results of various empirical studies. Results for the most recent years are provided in **table 5**.

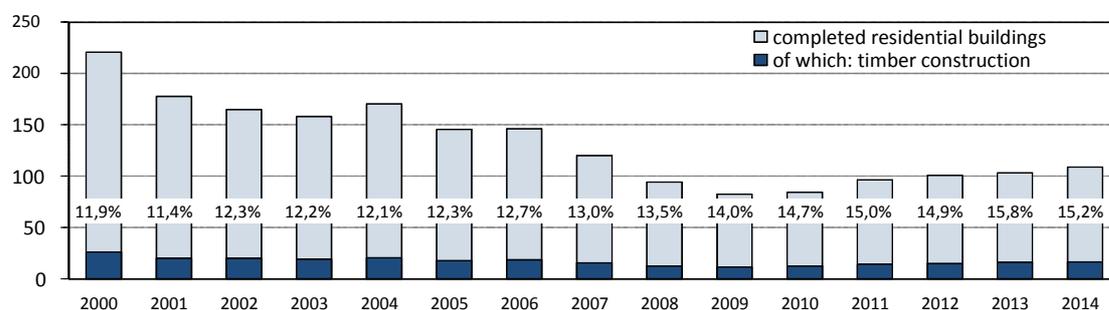
¹³ Jochem D, Weimar H, Bösch M, Mantau U, Dieter M (2015) Estimation of wood removals and fellings in Germany: a calculation approach based on the amount of used roundwood. Eur J Forest Res 134(5):869-888, DOI:10.1007/s10342-015-0896-9

Table 5: Comparison between official felling statistics with results of Federal Forest Inventory 2012 and WEHAM-potential in million m ³ 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			74.6
2014	54.4		77.7	70.3
2015	56.5			69.7

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

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 16 million buildings, of which 80 % are older than 25 years.

This means a huge dormant potential to be mobilized. In 2015 the number of new residential buildings has increased against the previous year (+ 8,481 units). Latest figures for the year 2015 with a 16.1% share of wooden buildings illustrate new records in comparison with the years before (**figure 3**). This has also been announced by the professional organization Timber Germany Federation of Master Carpenters within the Central Association of the German Building in the publication of the annual report 2016.



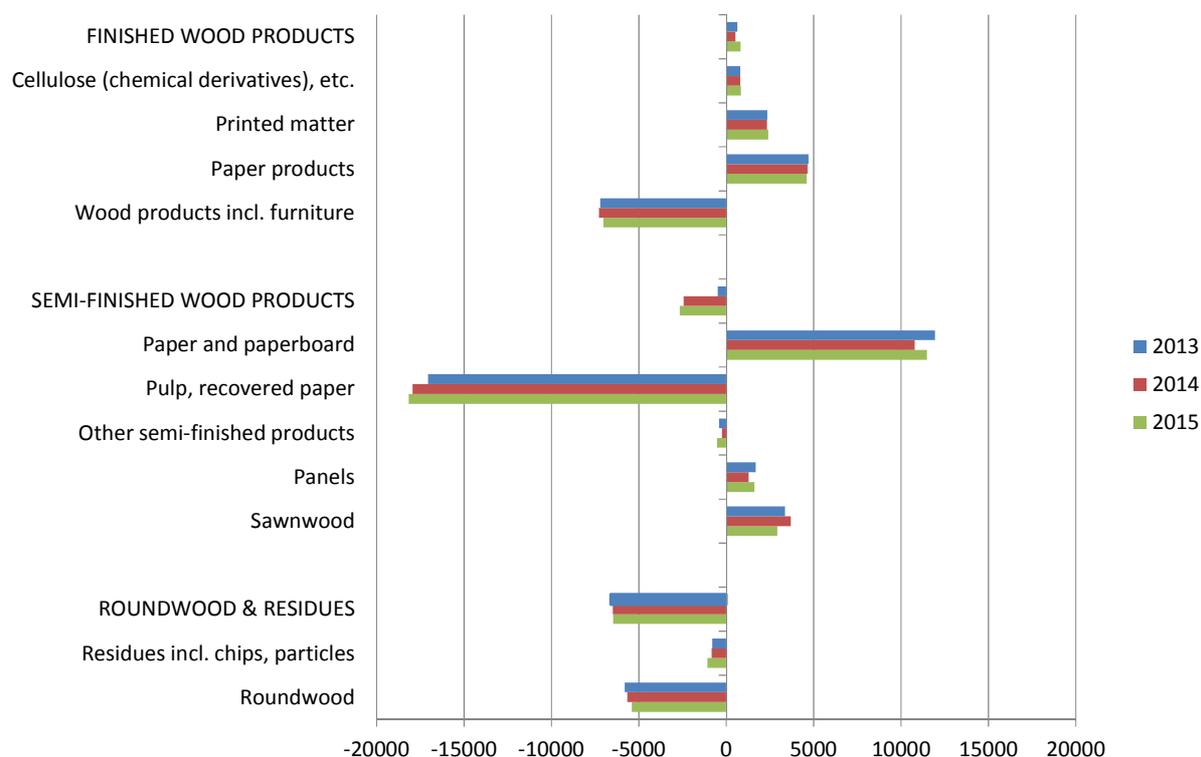
Federal Statistical Office 2015 in Rüter 2016

