

MARKET STATEMENT

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Delegation of Germany
to

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1. General economic trends affecting forests and the forest industries

1.1. German government interim projection forecasts recovery after historic slump¹

In its spring projection the German government expects gross domestic product to increase by only 2.2% (price-adjusted) in 2022. For 2023, further growth of 2.5% is expected (Table 1). The main reason for the gloomy economic prospects is the Russian war of aggression against Ukraine. The high energy prices and the increased uncertainty are weighing on the growth prospects of the German economy.

Table 1: Key figures of the 2022 spring projection

Gross domestic product by expenditure (price adjusted)	2021	2022	2023
<i>Year-on-year change (in per cent)</i>			
Gross domestic product	2.9	2.2	2.5
Private consumption ²⁾	0.1	3.7	2.3
Public-sector consumption	3.1	-0.1	-0.8
Gross fixed capital formation	1.5	3.4	4.6
- of which equipment	3.4	6.0	9.6
- of which buildings	0.7	1.7	2.2
- of which other investment	0.7	4.3	4.1
Changes in inventories and net acquisition of valuables (contribution to GDP growth)	1.0	0.0	0.0
Domestic demand	2.2	2.7	2.1
Exports	9.9	4.2	5.9
Imports	9.3	5.5	5.3
Net foreign demand (contribution to GDP growth) ³⁾	0.8	-0.3	0.5
Price development of consumer spending by households ²⁾	3.1	5.8	2.5
Gainfully employed persons (domestic)	0.0	1.0	0.3
Unemployment ratio (Federal Employment Agency)	5.9	5.7	5.3

²⁾ Including non-profit-making organisations;

³⁾ Absolute change in net foreign demand in per cent of pre-year GDP (= contribution to change in GDP).

¹ <https://www.bmwk.de/Redaktion/DE/Artikel/Wirtschaft/Projektionen-der-Bundesregierung/projektionen-der-bundesregierung-fruehjahr-2022.html>

1.2 The economic situation in Germany in September 2022²

The economic mood in Germany has clouded over significantly. Almost all indicators developed negatively in July: Industrial production fell, especially in the energy-intensive sectors. Incoming business orders declined continuously six consecutive times. Foreign trade also developed weakly, with exports declining somewhat more than imports. The only ray of hope are slightly positive retail sales, which cannot, however, compensate for the declines of the past few months.

Overall, the energy price shock that resulted from the reduction in Russian gas supplies is affecting the German economy more and more. Many companies and consumers expect continuously rising prices for electricity and gas. Even if any physical rationing of gas volumes in winter is unlikely, high prices are making many production processes unprofitable and demand for manufactured products is falling. The inflation rate, which according to provisional calculations was 7.9% in August, is likely to rise again in the coming months, after the price dampening effects of a reduction in energy tax and the nine-euro public transport ticket are gone.

At least there are first signs of relaxation in the global supply chains. The number of companies complaining about material shortages fell significantly in August. Container freight rates are also gradually falling. This could also be due to the cooling of the global economy however, and can therefore not be interpreted exclusively as positive news.

After a solid first half of the year, the German economy is threatened with a difficult second half of 2022. The complete cessation of gas deliveries via Nord Stream 1 can now be coped with better than a few months ago, because other suppliers have stepped in and demand has reacted to increased prices, so that the gas storage facilities are almost full. At the same time, the high gas prices result in a welfare loss, since the terms of trade in the German economy have deteriorated significantly. Against this background, it cannot be ruled out that economic output will stagnate or decline in the second half of the year.

The global economic recovery is also faltering. In June, global industrial production was still trending upwards at +1.2% month-on-month, even though world trade was already faltering at the time, with a rate of change of -0.1%. The mood indicators at the current edge are signalling a further cooling of the global economic situation. The index of S&P Global (formerly IHS Markit) fell below the growth threshold of 50 points for the first time since spring 2020 - when the world was firmly in the grip of the first corona wave. The decline in the service sector was somewhat stronger than the decline in the manufacturing sector. Survey participants expect the global economic environment to be difficult in the coming months.

Nominal exports of goods and services fell by a seasonally adjusted 2.2% month-on-month in July. Nominal imports of goods and services also declined. Compared to June, they were

² <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/Wirtschaftliche-Lage/2022/20220913-die-wirtschaftliche-lage-in-deutschland-im-september-2022.html>

down 0.6%. Due to the upswing in foreign trade in recent months, however, the decline is starting from a high level: In a three-month comparison, which is less susceptible to fluctuations, both exports and imports are still clearly in the black.

It is also interesting that, for the first time in seven months, export prices increased slightly more than import prices. Since almost all of the energy is imported and the RUS-UKR conflict caused major price increases, Germany suffered from sharply rising import prices and a deterioration in the terms of trade in the last six months. The current account balance in the period from January to July was only around half as high as in the previous year.

The outlook for foreign trade remains mixed. The indicators are currently painting an inconsistent picture. On the one hand, there are signs of an initial easing of the supply bottlenecks that have weighed on the global economy in the course of the recovery from the Corona crisis. Container freight rates are gradually falling. In addition, in an ifo³ survey on material shortages in industry, only 62% of the companies surveyed say that they are affected by bottlenecks. This is the lowest level in over a year.

On the other hand, the easing supply bottlenecks could also be a sign of weak demand in an environment of economic slowdown. In the coming months, the energy price shock will gradually permeate the economy. Price guarantees on favourable terms are gradually being replaced by new contracts, which are often significantly more expensive. It remains to be seen how this will affect the production of export-oriented German industry. In any case, the ifo institute's export expectations fell to a five-month low in August.

