Market Statement of the Slovak Republic 2020

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Ministry of Agriculture and Rural Development of the Slovak Republic
National Forest Centre – Forest Research Institute Zvolen

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1 GENERAL ECONOMIC TRENDS AFFECTING THE FOREST AND FOREST INDUSTRIES SECTOR

Basic national and sectoral macro-economic indicators, including the overview of most important forest sector indicators in 2021 are given in Table 1.1.

The Slovak economy declined year-on-year in 2020 as a result of the COVID-19 pandemic, which was reflected in a decline in GDP by €2.35 billion (2.5%) at constant prices. The main reason was the restrictions due to the prevention of the spread of COVID-19 and the slowdown in economic activity in Slovakia and abroad. The decline in the Slovak economy was also reflected in a reduction in the number of jobs. Employment in the Slovak economy decreased by 2.1% year-on-year. The average monthly nominal wage of an employee in the Slovak economy increased by 3.7% year-on-year. Investments reached the value of €20.27 billion at current prices and their year-on-year growth was by 2.2%.

1.1 Trends of selected indicators in forestry and its comparison with Slovak national economy

Indicator	Unit	Year					
		2010	**2015**	**2017**	**2018**	**2019**	**2020**
GDP in current prices	billion €	68,19	79,76	84,49	89,36	93,90	91,55
of that: Forest Sector		0,39	0,57	0,61	0,62	0,65	0,25
Increment of GDP	%	6,2	4,6	4,3	6,0	5,1	-4,8
Investment in current prices	mil. €	14 396	18 918	17 806	18 707	20 184	17 879
of that: Forest Sector		41	51	52	48	61	39
Employment	thousand persons	2 170	2 267	2 372	2 420	2 455	2 399
of that: Forest Sector		23,3	21,4	19,6	18,0	17,9	16,8
Average monthly salary	€	769	883	954	1 013	1 092	1 133
of that: Forest Sector		632	868	914	980	1 084	1 022
Value-added labour productivity		27 543	29 099	32 304	33 485	34 407	33 960
of that: Forest Sector		13 102	19 414	18 986	22 200	17 239	13 046

2 POLICY MEASURES TAKEN OVER THE PAST 18 MONTHS

In 2021, a draft of the "Concept of common procedures for building modern agriculture in the horizon of 2035" was prepared. Within the framework of the mentioned document, a separate ***"vertical"*** was developed for the area of ***wood production and its processing*** in the wood processing industry (WPI).

The chapter Starting points of the vertical and its development potential in the area of "Primary production of raw wood assortments" states mainly these significant facts:

- Timber is the most important source of income (81% of earnings and revenue of forest enterprises) for maintaining forest functions and employment in the forest sector and timber processing industry.
- Wood production indicators of forests in the Slovak Republic are currently favourable. There are historically highest volume of growing stock (484.5 million m^3) in forest stands and annual harvesting possibilities are at the level of 9.85 mil. m^3, of which approximately 8 mil. m^3 in commercial forests, with a view to at least ten years.

- Deteriorating health of forests, mainly due to the impacts of climate change and the related high proportion of incidental (calamity) felling with negative impacts on the quality structure and stability of timber supply.
- The percentage of conifer species (currently at 36.1%) has been steadily decreasing due to the detrimental impact of harmful agents on forests. Since 1980, their presence has fallen by 6.4% and this trend further accelerates, most notably in the case of Norway spruce.
- Decreasing the representation of Norway spruce due to the massive calamity decay of spruce forests causes negative consequences for the spruce wood market; sales crisis culminated in 2019 and 2020.
- A significant part of machines and technological equipment in forestry is obsolete and does not meet the needs of modern environmentally friendly technologies and nature-friendly forest management. The lower level of technical infrastructure (felling and transport technologies, forest road network, timber stores) also do not create optimal conditions for the efficient use of domestic timber resources.
- A factor limiting the volume and quality of timber production is also the relatively large extent of forests declared as protected areas (66,3% of forest-stand area), where timber harvesting is restricted, and which locally contribute to higher damage to neighboring commercial forests by insects spreading from protected territories.
- In the average annual supplies of raw wood assortments for the period 2010-2020, a lower real share of more valuable assortments (I, II and III grade logs) was found for coniferous trees by 11.7% and for deciduous trees by 13.9%, and on the contrary a higher proportion of lower valuable assortments (V and VI grade logs) as compared to available potential.
- The unfavourable situation in domestic demand, especially for the most valuable assortments (I. and II grade logs and non-coniferous sawlogs) due to the lack of processing capacity of the WPI, also contributes significantly to above mentioned, which subsequently leads to an increase in export of these assortments, respectively for their processing into products with lower added value.

In the area of "Wood processing and marketing" the following is stated:

- After 1989, there was an absolute decrease in production of the WPI in Slovakia (46% in 1993 compared to 1989). Large deciduous log processing plants have been liquidated of or transformed to significantly less processing capacity.
- Since then, the WPI of Slovakia lacks sufficient processing capacities for some grades of raw wood assortments, especially the most valuable assortments of the 1st and 2nd grade logs and deciduous sawlogs assortments, despite the fact that the domestic annual production potential of assortments of the 1st and 2nd grade logs is approximately 8.7% for deciduous and 7.5% for conifers.
- At present, the WPI disposes processing capacities that are sufficient to process all felled volume of softwood harvested in the SR.
- In the long run, domestic production and domestic demand for deciduous pulpwood and firewood are sufficient; there is also increased production and high domestic demand for coniferous sawlogs assortments, including calamitous softwood (with the exception of the sales crisis in 2019 and 2020). Increased demand for coniferous sawlogs and deciduous pulp is partly covered by imports.
- Due to the lower efficiency of wood processing, domestic companies are mostly subcontractors of semi-finished products with a lower degree of finalization for foreign companies.
- The capital undersizing of most domestic producers of sawnwood, their insufficient technological equipment (quality, scope) and lack of innovations limit the possibilities of expanding the missing processing capacities.

- This does not apply to larger and medium-sized multinational companies. In particular, the pulp and paper industry is one of the most efficient sectors of the economy in the SR, with the potential to process better quality assortments than pulpwood, but at the cost of financial loss of primary producers.
- In domestic WPI absent mainly the production of wood products with high added value, namely veneer, plywood, OSB particleboard and fibreboard including MDF for the furniture industry.

In the chapter of the concept "Relationships within the vertical" is stated mainly:

- Despite the fact that there are relatively functional partnership relations within the vertical at the national level, currently there are not created adequate vertical and horizontal structures within which the negotiations between wood producers and its processors should be taken place e.g. on the supply of raw wood, prices, cooperation so as to strengthen the orientation towards new trends and innovations throughout the sector.
- In the forestry and timber sector, the existing supplier-customer contractual relations between primary production and the processing industry were significantly interrupted in the 1990s.
- At present, the production of raw wood and its processing are carried out separately and on market principles. This means that domestic raw material is often exported without further processing and, on the other hand, WPI imports raw material from abroad.
- This creates an imbalance in relations within the vertical, a sufficient increase in value added from own production is not achieved, the capacities of processing companies are not used and the negative balance of foreign trade increases due to the predominance of exports over imports.
- Mentioned insufficient infrastructure is underlined by the state of high technical and technological debt in both forestry and the WPI.
- From high timber exports (2.29 million m^3, or 30.5% of total timber felling in 2020) profit various trading companies and service providers in forestry (especially in timber felling and transportation), which export 80-90 % of the total volume of exported wood annually. Export is realized mainly due to no demand in the SR, resp. with the aim of higher monetization.
- In 2020, forest managers (owners) exported only 9.5% of the total volume of exported timber.
- The above facts cause lower sales and yields of producers of raw wood assortments with negative effects on their economic viability and competitiveness. It also results in a lower contribution of the whole sector to economic development and employment, including value added, taxes paid, social and health contributions to state budget.
- Within foreign trade, the negative is the trade surplus in goods with no or low added value, it means in the export of assortments of raw wood €85 million, lumber €134 million and waste paper €10 million. The negative trade balance for high value-added goods is also unfavourable, concretely veneers of €17 million (mainly veneer from hardwoods are imported) and secondary paper products €34 million.
- A positive fact is the trade surplus for products with high added value, such as the production of panels €31 million (we export plywood and particleboard, on the other hand we import OSB boards and fibreboard), paper production €150 million and secondary wood products in the amount of €319 million (we mainly export carpentry products, furniture and other wood products).

Prerequisites for development and stabilization of forestry and wood processing sector

- It is important for forestry to stabilize domestic wood production in conditions of climate change through adaptation measures, which are a prerequisite for maintaining timber growing stocks, vitality and forest growth.
- It will be necessary to vigorously implement the measures resulting from the prepared National Forest Programme of the SR (NFP SR) for the years 2021-2030 after its approval by the Government of the SR.
- The aim of the NFP SR measures is to increase the contribution of the forestry and timber sector to economic development and employment, to create higher added value, to improve environmental protection and to mitigate the effects of climate change.
- Estimated annual felling of raw wood at the level of 9 mil. m^3 by 2035, of which approximately 8 mil. m^3 in commercial forests (with a view to 10 years) presuppose sufficient raw timber for all branches of the WPI. Gradually, however, the structure of timber felling will change in favour of deciduous trees and subsequently (approximately after 2035) also the reduction of the current higher felling opportunities in the SR forests.
- Effective measures will be needed in the area of optimizing production and supply of timber assortments through its more effective utilization and increasing its domestic consumption.
- It will require the support of domestic entrepreneurs, respectively inflow of foreign capital, due to the need to expand processing capacity for available high-quality (especially hardwood) logs for the production of veneers, carpentry lumber and other products with higher added value.
- Particular attention will need to be paid to supporting the development of higher value-added sectors where the trade balance is negative.
- In sawmill production, it will be necessary to ensure the modernization of machinery and technology in order to increase the efficiency of production, and thus increase the competitiveness of sawmill operations.
- The implementation of these measures is conditioned by investments in technological modernization and applied research focused on innovations in the production, processing and use of wood with regard to its available volume and quality potential in the forests of the SR.
- The availability of official data on material flows of raw wood and wood products will also need to be improved. In some cases, such data do not exist at all due to incomplete statistical surveys, especially in the case of small enterprises (up to 20 employees), which are not subject to statistical surveys, or due to the non-existence of a marketing information system.