Figure 3: Completions of residential buildings in Germany (number of differentiated completion residential buildings total and timber); the percentage quantifies the timber portion

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 ($m^3 r$). After many years of net exports, in 2011 net imports of 146,000 $m^3(r)$ were balanced. In the following years this trend continued to net imports of 1.9 million $m^3(r)$ in 2012, 6.4 million $m^3(r)$ in 2013 and 8.4 million $m^3(r)$ in 2014. Preliminary data for 2015 show net imports of 8.3 million $m^3(r)$. 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 and 2014 show a further decrease to 7.0, 6.7 and 6.0 billion Euros, respectively. Preliminary data for 2015 describe a value of net exports of 5.7 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 2015 in million $m^3(r)$ and in 1,000 million Euros.

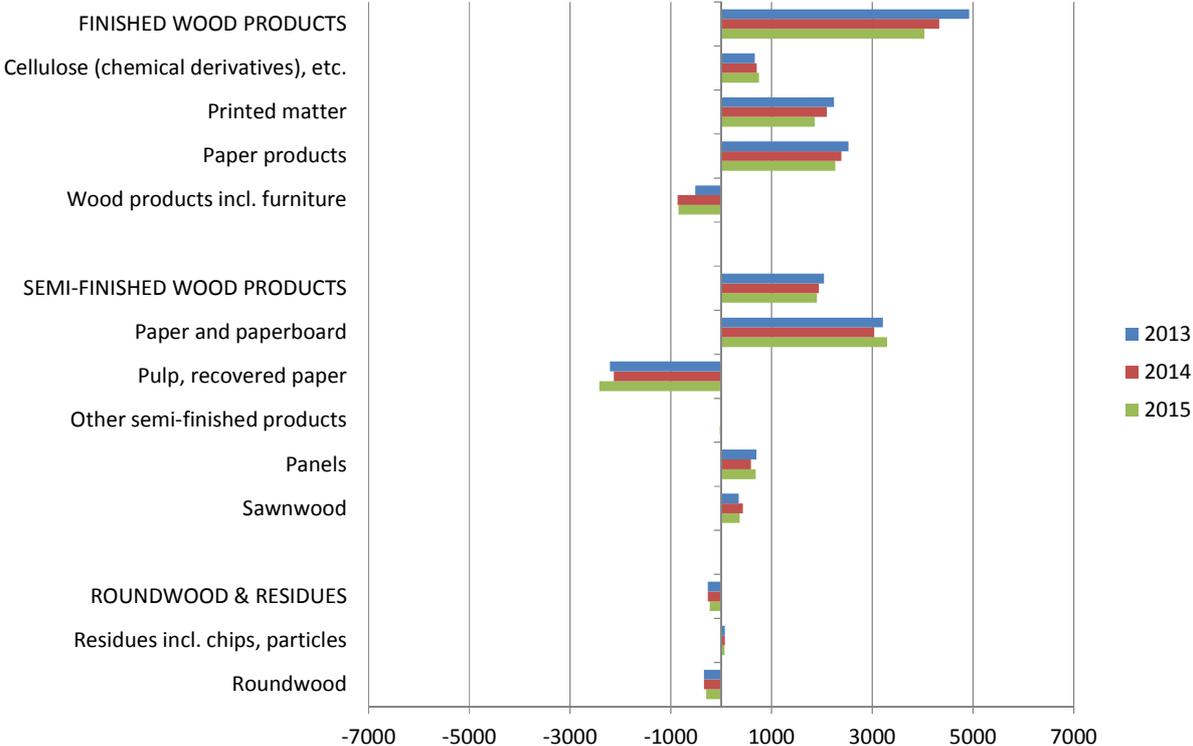
Figure 4: Trade balance of product groups of wood and wood based products 2013 to 2015 (in 1,000 $m^3 (r)$)



Federal Statistical Office, calculated by Thünen Institute. 2015: 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 an increase in net imports in the years 2014 and 2015 (measured in roundwood equivalent m³ r). However, in monetary values semi-finished wood products still show a constant annual export surplus of about two billion Euros per period. Within this main product group, pulp and recovered paper show significant net imports, while the export surplus is mainly based on sawnwood, panels and paper and paperboard.