The current weakness of the euro also has far-reaching implications for German foreign trade. Since the beginning of the year, the euro has lost around 12% of its value against the dollar, and the currencies are currently being exchanged at a ratio of 1:1. Basically, a weak euro makes German exports abroad cheaper, which is why there are new opportunities for companies based here on international markets. However, oil is mainly traded in dollars, which is why a weak euro increases the energy price burden in Germany. Overall, the weak euro is a double-edged sword for the German economy.

In July, output in the manufacturing industry fell slightly by 0.3% compared to the previous month. Industrial production fell by 1.0% month-on-month. In particular, production of consumer goods was in the red (-2.4%). Production in the construction industry expanded by 1.4%. There was noticeable growth of 2.8% in the energy sector. Energy-intensive areas of manufacturing developed below average. Particularly energy-intensive sectors such as chemistry (-2.2%), metal production and processing (-0.6%), the manufacture of glass, glassware and ceramics (-0.9%) as well as paper and Cardboard (-4.3%) recorded some significant de-

³ ifo Institute – Leibniz Institute for Economic Research at the University of Munich

clines. The food and animal feed sector also fell sharply (-4.2%). Growth impetus came from the areas of data processing equipment (+2.9%) and electrical equipment (+2.0%).

1.3 Market drivers – current market situation as of September 2022

In general, supply and demand have the greatest influence on the development of the market. After prices for raw wood rose continuously in 2022 until June, different tendencies can currently be observed.

Softwood logs: The prices for softwood logs are stagnating at a high level and are already showing a downward trend in some regions. The demand for softwood is covered, but regionally there is a slight oversupply. The following main causes influence the current market situation for raw softwood:

- Sawmill warehouses are full.
- The supply situation with raw wood is sufficient.
- An increase in calamity wood is expected due to the dry summer.
- Due to the uncertain supply chains, the crisis on the energy market and the associated high inflation, it is not possible to make a serious assessment of how demand will develop in the coming months.
- Building permits in Germany are declining due to the sharp increase in building interest and currently unpredictable building costs.
- In the first half of 2022, export of softwood logs fell by 31.6% compared to the same period last year (decline in exports to China by 35% compared to the same period last year, demand from China is currently increasing slightly again).
- The export of softwood lumber fell by 3.3% compared to the same period last year.

Industrial and energy wood: Due to the uncertainties on the energy market and the sharp increase in energy costs for fossil fuels, there is a particularly high demand for firewood and energy wood. The demand cannot currently be met, which means that the price for energy and firewood continues to rise. In the meantime, customers for energy and firewood compete regionally with customers for material use. This leads to price increases for industrial wood and industrial waste wood. Power plant operators sometimes do not receive enough waste wood and are already switching to other ranges. This also leads to competition with industrial wood ranges. The following main causes influence the current market situation for industrial and energy wood:

- Uncertainties on the energy market (availability and price) lead to switching to alternative energy sources, including wood.
- Fear of high prices for fossil energy sources leads to a change in the energy source used, including to the renewable raw material wood.
- Massive increase in energy wood demand due to fear of a gas supply stop.
- Stockpiling of firewood due to concern about decreasing availability in view of the winter.
- Due to the current decline in sawn timber production, the supply of residual wood for energetic and material use is reduced.

- Demand for waste wood exceeds supply. Heating plants cannot set up winter storage and sometimes have to switch to other ranges to ensure the supply of raw materials.

Hardwood: The export of hardwood fell slightly in the first half of 2022. Nevertheless, demand remains high and exceeds domestic availability. The downward trend in the availability of hardwood logs will continue in the second half of 2022. Due to the continuing demand from abroad, but also due to the increased energetic use, the availability for domestic hardwood processing companies continues to decrease. Due to the high demand for energy wood, the prices of all assortments are increasing. Efforts to further restrict management or renounce use can lead to a further aggravation of the situation.

2. Selected policy measures affecting the forest sector

2.1 Climate Protection Program 2030⁴

The greatest potential for strengthening the contribution of forests to climate protection lies in sustainable, close to nature forest management, the promotion of their carbon sink capacity, both in standing stock and in deadwood and soil, and greater use of wood in the form of durable products.

The Climate Protection Plan 2050, which was already adopted by the German government in November 2016, takes up these aspects. In the field of action "Forest and forest management", the focus is on preserving and improving the sink capacity of forests. In addition, the CO₂ reduction potential of sustainable forest management and the closely related use of wood and the climate potential of natural forest development must be tapped. Measures to this end are supported by the Joint Task for the Improvement of Agricultural Structures and Coastal Protection (GAK). Funding is available for forest conversion, reforestation after damages due to extreme weather events and by the measures funded by the Forest Climate Fund to preserve and expand the CO₂ reduction potential of forests and wood and to adapt German forests to climate change.

In fall 2022, the German government will launch a new support scheme 'climate-adapted forest management'. Under this scheme forest owners shall implement forest management practices that address in particular forest biodiversity and adaptation to climate change with a view to further provide all forest ecosystem services. Further measures to support adaptation of forests to climate change and to enhance forests' capacity of mitigating climate change will be addressed in the government's new Action Program Natural Climate Protection, which is directly linked to the National Immediate Climate Protection Program. Both Programs are under preparation.