Financial support and incentives proposed for the vertical (million €)

Vertical	Part of the vertical	Period	
		2022-2027	2028-2035
Forestry and Timber processing	Timber production	217,2	238,9
	Timber processing	141	130
	Total	**358,2**	**368,9**

3 MARKET DRIVERS

Slovakia is an open economy and its development depends on demand in foreign markets, especially the EU markets. This fact was the reason also for economic growth in previous years up to 2019. Next development will depend on the post-COVID19 situation and in the development of demand in the markets of major trading partners. These factors will also affect the area of wood production and processing in Slovakia.

It will be needed to secure realization of relevant goals and measures above mentioned NFP SR. In particular to implement measures to increase the competitiveness of the wood processing sector, focusing mainly on the development of higher added value branches and those where there is a negative trade balance.

In order to achieve a higher quality and degree of finalization of wood processing, it is also necessary to provide support for investment in production technologies also from public sources.

Therefore, it is also necessary to encourage the domestic processing of raw wood and sawnwood; to reduce timber exports, in particular by increasing the capacities of the domestic wood processing industry, in particular in the field of high quality wood processing and improving the consumer-supply relations.

4 DEVELOPMENTS IN FOREST PRODUCTS MARKETS SECTORS

4.1 Wood raw materials

4.1.1 Timber supply

In 2020, forest enterprises supplied 7,448,000 m^3 of timber. Of this volume, 7,160,000 m^3 was supplied to a domestic market and, if in-house consumption of forest enterprises is included, 7,230,000 m^3. Compared to 2019, timber supply to a domestic market (including in-house consumption) was lower by 1,332,100 m^3, i. e. 15.5%, mainly due to COVID 19 pandemic, nature conservation restrictions and infavourable market for softwood.

Table 4.1
Log grade structure of softwood raw timber supply in 2020

Grade	Slovakia	Export	Own consumption	Total	Percentage of grades (%)
	Thousand m^3				
I grade logs	0,24	0,00	0,00	**0,24**	0,01
II grade logs	6,31	0,13	0,00	**6,44**	0,16
III grade logs	2 177,75	14,54	35,08	**2 227,37**	55,20
Paper-pulp & abrasive timber	0,00	0,00	0,00	**0,00**	0,00
Mining timber	1,79	5,25	0,00	**7,04**	0,17
Thin poles	14,11	0,00	0,14	**14,25**	0,35
Pulpwood	1 138,40	15,80	2,76	**1 156,97**	28,67
Energy wood	46,72	0,00	2,46	**49,19**	1,22
Fuelwood	201,00	2,05	6,76	**209,80**	5,20
Stumpage	237,73	15,31	3,84	**256,88**	6,37
Raw trunks	106,25	0,00	0,49	**106,74**	2,65
Total	**3 930,30**	**53,09**	**51,53**	**4 034,92**	100,00
Percentage (%)	97,4	1,3	1,3	100	-
State sector					
I and II grade logs	0,53	0,00	0,00	**0,53**	0,03
III grade logs	1 122,34	9,59	1,24	**1 133,17**	54,70
Pulpwood	714,43	7,77	0,45	**722,64**	34,88
Energy wood and fuelwood	88,99	0,00	3,53	**92,52**	4,47
Stumpage	65,49	0,06	0,01	**65,57**	3,16
Raw trunks	43,88	0,00	0,13	**44,01**	2,12
Other grades	8,08	5,25	0,02	**13,35**	0,64
Total of state sector	**2 043,73**	**22,67**	**5,38**	**2 071,78**	100,00
Percentage (%)	98,6	1,1	0,3	100	-
Non-state sector					
I and II grade logs	6,02	0,13	0,00	**6,16**	0,31
III grade logs	1 055,41	4,95	33,83	**1 094,20**	55,74
Pulpwood	423,97	8,04	2,32	**434,33**	22,12
Energy wood and fuelwood	158,73	2,05	5,70	**166,48**	8,48
Stumpage	172,24	15,25	3,83	**191,32**	9,75
Raw trunks	62,37	0,00	0,36	**62,73**	3,20
Other grades	7,81	0,00	0,12	**7,94**	0,40
Total of non-state sector	**1 886,57**	**30,42**	**46,15**	**1 963,14**	100,00
Percentage (%)	96,1	1,5	2,4	100	-

Table 4.2
Log grade structure of hardwood raw timber supply in 2020

Grade	Slovakia	Export	Own con-sumption	Total	Percentage of grades (%)
	Thousand m^3				
I grade logs	1,97	0,67	0,00	**2,64**	0,08
II grade logs	11,32	1,70	0,00	**13,02**	0,38
III grade logs	1 177,20	63,10	3,68	**1 243,99**	36,45
Mining timber	4,23	0,16	0,00	**4,39**	0,13
Thin poles	0,20	0,00	0,48	**0,67**	0,02
Pulpwood	1 728,40	97,02	2,10	**1 827,52**	53,55
Energy wood	42,20	0,00	5,63	**47,84**	1,40
Fuelwood	213,29	1,33	2,29	**216,90**	6,36
Stumpage	44,64	1,08	0,83	**46,56**	1,36
Raw trunks	7,72	0,00	1,69	**9,41**	0,28
Total	**3 231,17**	**165,06**	**16,71**	**3 412,94**	100
Percentage (%)	94,7	4,8	0,5	100	-
State sector					
I and II grade logs	3,94	1,51	0,00	**5,45**	0,25
III grade logs	947,67	46,77	3,54	**997,98**	46,16
Pulpwood	963,92	37,68	0,77	**1 002,37**	46,36
Energy wood and fuelwood	121,53	0,17	7,13	**128,83**	5,96
Stumpage	21,51	0,36	0,00	**21,87**	1,01
Raw trunks	0,53	0,00	0,09	**0,62**	0,03
Other grades	4,43	0,16	0,46	**5,05**	0,23
Total of state sector	**2 063,53**	**86,65**	**12,00**	**2 162,17**	100
Percentage (%)	95,4	4,0	0,6	100	-
Non-state sector					
I and II grade logs	9,35	0,86	0,00	**10,21**	0,82
III grade logs	229,53	16,33	0,14	**246,01**	19,67
Pulpwood	764,48	59,34	1,33	**825,15**	65,97
Energy wood and fuelwood	133,96	1,15	0,79	**135,91**	10,87
Stumpage	23,13	0,72	0,83	**24,69**	1,97
Raw trunks	7,19	0,00	1,61	**8,80**	0,70
Other grades	0,00	0,00	0,01	**0,01**	0,00
Total of non-state sector	**1 167,65**	**78,41**	**4,71**	**1 250,77**	100
Percentage (%)	93,4	6,3	0,4	100	-

Table 4.3
Structure of supply by softwood and hardwood assortments and total in 2020 (thousand m^3)

Supply	Slovakia	Export	Own con-sumption	Total
Softwood	3 930,30	53,09	51,53	4 034,92
Hardwood	3 231,17	165,06	16,71	3 412,94
Total	**7 161,47**	**218,15**	**68,24**	**7 447,86**

More detailed data on timber supply are given in Tables 4.1 – 4.3 and Figures 4.1 – 4.4.

Table 4.1
Structure of supply by softwood and hardwood assortments and total in 2020 (thousand m³)

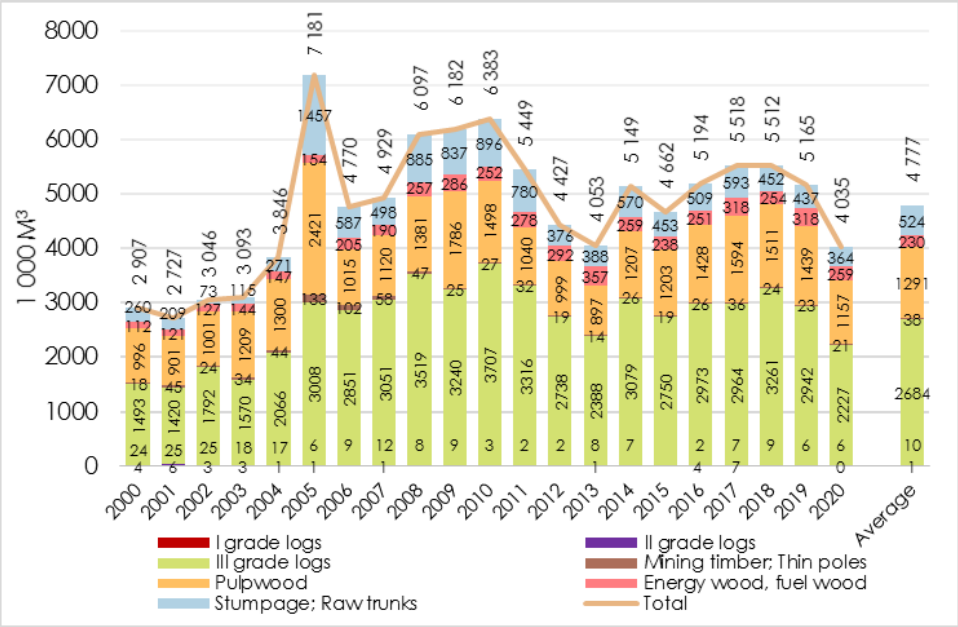


Figure 4.2
Development of domestic supplies of softwood by the grade of assortment without own consumption and export (%)