Figure 5: Trade balance of product groups of wood and wood based products 2013 to 2015 (in million Euros)



Federal Statistical Office, calculated by Thünen Institute. 2015: 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 in the period 2013 to 2015. Paper products, printed matter and chemical derivatives show net exports in both quantity and value.

4.4 Sawnwood (softwood/hardwood)

In 2015, about 16,898 people were employed in the German sawmilling industry (-2.5 % against 2014). The total turnover amounted to 5.5 billion euros (change from previous year: - 2.5 %). With an export quota of 26.7 %, the export turnover amounted to 1.5 billion euros. Compared with 2014, the entire export turnover decreased by 6.2 % (companies with 20 and more employed persons)¹⁴.

With about 20.4 million m³, the domestic production of sawn softwood (sawnwood coniferous) decreased by 1.6 % in 2015 compared with 2014. The apparent consumption of coniferous sawnwood slightly increased to of 18.5 million m³ (+1.5 % compared with 2014). German exports of sawn softwood amounted to 6.2 million m³ and the imports to 4.3 million m³ in 2015. The annual apparent consumption of sawn hardwood amounted to 0.8 million m³ and shows an increase of 6.0 % compared to 2014. The domestic production increased about 4.1 % 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 2015, the German panel industry employed approximately 13,464 people (+0.7 % against 2014) and recorded a total turnover of 5.0 billion euros. Compared with 2014, the total turnover increased by 2.7 %. About 34.8 % of the turnover depended on foreign trade (1.7 billion euro). Compared with 2014, the entire export turnover increased by 5.9 % (companies with 20 and more employees)¹⁵. The annual production of the German panel industry amounted to 6.7 million m³ of particle boards (including OSB) and to 5.3 million m³ of fiberboards. The apparent consumption of particle boards (including OSB) was estimated to be 7.4 million m³ (-0.4 % compared with 2014) and of fibreboards to be 2.9 million m³ (-6.5 % compared with 2014).

4.6 Pulp and paper

In 2015, approximately 38,532 people were employed in the German pulp and paper industry (+2.0 % compared with 2014) at about 183 production sites (+3.4 % against 2014). The total turnover amounted to 16.6 billion euro (change from previous year: +2.6 %). With an export

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

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

quota of 54.5 %, the export turnover amounted to 9.1 billion euro. Compared with 2014, the entire export turnover increased by 3.4 % (companies with 20 and more employed persons)¹⁶. The annual production of paper and paperboard amounted to 22.6 million tons (+0.3 % against 2014)¹⁷, comprising 3,000 different varieties of paper. 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 20.8 million tons (+1.4 % compared with 2014 and according to actual data of the German Pulp and Paper Association). Wood consumption by German pulp and paper mills was estimated to be 9.9 million m³ in 2015, which is a minus of 0.8 % compared with 2014¹⁷.

4.7 Pellet industry

German producers of wood pellets basically benefited from growing demand for renewable energy generation in the long term, but were also suffering from a relatively mild winter lately. Producing 0.3 million tons in 2005 (of which domestic consumption was about 0.2 million tons) it was possible to increase production to 2.0 million tons in 2015 (however, a minus of 3.8 % compared to 2014; a decrease in production in two consecutive years now). About 0.7 million tons have been exported in 2015. Consumption remains on a lower level than production: 1.7 million tons in 2015, a minus of 4.7 % compared with 2014. So far main raw material sources for pellet production are wood residues originating from softwood sawmills. In future, additional sources may become important (e.g. residues from forests, fast growing species, hardwood species).