⁴https://www.bmel.de/SharedDocs/Downloads/DE/Broschueren/waldbericht2021.pdf?__blob=publicationFile&v=9

2.2 Forest Strategy 2050⁵

Germany is one of the most densely forested countries in Europe, with around one third of its territory covered by forest. It is primarily mixed forests that characterize the German forest with an area share of 76 percent. The extreme weather of the past five years represents a turning point. Storms, drought and the bark beetle outbreak have caused massive damage since 2018: around 445,000 hectares need to be reforested with climate adapted species in clear cut conditions.

The Forest Strategy 2050 of the Federal Ministry of Food and Agriculture (BMEL) shows a pathway to the future of German forests. The main focus of this strategy is on adapting forests to climate change, better protecting biodiversity, and guaranteeing sustainable forest management, which also ensures that wood and wood products permanently store CO₂. The strategy also considers how the forest is preserved as a valuable recreation area for citizens and awareness can be raised about the value of forests.

2.3 German “Charter for Wood 2.0”⁶

The Federal Government’s “Climate Action Plan 2050” addresses the “Charta for Wood 2.0” as one particular milestone⁷. The “Charter for Wood 2.0” aims to promote the use of wood from sustainable forestry as a positive contribution to climate protection, resource efficiency and value creation, and with its activities in seven fields of action it also supports the key objectives of the coalition agreement.

Using wood in urban and rural construction, new potentials of wood in the bioeconomy, material and energy efficiency as well as forests and wood as a resource are some of the central fields of action of the Charter for Wood 2.0, which are addressed in working groups, events and publications. The findings feed into research, development and knowledge transfer and contribute to redirecting the use of wood more strongly from energetic to higher-quality material use in favor of climate protection and value creation. The current raw material supply, material use of hardwood, efficient use of softwood, the circular economy and the social dialogue within the framework of these topics are currently of particular relevance. The report on key figures⁸ provides a comprehensive overview of the Forest & Wood cluster. As part of the evaluation of the Charter for Wood 2.0 carried out by the Thünen Institute, the report uses 15 defined key figures to present trends and developments. In this way, interactions can be recognized and the need for action in the Charter dialogue process can be continuously adapted.

⁵ <https://www.bmel.de/DE/themen/wald/waldstrategie2050.html>

⁶ <https://www.charta-fuer-holz.de/>

⁷ http://www.bmub.bund.de/themen/klima-energie/klimaschutz/klima-klimaschutz-download/artikel/klimaschutzplan-2050/?tx_ttnews%5BbackPid%5D=3915

⁸ https://www.charta-fuer-holz.de/fileadmin/charta-fuer-holz/dateien/service/mediathek/Web_Kennzahlenbericht_2021.pdf

2.4 Restrictions of regular timber felling⁹

Winter storms in 2018 and the long-lasting drought combined with high temperatures favored the development of a still ongoing bark beetle mass outbreak, which affected the economically important spruce tree species. In the first half of 2022 alone, 17.3 million solid cubic meters had to be felled prematurely. Since 2018, 211 million solid cubic meters have been cut for damage management in softwood alone.

But the vitality of the deciduous forests is also a major concern. Since 2018, 18.6 million solid cubic meters of hardwood have been used for forest protection reasons. Forest owners are now faced with the task of financing and planting around 445,000 hectares with climate-resilient tree species again and caring for these young forests.

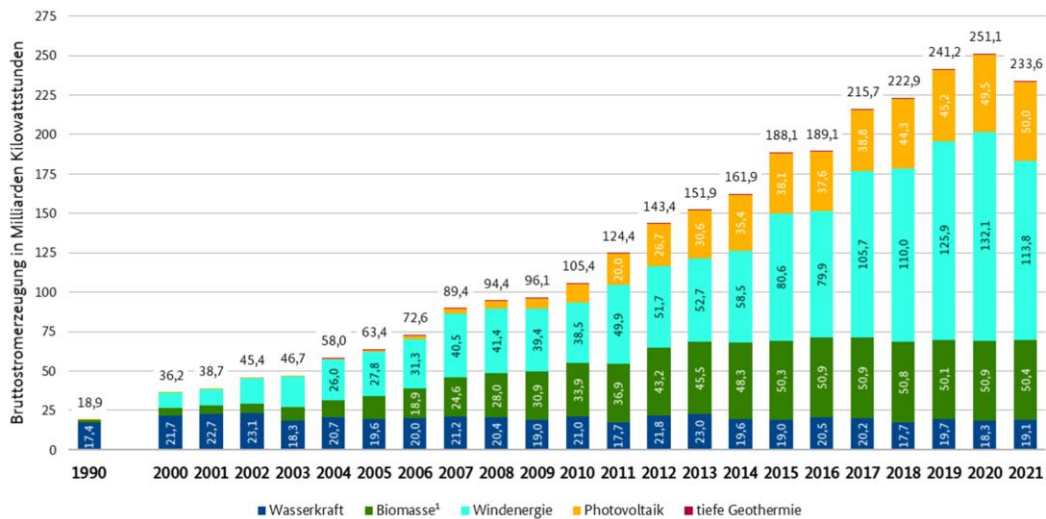
2.5 Renewable energy transition

For the first time since 1997, the share of renewable energies in gross electricity consumption did not increase in 2021. Unfavorable weather makes for significantly less electricity from wind turbines with simultaneous high demand for electricity. As a result, the share of renewable electricity dropped significantly from 45.2 percent to 41.1 percent. Total gross electricity generation fell to 234 kWh (Figure 1).¹⁰

⁹https://www.bmel.de/SharedDocs/Downloads/DE/Broschueren/waldbericht2021.pdf?__blob=publicationFile&v=9