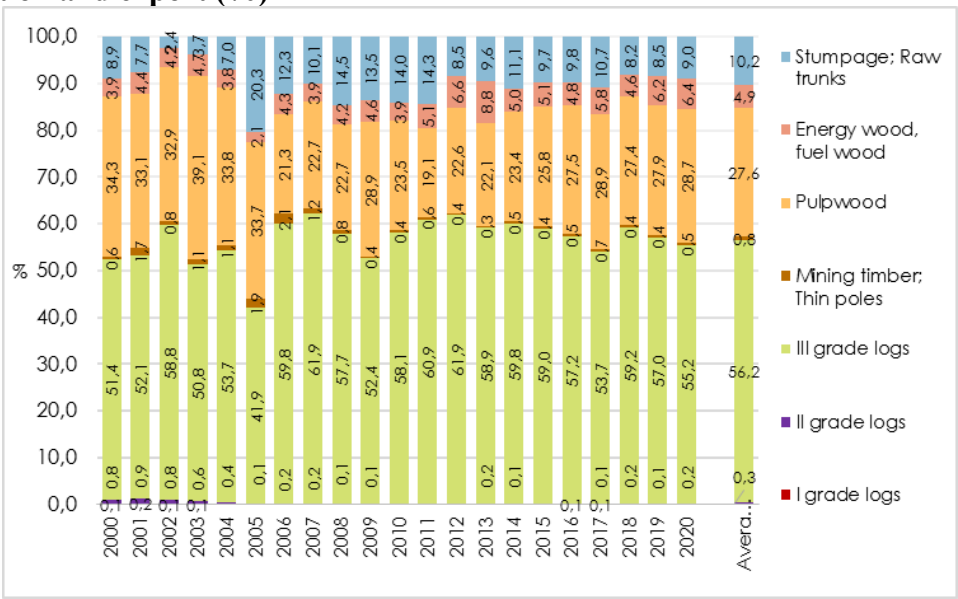


Figure 4.3
Development of domestic supplies of hardwood by the grade of assortment without own consumption and export (thousand m³)

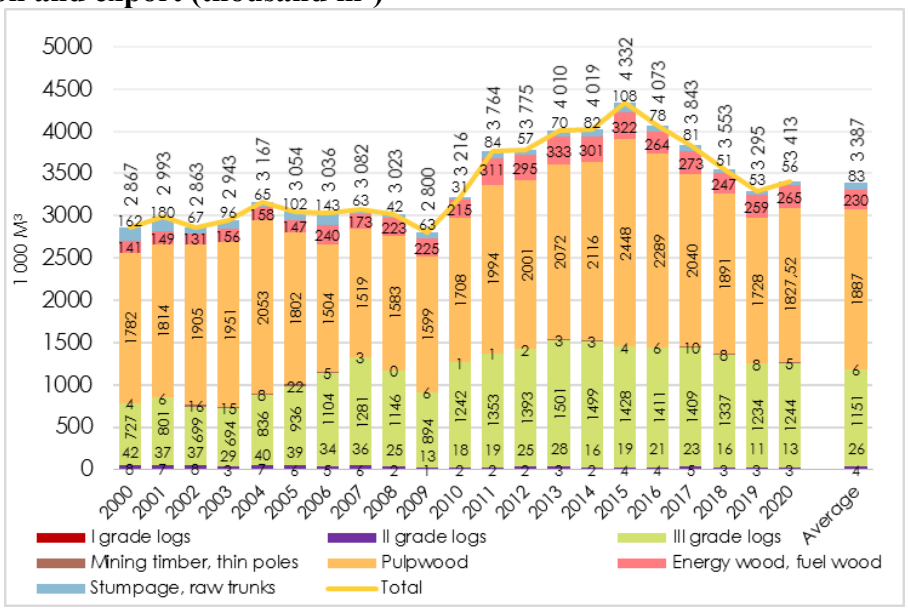
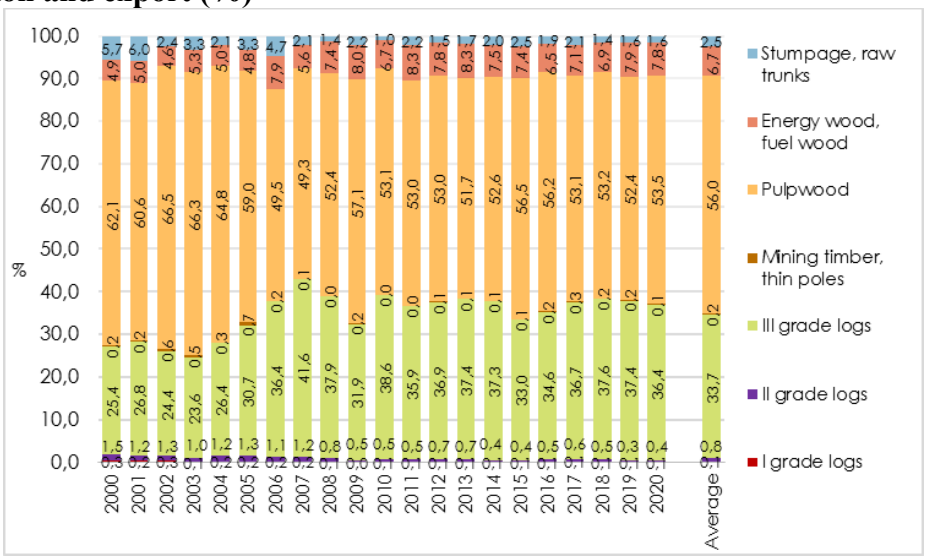


Figure 4.4
Development of domestic supplies of hardwood by the grade of assortment without own consumption and export (%)



Foreign timber trade and timber prices

Out of the above volume, 2,290,000 m^3 were exported, of which 2,070,000 through various Slovak non-forestry bodies and trading companies, while forest managers exported just 220,000 m^3 (9.6%). In 2020, 2 million m^3 of raw timber were imported that was 0.38 million m^3 more than in 2019 (Figure 4.5). The import of higher-quality timber (I-III log grades) continued increasing and reached 1.28 million m^3 (Figure 4.6). In 2020, average earnings from timber decreased by 2.79 €/m^3, reaching thus 44.68 €/m^3, due to a decrease in prices of both hardwood and softwood (Figure 4.7).

Figure 4.5
Development of timber export (thousand m^3)

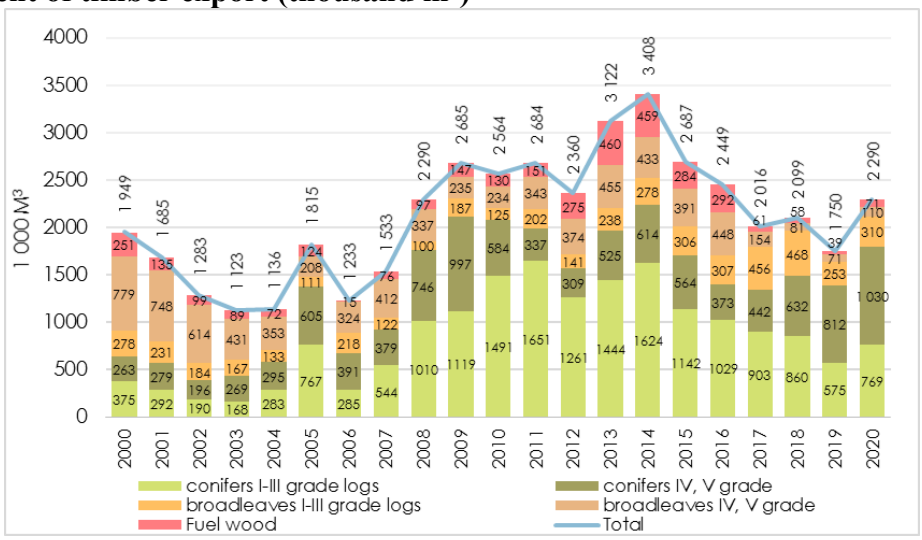


Figure 4.6
Development of timber import (thousand m^3)

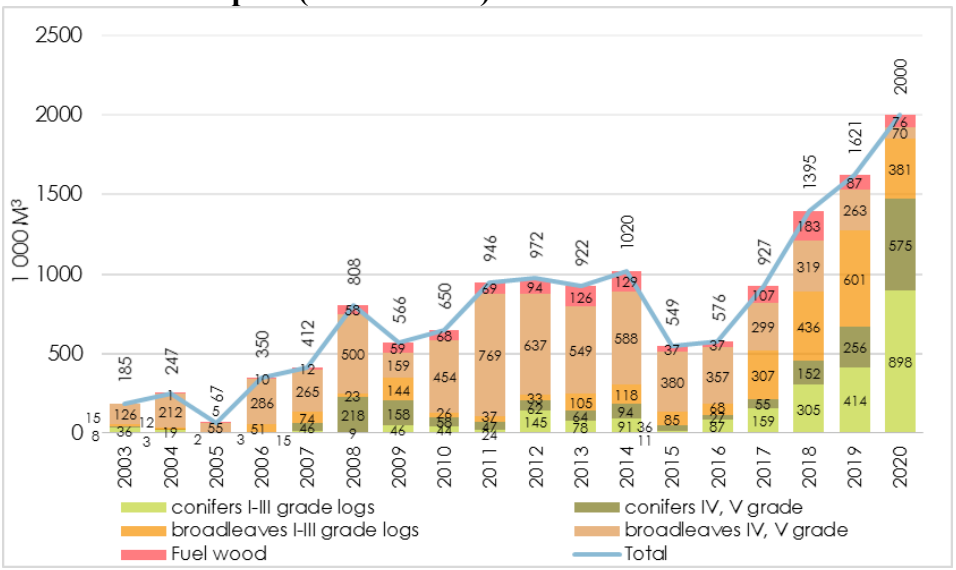


Figure 4.8 presents the comparison of European countries regarding timber supply and earnings from timber per one hectare of forest. The highest timber supplies (as a 5-years average of 2013-2017) were recorded in the Czech Republic (6.3 m^3/ha), while the highest earnings were reported from Germany (360.2 €/ha). The Slovak Republic with 4.7 m^3/ha and earnings of 219.6 €/ha was the fifth among the reporting countries.