4.7 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 furniture¹⁸) employed approximately 145,637 people in 2015 (-0.3 % compared with 2014). 49,097 of these were employed in the woodworking industry, 96,540 in the furniture industry. The total turnover amounted to 27.0 billion euro, an increase of 3.6 % compared with 2014. The increase is mainly due to the furniture industry (+5.0). Increase in the woodworking industry was only about 0.8 %. The turnover of the furniture industry is significantly higher (18.2 bil-

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

¹⁷ VDP (2015): Paper 2015: Annual Report. Tab. N8; N16, N18

¹⁸ In accordance with NACE Codes 16.22, 16.23, 16.24, 16.29, 31.01, 31.02, 31.09

lion euro in 2015) than the turnover of the woodworking industry (8.8 billion euro). With an export quota of 25.2 %, the export turnover amounted to 6.8 billion euro in 2015. The export quota of the furniture industry is considerably higher than the export quota of the woodworking industry (30.8 % compared to 13.7 %). The export quota of the woodworking industry shows a decrease compared with 2014 (-4.2 %) while the export quota of the furniture industry increased by 9.5 %.

 UNECE TF1 TIMBER FORECAST QUESTIONNAIRE Roundwood		Country: Germany			Date:		
		Name of Official responsible for reply:					
		Official Address (in full):					
		Telephone:					
		E-mail:					
Note: Complete only if data for 2015 have been revised.							
Product Code	Product	Unit	Historical data		Revised 2015	Estimate 2016	Forecast 2017
			2014	2015			
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS						
	Removals	1000 m ³	24.917	27.025		29.000	29.300
	Imports	1000 m ³	4.500 #	4.300 #		4.200	4.400
	Exports	1000 m ³	1.400 #	1.400 #		1.300	1.200
	Apparent consumption	1000 m ³	28.017	29.925		31.900	32.500
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS						
	Removals	1000 m ³	3.197	3.357		2.567	2.600
	Imports	1000 m ³	200 #	200 #		150	200
	Exports	1000 m ³	900 #	900 #		850	900
	Apparent consumption	1000 m ³	2.497	2.657		1.867	1.900
1.2.1.NC.T	of which, tropical logs						
	Imports	1000 m ³	16 #	16 #		15	15
	Exports	1000 m ³	2 #	2 #		2	2
	Net Trade	1000 m ³	14	14		13	13
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS						
	Removals	1000 m ³	8.509	8.176		9.050	9.200
	Imports	1000 m ³	2.500 #	2.600 #		2.650	2.700
	Exports	1000 m ³	800 #	800 #		800	700
	Apparent consumption	1000 m ³	10.209	9.976		10.900	11.200
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS						
	Removals	1000 m ³	3.757	3.822		2.561	2.598
	Imports	1000 m ³	200 #	200 #		200	200
	Exports	1000 m ³	300 #	300 #		300	300
	Apparent consumption	1000 m ³	3.657	3.722		2.461	2.498
3	WOOD CHIPS, PARTICLES AND RESIDUES						
	Domestic supply	1000 m ³	13.636 C	13.834 C		14.138	14.430
	Imports	1000 m ³	3.899 C	3.963 C		3.900	3.700
	Exports	1000 m ³	3.134 C	2.824 C		2.900	2.800
	Apparent consumption	1000 m ³	14.401	14.973		15.138	15.330
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS						
	Removals	1000 m ³	1.543	1.540		1.550	1.500
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS						
	Removals	1000 m ³	1.320	1.199		1.150	1.100
1.1.C	WOOD FUEL, CONIFEROUS						
	Removals	1000 m ³	5.159	5.309		5.300	5.400
1.1.NC	WOOD FUEL, NON-CONIFEROUS						
	Removals	1000 m ³	5.955	5.185		5.200	5.300

Please return (preferably by e-mail) to Timber Section no later than 16 September 2016.

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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.



TF2
TIMBER FORECAST QUESTIONNAIRE
 Forest products

Country: Germany	Date:
Name of Official responsible for reply:	
Official Address (in full):	
Telephone:	Note: Complete only if data for 2015 have been revised.
E-mail:	