¹⁰https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/hg_erneuerbareenergien_dt_0.pdf

Entwicklung der Bruttostromerzeugung aus erneuerbaren Energien in Deutschland



¹ inkl. feste, flüssige und gasförmige Biomasse, Klärschlamm sowie dem biogenen Anteil des Abfalls (in Abfallverbrennungsanlagen mit 50 % angesetzt, ab 2008 nur Siedlungsabfälle)
 BMWK auf Basis Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); Stand: Februar 2022

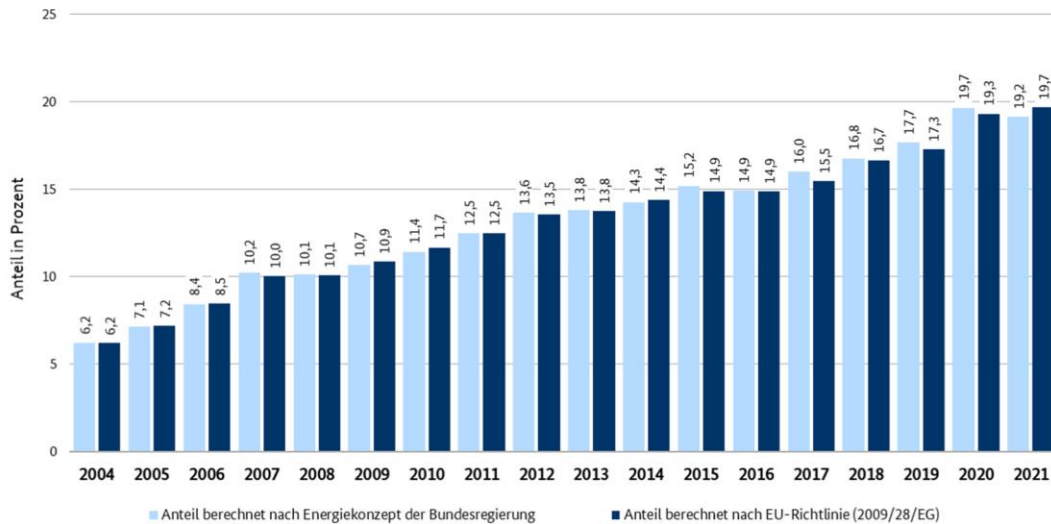
Figure 1: Development of gross electricity generation from renewable energies in Germany (in billions of kilowatt hours)¹¹

Significantly cooler weather in 2021 led to greater use of renewable energy sources. The share of renewables in final energy consumption for heat rose from 15.3 to 16.5 percent. The cold weather also led to a higher consumption of fossil fuels for heating purposes. However, this is only partially reflected in the energy statistics, because heating oil sales fell sharply due to high inventories and rising prices. As a result, the share of renewable energies increased disproportionately.

After Germany exceeded its 18 percent target according to the EU Renewable Energy Sources Directive with 19.3 percent in 2020, the renewable share of the total gross final energy consumption - across all sectors - rose slightly to 19.7 percent in 2021 (Figure 2). This is due to a weather adjustment for electricity generation that is relevant for monitoring the European renewable energy expansion targets, and due to the increase in renewable energies in the heating sector, among other things.

¹¹ Source: https://www.erneuerbare-energien.de/EE/Navigation/DE/Service/Erneuerbare_Energien_in_Zahlen/Entwicklung/entwicklung-der-erneuerbaren-energien-in-deutschland.html

Entwicklung des Anteils erneuerbarer Energien am Bruttoendenergieverbrauch in Deutschland



BMWK auf Basis Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); Stand: Februar 2022

Figure 2: Development of renewable energy share in gross final energy consumption, in percent¹²

The energy transition makes an important contribution to achieving national, European and international climate protection goals. The triple target of supply security, environmental compatibility and affordability remains the guiding principle of energy policy. The federal government has set itself the goal of achieving an 80 percent share of renewable energies in electricity consumption by 2030. A correspondingly powerful power grid remains a central component for this. Saving energy and using it more efficiently is essential to achieve climate protection goals. With the Energy Efficiency Strategy 2050, the Federal Government has both decided on an efficiency target for the year 2030 and launched a concrete package of measures. With the targeted use of an increasing energy research budget, the federal government provides incentives for innovative technology.

¹² Source: https://www.erneuerbare-energien.de/EE/Navigation/DE/Service/Erneuerbare_Energien_in_Zahlen/Entwicklung/entwicklung-der-erneuerbaren-energien-in-deutschland.html

2.6 Enhancing energy efficiency in buildings¹³

There is a strong need for climate policy action in the building sector. The building sector emitted 119 million tons of CO₂ equivalents in 2020. In the reference period from 2010 to 2019, emissions (not climate-adjusted) were reduced by around 18 percent. Nevertheless, the building sector failed to meet its climate protection target from the Federal Climate Protection Act in both 2020 and 2021. In 2021 the value was 115 million tons of CO₂ equivalents (target 113 million tons of CO₂ equivalents), which is around 15 percent of the total emissions for the year. In order to change this in the future, the Federal Government intends to promote energy-efficient building refurbishment even more over the next two years with the immediate climate protection program: 4.5 billion euros alone are to be made available for this purpose. From 2023, the federal government no longer wants to subsidize heating systems that run exclusively on fossil fuels.