Figure 4.7
Development of softwood, hardwood and average prices in forestry of the SR

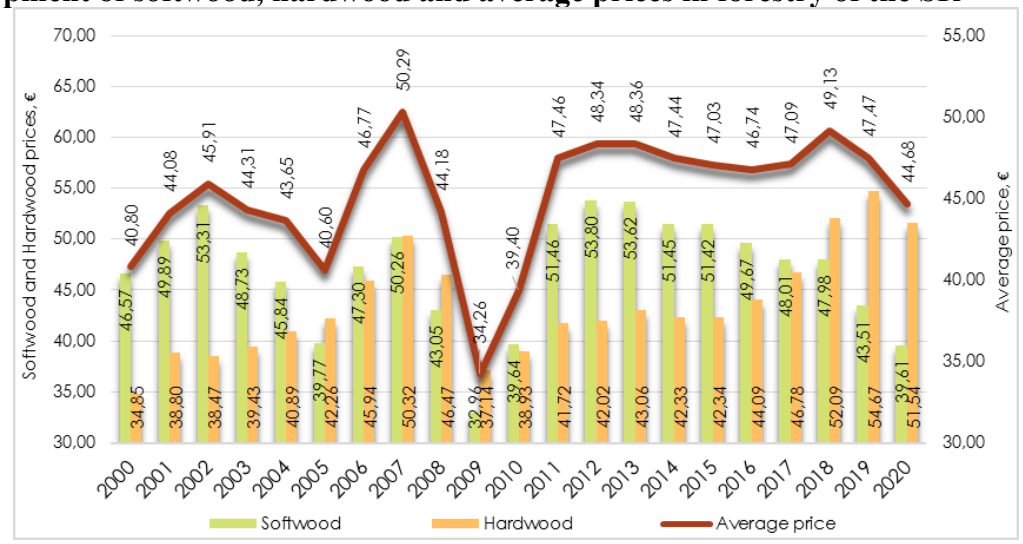
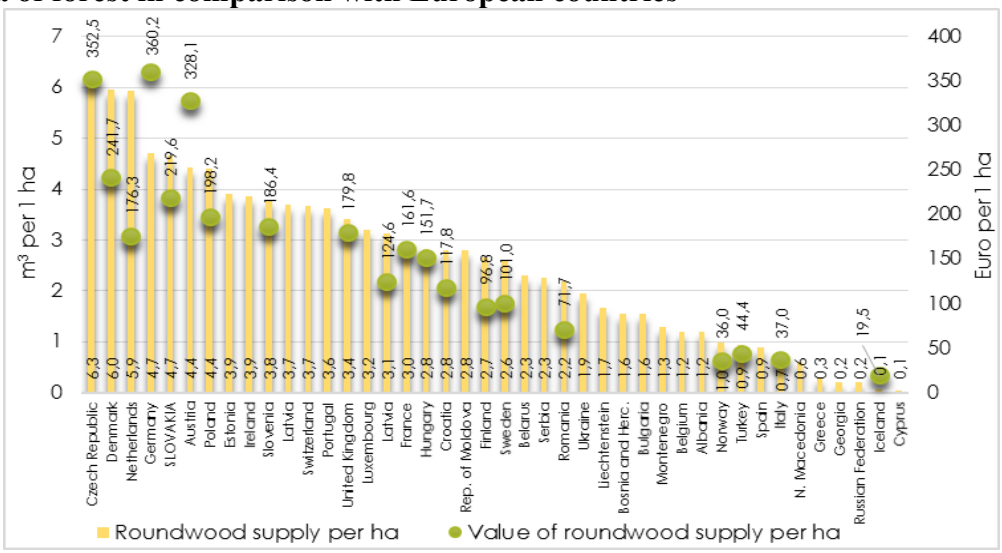
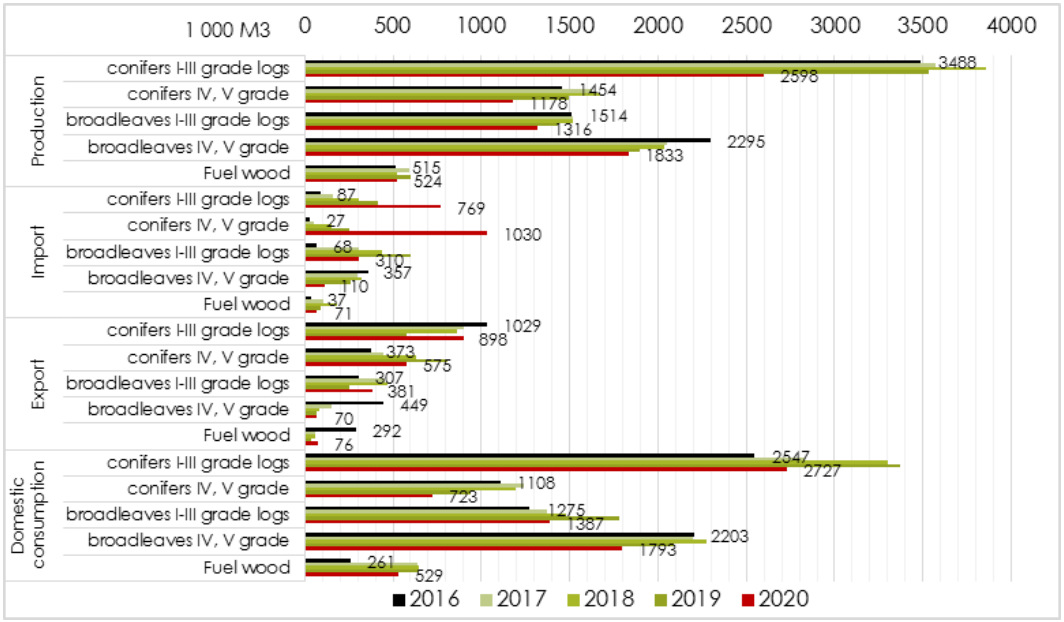


Figure 4.8 Position of Slovakia in annual volume of wood supplies and its monetization per 1 ha of forest in comparison with European countries



Total volume of domestic timber consumption, i.e. domestic processing of raw timber (supplies + imports - exports) reached 7,157,900 m^3 in 2020 (Figure 4.9). Compared to the previous year, it decreased significantly by 1,671,000 m^3, i.e. 18.9%. The trend of gradual increase in domestic consumption of more valuable softwood and hardwood quality grades (I to III), observed since 2016, also stopped last year. A further decline in timber felling combined with almost unchanged production of wood products in the timber industry will result in a shortage of raw timber and increased earnings in the coming years.

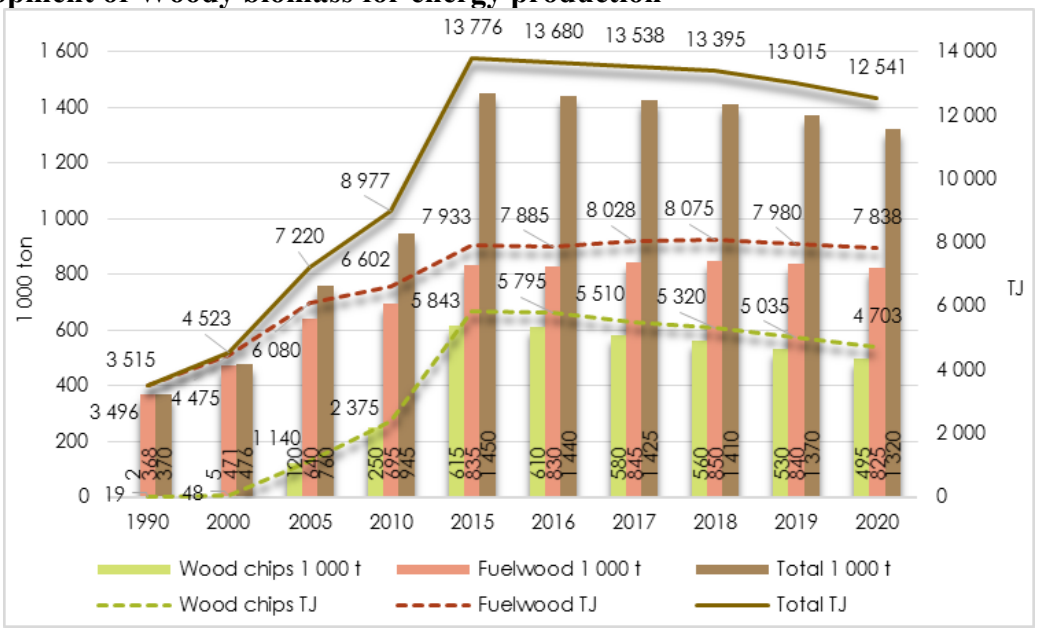
Figure 4.9
Domestic consumption of raw timber by quality grade groups (1000 m³)



4.1.2 Wood energy, with a focus on government policies promoting wood energy

In 2020, the total supply of fuelwood biomass from forest sector reached 1.32 million tonnes. The total consumption of solid fuelwood biomass reached 2.85 million tonnes in 2020.

Figure 4.10
Development of Woody biomass for energy production



4.1.3 Certified forest products

In 2020, 1,291,000 ha of forest, or 66.2% of the total forest-land area has been certified in Slovakia, of which the PEFC certified forests represented 1,225,000 ha and the FSC certified forests 305,000 ha. Forests on the area of 240,000 ha were both PEFC and FSC certified.

Table 4.4
Area and share of certified forests by PEFC and FSC

Forest certification schemes	Area and share of certified forests (ha / %)				
	Certification by one scheme	Doubled certification (both PEFC and FSC)	Total	Share of the forest area	Number of issued certificates
PEFC	985 369	239 869	1 225 238	62,78	271
FSC	65 939		305 808	15,70	16
Total	1 051 308	239 869	1 291 177	66,16	287

Source: PEFC Slovensko, 2021; FSC: https://fsc.org/en/facts-figures (17. 03. 2021)

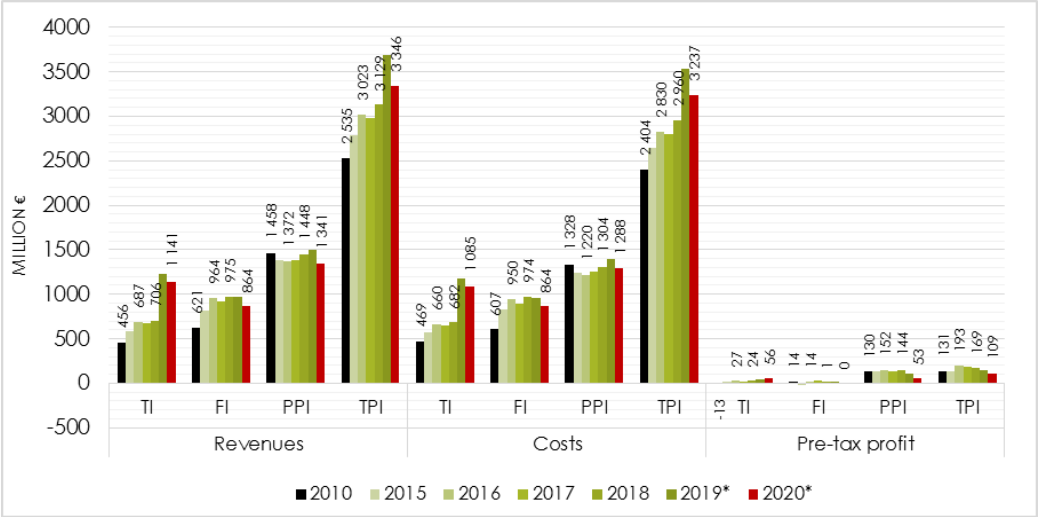
Table 4.5
Area and share of forest certified by PEFC according to forest users/managers