Product Code	Product	Unit	Historical data		Revised 2015	Estimate 2016	Forecast 2017
			2014	2015			
5.C	SAWNWOOD, CONIFEROUS						
	Production	1000 m ³	20.757	20.433	20.434	21.500	22.500
	Imports	1000 m ³	4.173	4.330	4.541	4.700	4.800
	Exports	1000 m ³	6.683	6.244	6.488	7.000	7.300
	Apparent consumption	1000 m ³	18.247	18.519	18.486	19.200	20.000
5.NC	SAWNWOOD, NON-CONIFEROUS						
	Production	1000 m ³	1.015	1.056	1.032	1.050	1.070
	Imports	1000 m ³	449	433	430	430	430
	Exports	1000 m ³	711	691	690	710	720
	Apparent consumption	1000 m ³	753	798	772	770	780
5.NC.T	of which, tropical sawnwood						
	Production	1000 m ³	4	3		3	3
	Imports	1000 m ³	100	101		100	100
	Exports	1000 m ³	46	44		44	44
	Apparent consumption	1000 m ³	58	60		59	59
6.1	VENEER SHEETS						
	Production	1000 m ³	98 C	90 C		90	90
	Imports	1000 m ³	103 C	110 C		110	110
	Exports	1000 m ³	56 C	62 C		60	60
	Apparent consumption	1000 m ³	145	138		140	140
6.1.NC.T	of which, tropical veneer sheets						
	Production	1000 m ³	0	0		0	0
	Imports	1000 m ³	17	14		14	14
	Exports	1000 m ³	6	3		3	3
	Apparent consumption	1000 m ³	12	11		11	11
6.2	PLYWOOD						
	Production	1000 m ³	148 C	117 C		120	125
	Imports	1000 m ³	1.369 C	1.397 C		1.390	1.390
	Exports	1000 m ³	310 C	332 C		330	330
	Apparent consumption	1000 m ³	1.207	1.182		1.180	1.185
6.2.NC.T	of which, tropical plywood						
	Production	1000 m ³	21 N	15 N		15	15
	Imports	1000 m ³	140	167		160	160
	Exports	1000 m ³	31	32		30	30
	Apparent consumption	1000 m ³	130	150		145	145
6.3	PARTICLE BOARD (including OSB)						
	Production	1000 m ³	6.808	6.737		6.750	6.800
	Imports	1000 m ³	2.773	2.840		2.800	2.800
	Exports	1000 m ³	2.189	2.204		2.200	2.225
	Apparent consumption	1000 m ³	7.393	7.373		7.350	7.375
6.3.1	of which, OSB						
	Production	1000 m ³	1.143	1.206		1.200	1.210
	Imports	1000 m ³	533	637		630	630
	Exports	1000 m ³	458	451		450	455
	Apparent consumption	1000 m ³	1.218	1.392		1.380	1.385
6.4	FIBREBOARD						
	Production	1000 m ³	5.213 C	5.288 C		5.280	5.360
	Imports	1000 m ³	1.022 C	1.055 C		1.040	1.085
	Exports	1000 m ³	3.138 C	3.447 C		3.350	3.470
	Apparent consumption	1000 m ³	3.097	2.896		2.970	2.975
6.4.1	Hardboard						
	Production	1000 m ³	2.274	2.313		2.300	2.350
	Imports	1000 m ³	158	191		180	185
	Exports	1000 m ³	1.335	1.442		1.450	1.500
	Apparent consumption	1000 m ³	1.097	1.062		1.030	1.035
6.4.2	MDF/HDF (Medium density/high density)						
	Production	1000 m ³	1.503	1.508		1.510	1.510
	Imports	1000 m ³	415	427		420	450
	Exports	1000 m ³	1.375	1.534		1.450	1.500
	Apparent consumption	1000 m ³	542	400		480	460
6.4.3	Other fibreboard						
	Production	1000 m ³	1.435	1.467		1.470	1.500
	Imports	1000 m ³	450	437		440	450
	Exports	1000 m ³	428	470		450	470
	Apparent consumption	1000 m ³	1.457	1.434		1.460	1.480
7	WOOD PULP						
	Production	1000 m.t.	2.597 C	2.554 C		2.580	2.630
	Imports	1000 m.t.	4.855 C	4.849 C		5.220	5.250
	Exports	1000 m.t.	1.317 C	1.188 C		1.200	1.200
	Apparent consumption	1000 m.t.	6.135	6.216		6.600	6.680
10	PAPER & PAPERBOARD						
	Production	1000 m.t.	22.540 C	22.602 C	22.602	22.820	22.900
	Imports	1000 m.t.	10.772 C	10.693 C	11.514	12.090	12.100
	Exports	1000 m.t.	13.108 C	13.211 C	13.287	13.550	13.600
	Apparent consumption	1000 m.t.	20.205	20.084	20.829	21.360	21.400
4.1	WOOD PELLETS						
	Production	1000 m.t.	2.078	1.998		2.200	2.300
	Imports	1000 m.t.	419	418	432	400	400
	Exports	1000 m.t.	683	687	689	575	500
	Apparent consumption	1000 m.t.	1.815	1.729		2.025	2.200

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