The medium- and long-term climate goals in the building sector can only be achieved if a rapid and significant increase in renovation dynamics is achieved, which includes both an increase in the renovation rate and depth, and the heat supply is decarbonized at the same time. The aim must therefore be to effectively reduce the heating and energy requirements of buildings (increase in energy efficiency) and to promote the use of renewable energies.

The measures chosen as part of the immediate climate protection program for the building and heating sectors are aimed at strengthening regulatory requirements, diversifying and increasing existing funding programs and intensifying qualification measures as well as serial renovation processes. If implemented consistently, the proposed measures would result in high reduction effects through an increased number and high-quality (deep) renovations of existing buildings as well as specifications for new construction and the transformation of the existing heating network structure.

The measures include:

- Amendment of the Building Energy Act
- Federal funding for efficient buildings
- Guideline for the funding of pilot projects for serial renovation and accompanying measures
- Federal funding for efficient heating networks
- Municipal Heat Planning Act
- Development program and qualification campaign for heat pumps
- Optimization of existing heating systems
- Public buildings initiative
- Refurbishment of municipal facilities in the areas of sport, youth and culture
- “Zukunft Bau” model project for innovation in the building sector

¹³https://www.bmwsb.bund.de/SharedDocs/downloads/Webs/BMWSB/DE/veroeffentlichungen/bauen/sofortprogramm-sektor-gebaeude.pdf?__blob=publicationFile&v=1

The energy saving and climate protection potential in existing buildings is great. That is why the Federal Government intends to promote energy-efficient building refurbishment even more over the next two years with the immediate climate protection program: 4.5 billion euros alone are to be made available for this purpose. From 2023, the federal government no longer wants to subsidize heating systems that run exclusively on fossil fuels.¹⁴

2.7 Wood construction initiative

The coalition agreement for the 20th legislative period provides for the implementation of a wood construction initiative to support regional value chains and the development of a wood construction, lightweight construction and raw material security strategy. In the timber construction initiative of the federal government, strategic considerations are brought together with concrete fields of action, in-depth topics and solution approaches in the area of climate-friendly and resource-saving construction with wood. The timber construction initiative is geared towards a time horizon up to the year 2030. It shows priority fields of action and solution approaches in the responsibility of the relevant federal departments.

The protection of the climate and an efficient, sustainable use of resources are on the agenda in almost all policy areas as a societal challenge and a need for political action. In the building sector, efforts to protect the climate have so far focused on the question of reducing non-renewable primary energy consumption in the operating phase. With increasing energy efficiency, however, the proportion of primary energy required for the construction of buildings and the associated emissions in the entire action field of buildings are becoming more important. At the same time, questions of resource conservation, the efficient use of raw materials and materials and circular construction come into focus. If the transformation of the building stock and the value chain in the construction sector towards climate neutrality and a sustainable, more bio-based circular economy is to succeed, a more comprehensive, holistic approach is required that takes the entire field of construction and living into account and at the same time takes into account the parts of technical solutions that are already available today for GHG reduction but also for storing carbon.

3. Development in forest products markets sectors

3.1 Wood raw materials

Supply of roundwood is still significantly influenced by windthrow, drought and bark beetle pests of the last years. The calamities led to significant forest damage in many regions. The damages also led to increased roundwood production since 2018. The damages mainly affected softwood, especially spruce. It is reported that in 2021 the damage due to drought and bark

¹⁴ <https://www.bundesregierung.de/breg-de/suche/sofortprogramm-klimaschutz-1934852>

beetle infestation accounted for 42 million m³. Actual estimates for the current year 2022 add up to 33 million m³ of damaged timber. Affected forest area for a required reforestation due to damage during the period 2019 to 2022 sums up to 450,000 hectares. As already mentioned in previous market statements, against the backdrop of ongoing climate change it is supposed that in some regions Norway spruce may not be able to maintain as a species as it seems not to be robust enough against storms and drought. Another task is the suppression of emerging natural rejuvenation of spruce. Therefore, it is challenging to choose climate change appropriate tree species for replanting resilient German forests.

According to official harvest statistics, in 2021 about 83.0 million m³ (under bark) were felled (+3.2 % compared with 2020). As explained above, the fellings are strongly affected by damaged timber from drought and bark beetle. According to official statistics, the species group “spruce” accounted for 75 % of the total fellings, “pine” for 12 %, “beech” for 11 % and “oak” for 2 %. The shares of the species groups show only minor changes compared with the previous year.

In Germany it is known that official felling statistics have historically underestimated the timber volumes which are harvested and removed from forest. Especially removals in enterprises managing smaller forest areas (i.a. registration problems) and fuelwood removals are underestimated. In order to provide more realistic accounts of harvesting volumes a methodological approach has been developed in Germany. The method is based on the recalculation of the used amount of roundwood, differentiated into the various users (Jochem et al. 2015¹⁵, TI-WF 2022¹⁶). Considered data sources include official statistics, statistics of industry associations, and results of various empirical studies (e.g. fuelwood consumption in private households). Interestingly, in the last two years, official statistics show much better agreement with the results of the use-side calculation. This may be due to a better estimation of fellings in the private forest. However, the official data on the felling of fuelwood still show a clear underestimation.

Also, results from the most recent third Federal Forest Inventory Study 2012 and the Carbon Inventory Study 2017 estimate the average annual harvest in the period 2003 to 2012 and 2013 to 2017 respectively. The third Federal Forest Inventory allows at a ten-year interval the determination of fellings and verifies the derivation on the demand side. The Carbon Inventory is an intermediate inventory conducted in the middle of the obligatory ten-year circle of the Federal Forest Inventory. Results of the statistical data for the most recent years as well as for the period 2003 to 2012 are provided in Table 2.