Kind of forest users / managers	Forest area (ha)		Share of PEFC certified forests (%)		Number of certificates
	Forest area used/managed	Of that certified by PEFC	Within the user	According to the users	
State	993 390,5	992 000	99,86	80,96	148
Private	167 715,3	43 295	25,81	3,53	44
Community	602 216,7	73 843	12,26	6,03	48
Church	16 877,9	0	0,00	0,00	0
Agri-cooperative	7 275,9	0	0,00	0,00	0
Municipal	164 016,5	116 100	70,79	9,48	31
Total PEFC	1 951 493	1 225 238	62,78	100,00	271

4.1.4 Timber processing industry

The decrease in domestic processing of raw timber (7.157 million m^3) by 1.671 million m^3, compared to the previous year, was reflected in the decline in economic indicators of the timber-processing sector. Revenues decreased by 9.2%, expenses by 8.5% and profit before tax by 26.8% to €109 million. Employment decreased by 8.9%.

Figure 4.11
Selected sectoral economic parameters



*Source: Ministry of Economy of SR 2010, SO SR 2014 -2020 (Record Prod 3-04 and Prod 13-04); *) 2020 data is preliminary and 2019-2020 data includes also statistical Prod 13-04 data for small enterprises.*
Note: TI - Timber industry, PPI - Pulp and paper industry, FI - Furniture-making industry, TPI - Timber processing industry. Figures are given for the years 2010, 2016, 2018 and 2020.

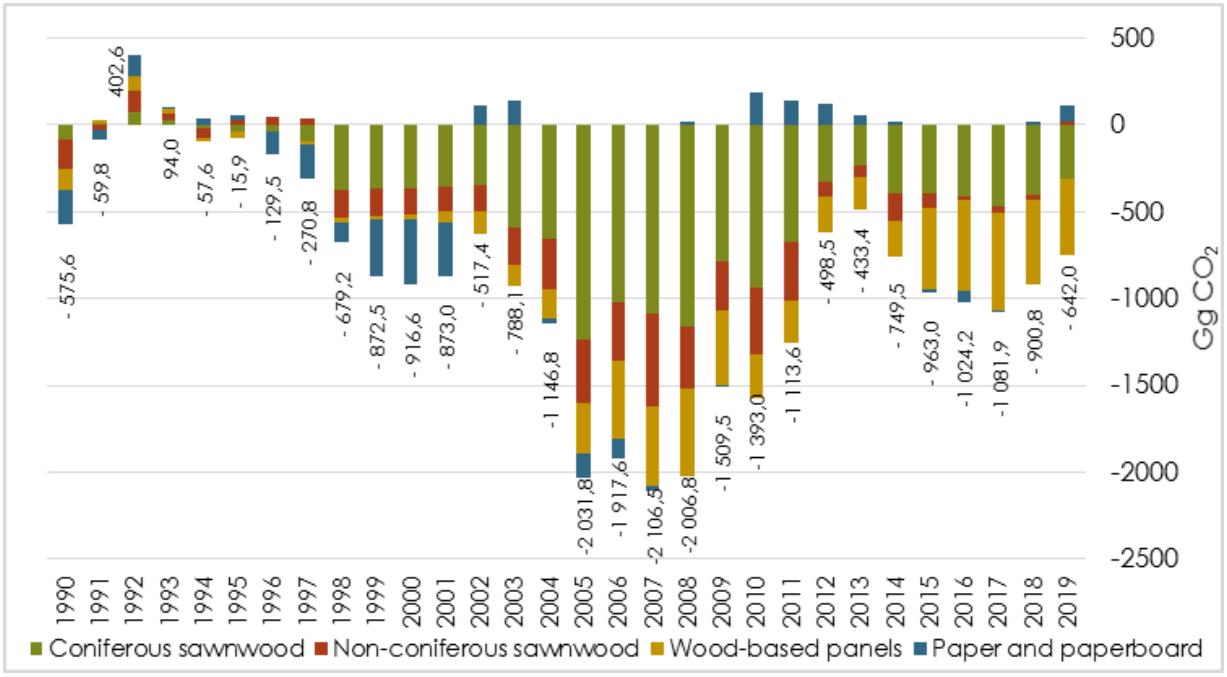
In 2020, there was no significant increase in the competitiveness of the majority of mechanical timber processing companies. Due to the lack of processing capacities, very little of the highest quality logs of I-II grade and hardwood logs of III grade is actually processed in Slovakia despite a high potential of Slovak forests to produce these grades. There is a continuing demand in Slovakia for softwood round wood and hardwood pulp. On the other hand, the pulp and paper industry belongs to one of the best performing industries of the Slovak economy.

The actual trade balance of the forest and timber sector reached a surplus of €745.3 million. The trade surplus of €84.96 million in raw timber export and €134.29 million in sawn timber export can be considered negative. On the other hand, the trade surplus in products with high added value, such as in panels (€31.26 million), paper (€150.15 million) and secondary wood products including furniture and carpentry products (€318.87 million) is a positive aspect. The support to the development of industries higher value-added with a negative trade balance, in particular the production of veneers, fibreboard and oriented strand board (OSB), secondary paper products and the processing of waste paper is considered the main priority.

An important environmental aspect of timber production and its use is the fact that timber and wood products, especially those with a long lifespan, are able to sequester CO_2 for decades. Increasing the amount of carbon stored in timber and wood products is an internationally widely recognised measure to mitigate climate change. Therefore, it is important and desirable to use timber and wood for the widest possible range of purposes and for as long as possible in a variety of products. Carbon from wood is released back into the atmosphere only when products become waste or fuel. In 2019, 2.751 million tonnes of CO_2 was stored in timber and wood

products. At the same time, 2.108 million tonnes of CO_2 was released into the atmosphere from obsolete timber and wood products no longer in use. The overall balance is thus positive as the volume of CO_2 bound in timber and wood products has increased by 0.642 million tonnes.

Figure 4.12
Balance of mass of „capture“ and „emissions“ of CO2 (in Gg CO2 eq.) in main categories of wood and timber products



Source: Forestry Case Studies 69/2019. Note: „Capture“ represents CO_2 bound in wood and timber products with a delayed release into the atmosphere with a negative value in the balance; „emissions“ represent volumes of CO_2 released into the atmosphere from used up wood and timber products with a positive value in the balance.

Actual domestic consumption, its estimate and forecast in 2021 and 2022 for sawnwood, wood-based panels, pulp and paper are listed in Table 4.6

Table 4.6

Sawnwood – coniferous					
		2019	**2020**	**2021 estimate**	**2022 forecast**
5.C	Production	1 263	1 182	1 000	1 050
	Imports	292	352	400	400
	Exports	847	959	750	750
	Apparent consumption	708	576	650	700
Sawnwood – non-coniferous					
		2019	**2020**	**2021 estimate**	**2022 forecast**
5.N.C	Production	390	340	350	400
	Imports	50	165	150	150
	Exports	126	116	100	125
	Apparent consumption	314	389	400	425
Veneer sheets					
		2019	**2020**	**2021 estimate**	**2022 forecast**
7	Production	18	21	20	20
	Imports	19	19	20	20
	Exports	10	17	15	15
	Apparent consumption	26	22	25	25
Plywood					
		2019	**2020**	**2021 estimate**	**2022 forecast**
8.1	Production	453	417	425	425
	Imports	71	67	75	75
	Exports	129	120	120	120
	Apparent consumption	395	364	380	380
Particle board					
		2019	**2020**	**2021 estimate**	**2022 forecast**
8.2	Production	652	598	625	625
	Imports	237	237	200	200
	Exports	638	507	500	500
	Apparent consumption	251	329	325	325
Fibreboard					
		2019	**2020**	**2021 estimate**	**2022 forecast**
8.3	Production	0	0	0	0
	Imports	220	224	225	225
	Exports	22	23	25	25
	Apparent consumption	198	201	200	200
Wood pulp					
		2019	**2020**	**2021 estimate**	**2022 forecast**
9	Production	653	687	675	675
	Imports	159	162	175	175
	Exports	230	312	300	300
	Apparent consumption	582	537	550	550
Paper & Paperboard					
		2019	**2020**	**2021 estimate**	**2022 forecast**
12	Production	806	758	900	950
	Imports	434	427	400	400
	Exports	649	709	700	750
	Apparent consumption	591	476	600	600

5 STATE AND DEVELOPMENT IN WOOD RAW PRODUCTION POTENTIAL IN SLOVAKIA

The area of forests growing on forest land in Slovakia in 2020 was 1,951.5 thousand ha. In addition to forests on forest land there is about 288±39 thousand ha of forests on the non-forest land (agricultural, other) that were identified within the National Forest Inventory and Monitoring (NFIM) of the SR 2015-2016. The forest cover in Slovakia including forests on non-forest land is more than 45.7±0.9%. The volume of growing stock according to the data of Forest Management Plans was 484.5 mill. m^3 in 2020. The volume of growing stock has been increasing in the long term – as compared to 2000 and 2010 it has increased by 18.2% and 4.9% respectively in 2020 (Figure 5.1). The main reason for this increase is the current uneven age composition of forests with over-normal share of forests older than 70 years (age classes: 8th and higher). The present increasing trend is caused mainly by the development of growing stock of broadleaved tree species volume of which is still rising. The volume of coniferous growing stock has been decreasing since about 2010 (Figure 5.1). Volume of growing stock by age classes and tree species is depicted in Figure 5.2 and by age classes and forest categories in Figure 5.3. Development of growing stock by age classes since 1980 is depicted in Figure 5.4.