¹⁵ 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

¹⁶TI-WF (2022): Fellings and Use of Roundwood [online]. Hamburg: Thünen Institute of Forestry. Access: www.thuenen.de/en/institutes/forestry/figures-facts/fellings-and-roundwood-use

Table 2: 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/ Period	official statistics	Federal Forest Inventory 2012 (Ø 2003-2012)	WEHAM- potential	Carbon Inven- tory 2017 (Ø 2013-2017)	Thünen Estima- tion on Round- wood Fellings
2003-2012	56.8	75.7	78.3		73.9
2013	53.2				73.0
2014	54.4		77.7		68.8
2015	55.6				70.4
2016	52.2				67.4
2017	53.5			62.0	67.4
2018	64.6				75.0
2019	68.9				75.7
2020	80.4				80.5
2021	83.0				84.2

Source: BMEL, Thünen-Institute^{16,17}

The still high supply of domestic roundwood lead to a still high level of exports. In 2021, 11.5 million m³ of roundwood were exported, with China as a main destination. This is a decrease of 13.4 % to the previous year but still the second highest export volume ever achieved. Imports of roundwood were nearly constant and only increased by 0.1 % to 6.3 million m³.

Still, the domestic use of roundwood is dominated by softwood (roughly about three quarters of the used roundwood are coniferous species). The German timber industry is further based upon softwood processing. Roundwood utilisation accounts roughly for about 90 % softwood and about 10 % hardwood species in recent years. Main domestic users of roundwood are sawmills (41.4 million m³) and private households, which used 17.7 million m³ as fuelwood for energy generation in 2021.

3.2 Sawnwood (softwood/hardwood)

In 2021, about 19,760 people were employed in the German sawmilling industry (+4.7 % against 2020). The total turnover showed an extraordinary increase to 9.2 billion euro (+41.9 % against previous the year) which is mainly a result of steep price increases of sawn softwood driven by a strong demand. The export quota increased by 2.7 percentage points to 35.2 %, the export turnover amounted to 3.2 billion euro. Compared with 2020, the entire export turnover increased by 53.8 % (companies with 20 and more employed persons)¹⁸.

¹⁷ Hennig P, Schnell S, Riedel T (2019) Rohstoffquelle Wald - Holzvorrat auf neuem Rekord. AFZ Wald 74(14):24-27

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

With about 25.3 million m³, the domestic production of sawn softwood (coniferous) increased only slightly by 0.5 % in 2021 compared with 2020. The apparent consumption of coniferous sawnwood decreased to 20.0 million m³ (-2.7 % compared with 2020). German exports of sawn softwood amounted to 10.5 million m³ while imports increased to 5.2 million m³ in 2021. The annual apparent consumption of sawn hardwood amounted to 0.8 million m³ and shows a increase of 17.5 % compared to 2020 (while in 2020 there was a decrease of 22.8 % compared to 2019). The domestic production also increased significantly with about 10.0 % and is at a level of 1.1 million m³ of sawn hardwood (while there was a decrease of 20.8 % in 2020 compared to 2019).

In 2020, the market of sawn softwood was mainly influenced by strong demand and high and fluctuating prices in the U.S. market, especially starting in spring 2021. This caused uncertainties among domestic market participants regarding expectations of market development. Exports to the U.S. increased significantly. In some cases, domestic demand was not satisfied. In autumn 2021, the market situation eased somewhat. Nevertheless, there is still high fluctuation in prices of sawn softwood, especially in the North American market, which influences the domestic market.

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

In 2021, the German panel industry employed 14,561 people (+3.5 % against 2020) and recorded a total turnover of 5.9 billion euro. Compared with 2020, the total turnover increased significantly by 23.7 %, also caused by rising prices due to strong demand. About 37.4 % of the turnover depended on foreign trade (2.2 billion euro). Compared with 2020, the entire export turnover increased by 34.7 % (companies with 20 and more employees)¹⁹. The annual production of the German panel industry in 2021 amounted to 7.3 million m³ of particle boards (including OSB) (+7.8 %) and to 6.1 million m³ of fiberboards (+5.2 %). The apparent consumption of particle boards (including OSB) was estimated to be 7.5 million m³ (+1.1 % compared with 2020) and of fibreboards to be 4.4 million m³ (+6.7 % compared with 2020).

3.4 Pulp and paper

In 2021, approximately 37,468 people were employed in the German pulp and paper industry (-0.9 % compared with 2020) at about 172 production sites (+1.2 % against 2020). The total turnover decreased to 18.3 billion euro (change from previous year: +19.1 %). With an export quota of 56.4 %, the export turnover amounted to 10.3 billion euro. Compared with 2020, the entire export turnover increased by 14.6 % (companies with 20 and more employed persons)²⁰. The annual production of paper and paperboard amounted to 23.1 million tons (+8.3 % against 2020)²¹. The apparent consumption of graphic papers, papers and boards for

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

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

²¹ Die Papierindustrie (2022): Papier 2022 – Statistiken zum Leistungsbericht [Statistics on the Annual Report]. Tab. N8; N16, N18

packaging, sanitary and household papers and other papers and board in total was calculated to be 18.8 million tons (+4.3 % compared with 2020 and according to actual data of the German Paper Industry). Wood consumption by German pulp and paper mills was estimated to be 9.3 million m³ in 2021, which is an increase of 1.7 % compared with 2020²¹.

3.5 Pellet industry and producers of other agglomerates

German producers of wood pellets and other agglomerates still show increases in annual production. In 2021 production increased to 4.3 million tons (+21.7 % compared to 2020). About 873,000 tons of pellets and briquettes have been exported in 2021 (+0.5 % compared with 2020), and imports increased in 2021 to 670,000 tons (+15.2 % compared to 2020). Domestic consumption increased in 2021 to 4.1 million tons (a plus of 26.2 % compared with 2020). 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), however especially use of damaged wood might have increased in recent years.

3.6 Value added wood products (including furniture)

The German woodworking and furniture industry (incl. 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 furniture²²) employed 149,660 people in 2021 (-0.4 % compared with 2020). 56,440 (+2.9 %) were employed within the woodworking industry, 93,220 (-2,3 %) in the furniture industry. The total turnover amounted to 30.3 billion euro, an increase of 4.8 % compared with 2020. The increase is mainly due to the woodworking industry (+9.2 %) while the furniture industry showed a lower increase of 2.3 %. The turnover of the furniture industry is significantly higher (18.7 billion euro in 2021) than the turnover of the woodworking industry (11.6 billion euro). With an export quota of 23.5 % the export turnover amounted to 7.1 billion euro in 2021. The export quota of the furniture industry is considerably higher than the export quota of the woodworking industry (30.9 % compared to 11.6 %). The export turnover of the woodworking industry increased compared with 2020 by 18.4 % (This is also due for the export turnover of the furniture industry, which increased significantly (+30.9 %)).

3.7 Housing and construction


The housing and construction sector is most important regarding use of wood products. In Germany roughly between one half and two third of roundwood are transformed into products designed for building construction and housing elements. In 2021, in the carpentry and wood construction industry about 73,727 people were employed (+3.0 %) in 12,014 companies (+1.3%). The total turnover was about 9.7 billion Euro (+7.6 %). Please note that part of this data is also contained in the woodworking sector in previous chapter 3.6. In 2021, 27,554 residential buildings in wood construction were approved. This equals a share of 21.4 % com-

²² In accordance with NACE Codes 16.22, 16.23, 16.24, 16.29, 31.01, 31.02, 31.09

pared to all approved residential buildings. This is an increase of 0.8 percentage points compared to 2020. The number of approved non- residential buildings in wood construction increase by 15.1 % to 6,504, which equals a share of 21.7 % of all approved non- residential buildings.²³

²³ Holzbau Deutschland. Lagebericht 2022. https://www.holzbau-deutschland.de/fileadmin/user_upload/eingebundene_Downloads/Lagebericht_2022.pdf

Annex: Highlights of the Timber Forecast Questionnaire

 UNECE TF1 TIMBER FORECAST QUESTIONNAIRE Roundwood		Country: Germany				Date:			
		Name of Official responsible for reply:							
		Official Address (in full):							
		Telephone:				Note: Complete only if data for 2021 have been revised.		Fax:	
		E-mail:							
Product Code	Product	Unit	Historical data		Revised	Estimate	Forecast		
			revised	2021	2021	2022	2023		
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS								
	Removals	1000 m ³ ub	44.608	44.611 N	44.611	41.447	39.283		
	Imports	1000 m ³ ub	3.866	4.100 #	3.190	3.300	3.600		
	Exports	1000 m ³ ub	10.093	4.500 #	8.006	5.670	4.270		
	Apparent consumption	1000 m ³ ub	38.382	44.211	44.611	39.077	38.613		
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS								
	Removals	1000 m ³ ub	2.415	2.792 N	2.792	2.809	2.802		
	Imports	1000 m ³ ub	128	200 #	110	111	120		
	Exports	1000 m ³ ub	680	900 #	727	574	574		
	Apparent consumption	1000 m ³ ub	1.863	2.092	2.791	2.346	2.348		
1.2.1.NC.T	of which, tropical logs								
	Imports	1000 m ³ ub	10	8 #	11	10	10		
	Exports	1000 m ³ ub	5	2 #	5	5	5		
	Net Trade	1000 m ³ ub	5	6	7	5	5		
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS								
	Removals	1000 m ³ ub	10.233	10.505 N		11.757	10.982		
	Imports	1000 m ³ ub	1.837	3.000 #	2.523	2.200	2.400		
	Exports	1000 m ³ ub	1.931	2.000 #	2.331	2.430	1.830		
	Apparent consumption	1000 m ³ ub	10.139	11.505		11.527	11.552		
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS								
	Removals	1000 m ³ ub	1.105	1.119 N		1.008	1.045		
	Imports	1000 m ³ ub	250	200 #	261	259	280		
	Exports	1000 m ³ ub	347	500 #	269	246	246		
	Apparent consumption	1000 m ³ ub	1.007	819		1.021	1.079		
3	WOOD CHIPS, PARTICLES AND RESIDUES								
	Domestic supply	1000 m ³	16.115	16.703 C		16.700	16.500		
	Imports	1000 m ³	1.153	1.036 C		1.050	1.000		
	Exports	1000 m ³	2.940	2.258 C		2.200	2.100		
	Apparent consumption	1000 m ³	14.329	15.481		15.550	15.400		
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS								
	Removals	1000 m ³ ub	72	153 N		150	150		
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS								
	Removals	1000 m ³ ub	2	8 N		8	8		
1.1.C	WOOD FUEL, CONIFEROUS								
	Removals	1000 m ³ ub	8.150	9.265 N		9.600	9.800		
1.1.NC	WOOD FUEL, NON-CONIFEROUS								
	Removals	1000 m ³ ub	12.087	13.959 N		14.300	14.300		