Figure 5.1
Total growing stock by groups of tree species (conifers, broadleaves)

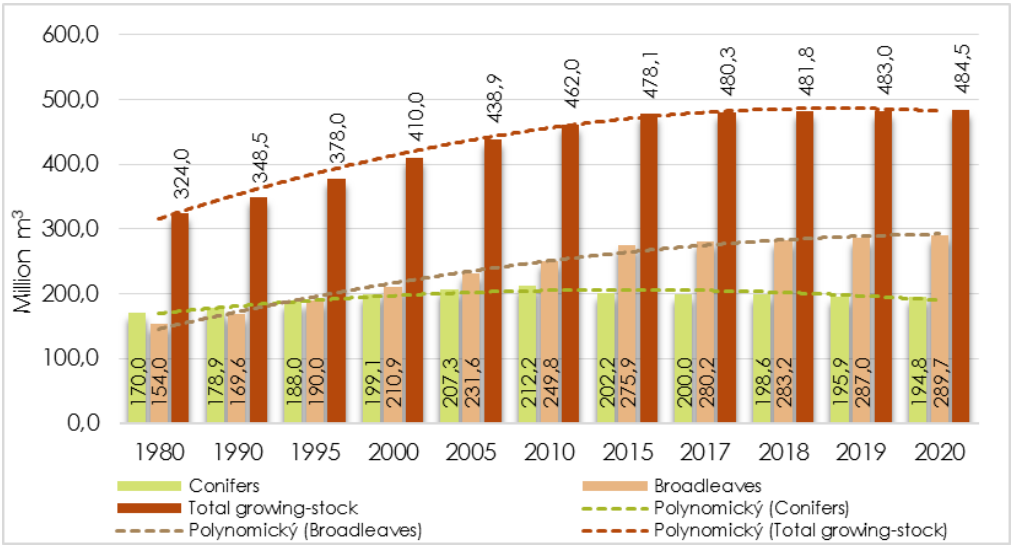


Figure 5.2
Volume of growing stock in all forests (commercial, protection and special purpose) by age classes and tree species (2020)

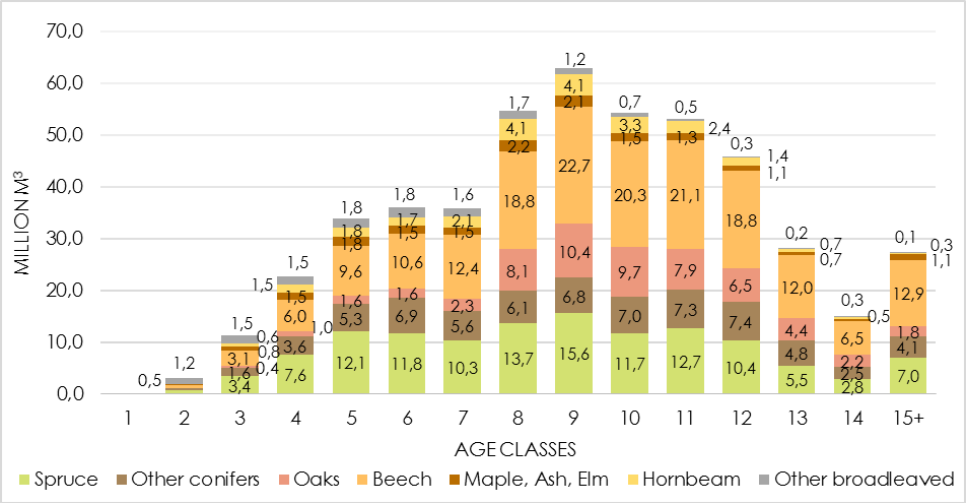


Figure 5.3
Volume of growing stock by forest categories and age classes (2020)

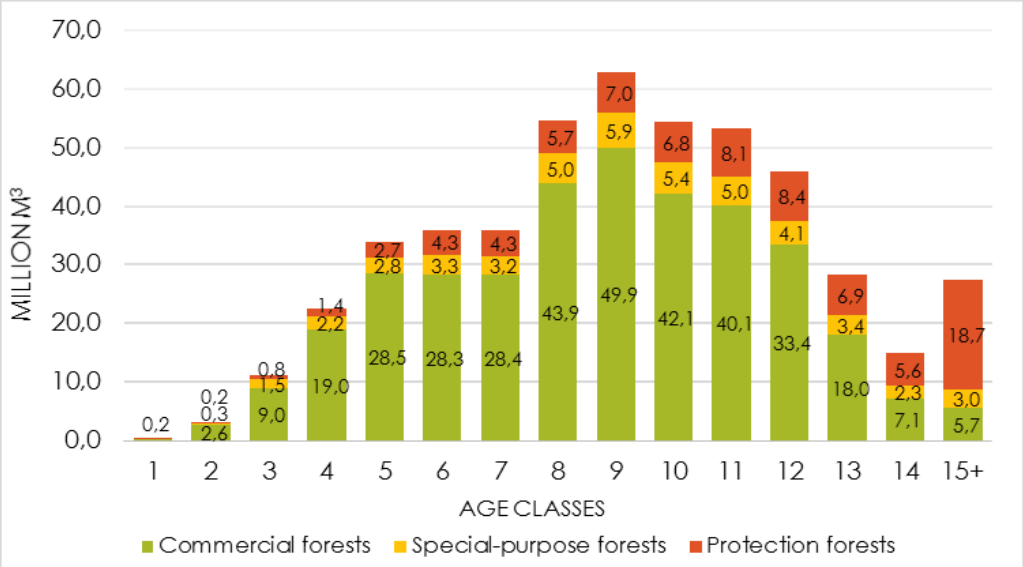


Figure 5.4
Development of growing stock by age classes since 1980

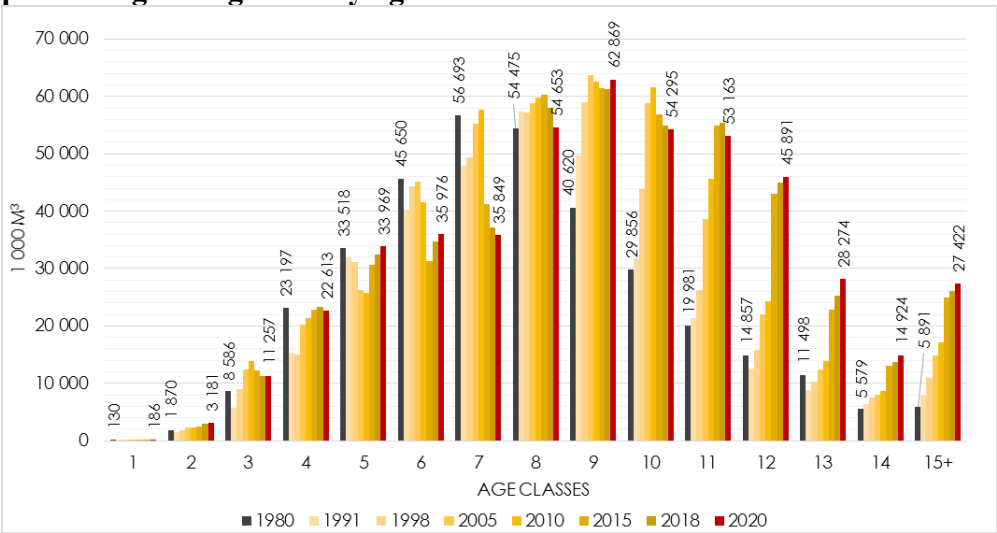
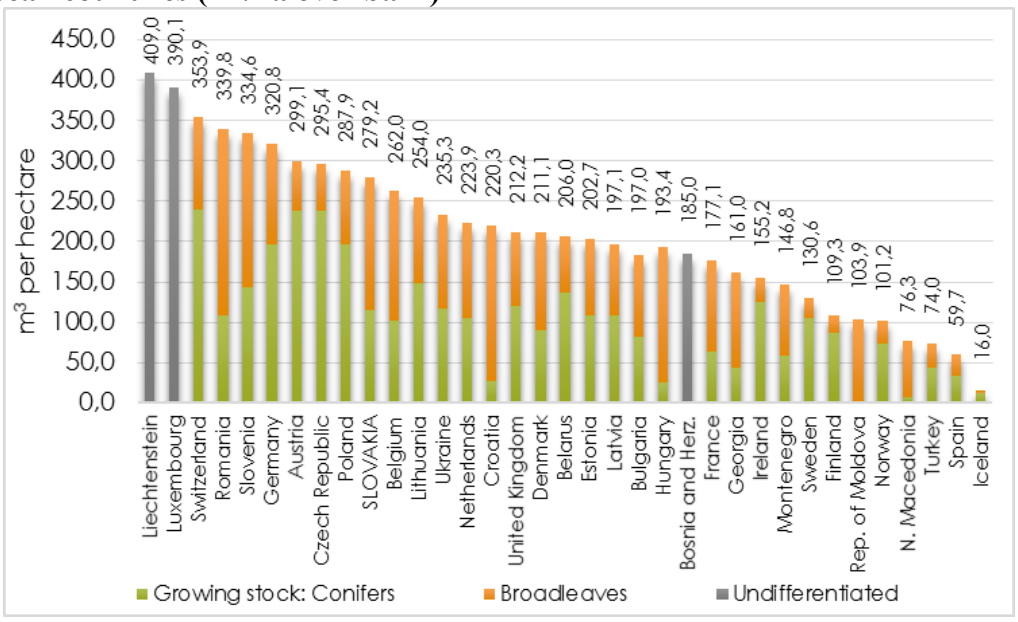


Figure 5.5
Position of Slovakia in volume of growing stock over bark per ha among other European countries (m³/ha over bark)



Source: Self-processing from the Report on the State of Europe's Forests 2020

Due to the current state and development of forests in Slovakia we can observe some important facts:

1) gradual increase of planned felling (blue columns in the Figure 5.6) mainly because of the current uneven age composition;
2) permanently higher volume of actual felling (green columns) till 2010 as compared with the planned felling mainly because of high volume of incidental felling (red columns);
3) lower volume of actual total felling as compared to the volume of total current increment (green line) (Figure 5.6).

Figure 5.6
Trends in timber felling compared to the „total current increment“ (TCI)

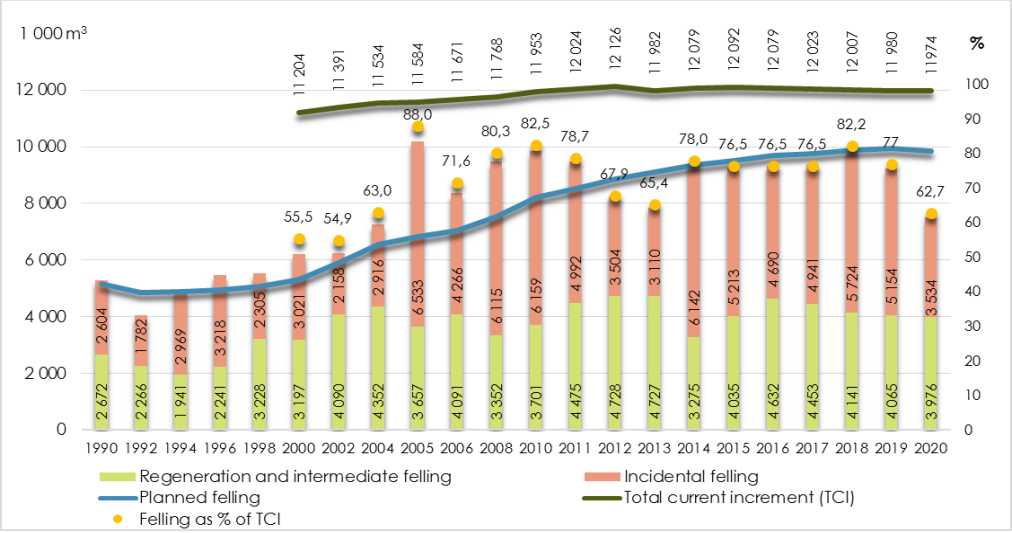
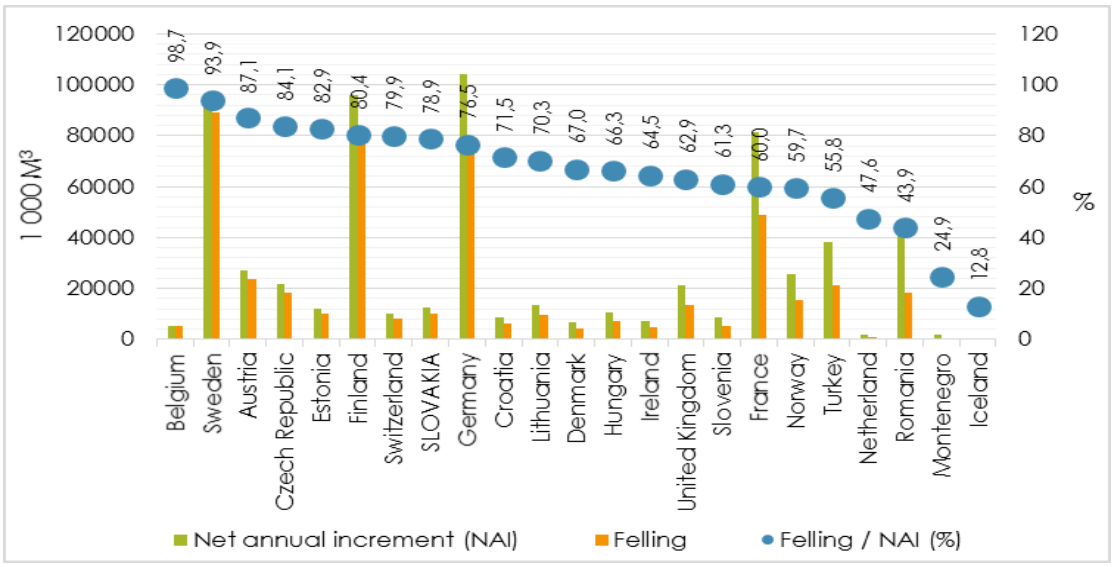


Figure 5.7 shows the comparison of annual felling and net annual increment in forests of European countries. Figures were calculated as a 5-year average (2014-2018) for forests available for wood supply. With the share of the timber felling in the increment of 78.9%, the Slovak Republic was eighth amongst 23 European countries that reported on this indicator. Our “felling intensity” is comparable to the countries as Germany (76.5%) and Switzerland, much lower than in the Czech Republic (84.1%), Austria (87.1%), Sweden (93.9%), Finland (80.4%), Estonia (82.9%) and Belgium (98.7%).

Figure 5.7
Position of Slovakia in ratio of felling to the Net Annual Increment among other European countries



Source: Self-processing from the Report on the State of Europe's Forests 2020

Forests are an important part of the landscape also due to their carbon sequestration potential. They significantly contribute to the reduction of total emissions of greenhouse gases, especially carbon dioxide, in the atmosphere. The increase of growing stock and forest land area also supports the increase of carbon sequestration in forests. In 2020, the total volume of carbon stock in Slovak forests reached 507.79 million tonnes (0.64 million more than in 2019), with the largest amount captured in soils (270.5 million tonnes) and above-ground tree biomass (164.21 million tonnes). The total carbon stock in forests increased by 3.2% compared to 2010, by 9.3% compared to 2000 and by 17.1% compared to 1990.

Volumes of carbon stock in tons per hectare and deadwood stock in m^3 per hectare in European countries are depicted in Figures 5.8 and 5.9.

Figure 5.8 Position of Slovakia in volume of carbon stored in forests among other European countries (tons/ha)

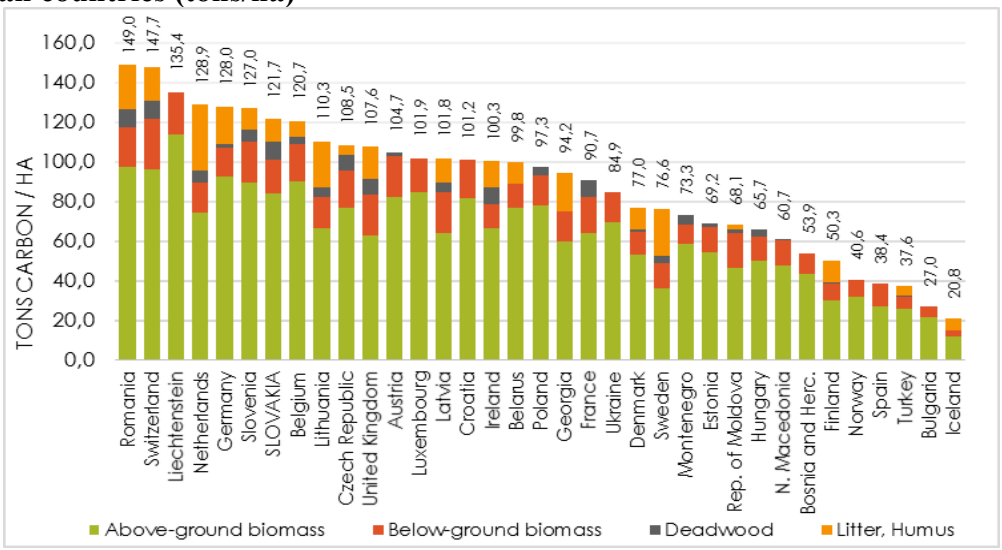
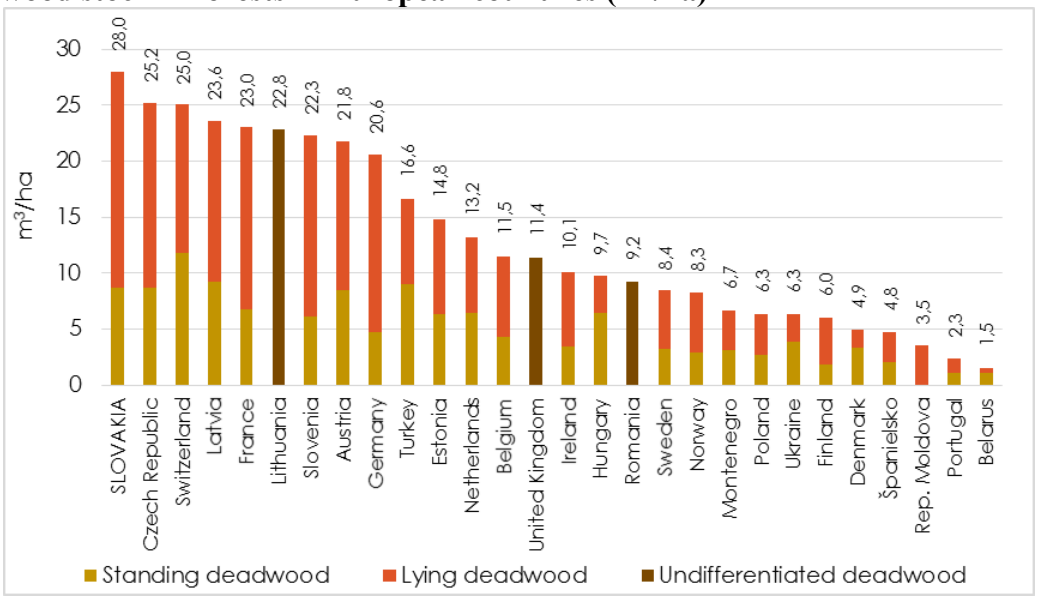


Figure 5.9
Deadwood stock in forests in European countries (m^3/ha)



In production forest of the SR, the potential (planned) average annual regeneration felling, calculated using the selected legally standardised methods, is 6.412 million m^3. With the average planned annual intermediate felling (1.563 million m^3), the actual annual felling opportunities in production forests (for the next 10 years) are 7.975 million m^3. The picture 5-10 shows that the potential for regeneration felling is higher in non-state forests (3.348 million m^3), while in forests managed by state companies (50.9% of the total forest stand area) it is just 3.063 million m^3 (47.8% of the total volume). This apply to both conifers and broadleaves (softwood and hardwood).