TF2

TIMBER FORECAST QUESTIONNAIRE
Forest products

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

Product Code	Product	Unit	Historical data		Revised	Estimate	Forecast
			2020	2021	2021	2022	2023
6.C	SAWNWOOD, CONIFEROUS						
	Production	1000 m ³	25.217 N	25.335 N	25.313	25.300	25.000
	Imports	1000 m ³	5.042	5.198	5.700	5.000	4.500
	Exports	1000 m ³	9.677	10.508	10.909	10.500	10.000
	Apparent consumption	1000 m ³	20.583	20.026	20.104	19.800	19.500
6.NC	SAWNWOOD, NON-CONIFEROUS						
	Production	1000 m ³	1.002 N	1.103 N	1.061	1.060	1.000
	Imports	1000 m ³	409	488	459	400	400
	Exports	1000 m ³	702	758	735	700	700
	Apparent consumption	1000 m ³	709	832	786	760	700
6.NC.T	of which, tropical sawnwood						
	Production	1000 m ³	1 N	2 N		2	2
	Imports	1000 m ³	66	74	74	75	75
	Exports	1000 m ³	31	37	37	35	35
	Apparent consumption	1000 m ³	37	39		42	42
7	VENEER SHEETS						
	Production	1000 m ³	100 C	116 C		115	110
	Imports	1000 m ³	106 C	111 C		110	110
	Exports	1000 m ³	58 C	59 C		60	60
	Apparent consumption	1000 m ³	147	167		165	160
7.NC.T	of which, tropical veneer sheets						
	Production	1000 m ³	1 N	2 N		1	1
	Imports	1000 m ³	8	10		10	10
	Exports	1000 m ³	2	2		2	2
	Apparent consumption	1000 m ³	8	9		9	9
8.1	PLYWOOD						
	Production	1000 m ³	100 C	103 C		100	100
	Imports	1000 m ³	1.437 C	1.464 C		1.450	1.450
	Exports	1000 m ³	373 C	382 C		380	380
	Apparent consumption	1000 m ³	1.164	1.185		1.170	1.170
8.1.NC.T	of which, tropical plywood						
	Production	1000 m ³	0 N	0 N		0	0
	Imports	1000 m ³	132	130		130	130
	Exports	1000 m ³	37	38		38	38
	Apparent consumption	1000 m ³	95	93		92	92
8.2	PARTICLE BOARD (including OSB)						
	Production	1000 m ³	6.790 N	7.318 N		7.300	7.200
	Imports	1000 m ³	2.805	2.887		2.850	2.800
	Exports	1000 m ³	2.191	2.717		2.700	2.650
	Apparent consumption	1000 m ³	7.404	7.488		7.450	7.350
8.2.1	of which, OSB						
	Production	1000 m ³	1.234 N	1.282 N		1.280	1.280
	Imports	1000 m ³	856	746		750	750
	Exports	1000 m ³	511	555		550	550
	Apparent consumption	1000 m ³	1.579	1.473		1.480	1.480
8.3	FIBREBOARD						
	Production	1000 m ³	5.801 C	6.105 C		6.100	6.000
	Imports	1000 m ³	1.815 C	1.944 C		1.940	1.865
	Exports	1000 m ³	3.490 C	3.648 C		3.615	3.530
	Apparent consumption	1000 m ³	4.126	4.401		4.425	4.335
8.3.1	Hardboard						
	Production	1000 m ³	0 N	0 N		0	0
	Imports	1000 m ³	231 N	242 N		240	240
	Exports	1000 m ³	28 N	29 N		30	30
	Apparent consumption	1000 m ³	203	213		210	210
8.3.2	MDF/HDF (Medium density/high density)						
	Production	1000 m ³	4.600 N	4.693 N		4.700	4.650
	Imports	1000 m ³	603 N	625 N		625	600
	Exports	1000 m ³	2.880 N	2.932 N		2.900	2.850
	Apparent consumption	1000 m ³	2.323	2.385		2.425	2.400
8.3.3	Other fibreboard						
	Production	1000 m ³	1.201 N	1.412 N		1.400	1.350
	Imports	1000 m ³	980	1.078		1.075	1.025
	Exports	1000 m ³	582	686		685	650
	Apparent consumption	1000 m ³	1.599	1.803		1.790	1.725
9	WOOD PULP						
	Production	1000 m.t.	2.255 C	2.327 C	2.327	2.390	2.420
	Imports	1000 m.t.	4.245 C	4.257 C	4.451	4.400	4.400
	Exports	1000 m.t.	1.173 C	1.130 C	1.156	1.105	1.105
	Apparent consumption	1000 m.t.	5.327	5.454	5.622	5.685	5.715
12	PAPER & PAPERBOARD						
	Production	1000 m.t.	21.348 C	23.125 C	23.123	22.800	22.700
	Imports	1000 m.t.	10.358 C	10.367 C	10.009	9.800	9.800
	Exports	1000 m.t.	13.649 C	14.661 C	14.152	14.100	14.100
	Apparent consumption	1000 m.t.	18.057	18.831	18.980	18.500	18.400
5.1	WOOD PELLETS						
	Production	1000 m.t.	3.100 N	3.353 N		3.600	3.800
	Imports	1000 m.t.	302	370	392	450	500
	Exports	1000 m.t.	811	802	813	850	900
	Apparent consumption	1000 m.t.	2.591	2.921		2.958	3.186