Figure 5.10 Prognosis of regeneration felling for ten years by different indicators divided by main groups of tree species (conifers, broadleaves) and forest management (state, non-state)

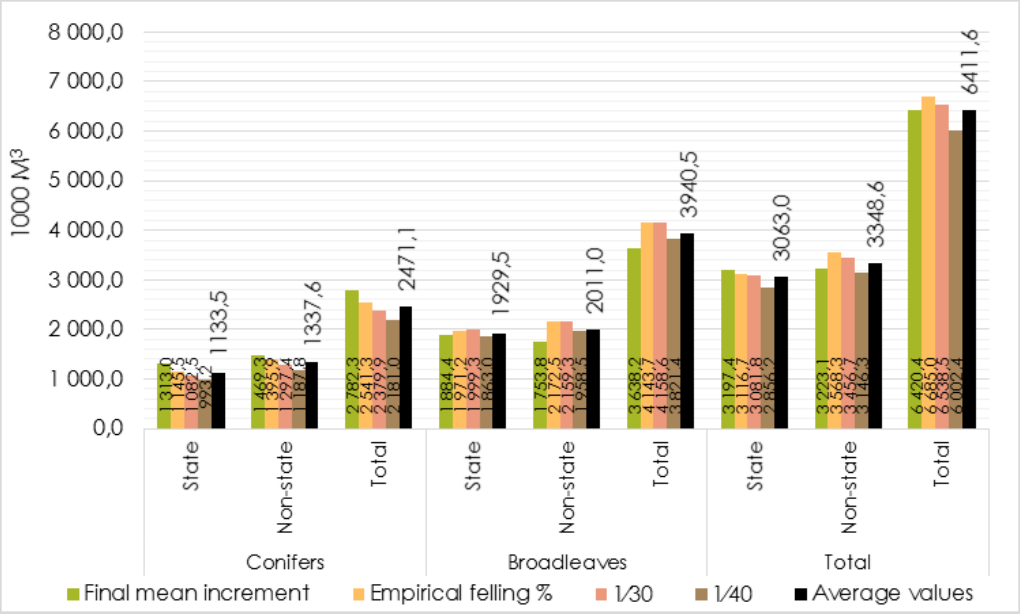
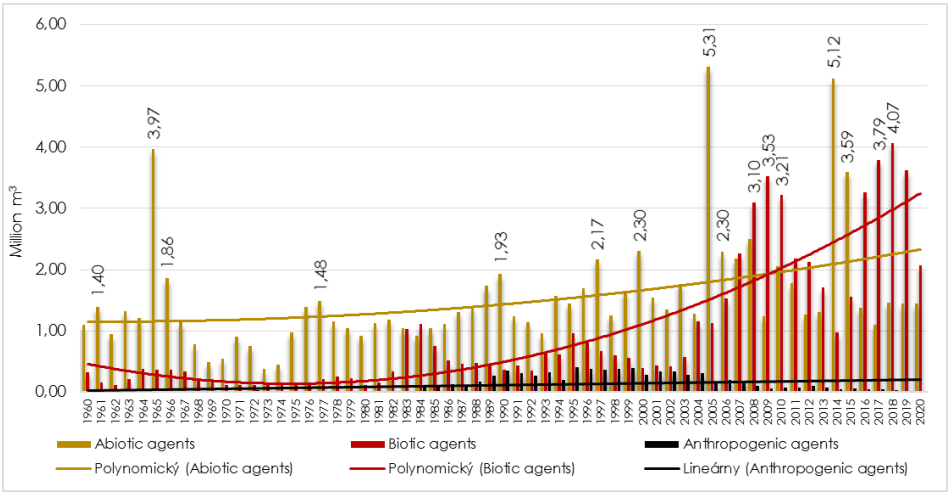


Figure 5.11 illustrates the development of incidental fellings in Slovakia since 1960, broken down by groups of damaging agents that clearly demonstrates high frequency and intensity of damaging agents to which are forests exposed over the last 15-20 years.

It can be seen from the figure that if the wood damaged by abiotic damaging agents, in particular wind, is not thoroughly removed and the forest hygiene is not achieved, it will inevitably result in the damage caused by biotic damaging agents, in particular insects.

Figure 5.11
Development of the incidental fellings (million m³) according to main groups of damaging agents



Source: National Forest Centre; Forest Protection Service, 2020

Report elaborated by: Martin Moravčík and Miroslav Kovalčík
National Forest Centre – Forest Research Institute, Zvolen, Slovakia

UNECE

TF1

TIMBER FORECAST QUESTIONNAIRE

Roundwood

Country:	**Slovakia**	**Date:**	**9.8.2021**
Name of Official responsible for reply:	Martin Moravčík		
Official Address (in full):	National Forest Centre, T.G. Masaryka 22, Zvolen		
Telephone:	**+421455314180**	**Fax:**	
E-mail:	martin.moravcik@nlcsk.org		

Note: Complete only if data for 2020 have been revised.

Product Code	Product	Unit	Historical data		Revised	Estimate	Forecast
			2019	2020	2020	2021	2022
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS						
	Removals	1000 m^3 ub	3 535	2 598	2 598	2 700	2 750
	Imports	1000 m^3 ub	414 #	450 #	898	900	900
	Exports	1000 m^3 ub	575 #	500 #	769	400	400
	Apparent consumption	1000 m^3 ub	3 374	2 548	2 727	3 200	3 250
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS						
	Removals	1000 m^3 ub	1 432	1 316	1 316	1 400	1 500
	Imports	1000 m^3 ub	601 #	500 #	381	400	400
	Exports	1000 m^3 ub	253 #	450 #	310	300	300
	Apparent consumption	1000 m^3 ub	1 780	1 366	1 387	1 500	1 600
1.2.1.NC.T	of which, tropical logs						
	Imports	1000 m^3 ub	0 #	0 #		0	0
	Exports	1000 m^3 ub	0 #	0 #		0	0
	Net Trade	1000 m^3 ub	0	0		0	0
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS						
	Removals	1000 m^3 ub	1 462	1 157	1 157	1 200	1 250
	Imports	1000 m^3 ub	256 #	300 #	575	500	500
	Exports	1000 m^3 ub	812 #	700 #	1 030	800	800
	Apparent consumption	1000 m^3 ub	906	757	702	900	950
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS						
	Removals	1000 m^3 ub	1 890	1 828	1 828	1 850	1 900
	Imports	1000 m^3 ub	263 #	300 #	70	150	200
	Exports	1000 m^3 ub	71 #	100 #	110	100	100
	Apparent consumption	1000 m^3 ub	2 082	2 028	1 788	1 900	2 000
3	WOOD CHIPS, PARTICLES AND RESIDUES						
	Domestic supply	1000 m^3	1 270 C	1 135 C		1 150	1 200
	Imports	1000 m^3	316 C	361 C		350	350
	Exports	1000 m^3	474 C	514 C		500	500
	Apparent consumption	1000 m^3	1 112	982		1 000	1 050
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS						
	Removals	1000 m^3 ub	31	21		25	25
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS						
	Removals	1000 m^3 ub	8	5		10	10
1.1.C	WOOD FUEL, CONIFEROUS						
	Removals	1000 m^3 ub	329	259		250	300
1.1.NC	WOOD FUEL, NON-CONIFEROUS						
	Removals	1000 m^3 ub	271	265		275	275

Please return (preferably by e-mail) to Timber Section no later than 15 October 2021.

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

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

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

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

UNECE

TF2

TIMBER FORECAST QUESTIONNAIRE

Forest products

Country:	Slovakia
Date:	9.8.2021
Name of Official responsible for reply:	Martin Moravčík
Official Address (in full):	National Forest Centre, T.G. Masaryka 22, Zvolen
Telephone:	+421455314180
Fax:	
E-mail:	martin.moravcik@nlcsk.org

Note: Complete only if data for 2020 have been revised.

Product Code	Product	Unit	Historical data 2019	Historical data 2020	Revised 2020	Estimate 2021	Forecast 2022
6.C	SAWNWOOD, CONIFEROUS						
	Production	1000 m³	1 263	1 182		1 000	1 050
	Imports	1000 m³	292	352		400	400
	Exports	1000 m³	847	959		750	750
	Apparent consumption	1000 m³	708	576		650	700
6.NC	SAWNWOOD, NON-CONIFEROUS						
	Production	1000 m³	390	340	340	350	400
	Imports	1000 m³	50 E	45 E	165	150	150
	Exports	1000 m³	126	116	116	100	125
	Apparent consumption	1000 m³	314	269	389	400	425
6.NC.T	of which, tropical sawnwood						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	0	0		3	3
	Exports	1000 m³	0	0		0	0
	Apparent consumption	1000 m³	0	0		3	3
7	VENEER SHEETS						
	Production	1000 m³	18 C	21 C		20	20
	Imports	1000 m³	19 C	19 C		20	20
	Exports	1000 m³	10 C	17 C		15	15
	Apparent consumption	1000 m³	26	22		25	25
7.NC.T	of which, tropical veneer sheets						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	5	4		4	4
	Exports	1000 m³	0	1		1	1
	Apparent consumption	1000 m³	4	3		3	3
8.1	PLYWOOD						
	Production	1000 m³	453 C	417 C		425	425
	Imports	1000 m³	71 C	67 C		75	75
	Exports	1000 m³	129 C	120 C		120	120
	Apparent consumption	1000 m³	395	364		380	380
8.1.NC.T	of which, tropical plywood						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	1	1		2	2
	Exports	1000 m³	0	0		0	0
	Apparent consumption	1000 m³	1	1		2	2
8.2	PARTICLE BOARD (including OSB)						
	Production	1000 m³	652	598		625	625
	Imports	1000 m³	237	237		200	200
	Exports	1000 m³	638	507		500	500
	Apparent consumption	1000 m³	251	329		325	325
8.2.1	of which, OSB						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	80	91		90	90
	Exports	1000 m³	1	1		0	0
	Apparent consumption	1000 m³	79	91		90	90
8.3	FIBREBOARD						
	Production	1000 m³	0 C	0 C		0	0
	Imports	1000 m³	220 C	224 C		225	225
	Exports	1000 m³	22 C	23 C		25	25
	Apparent consumption	1000 m³	198	201		200	200
8.3.1	Hardboard						
	Production	1000 m³			0	0	0
	Imports	1000 m³			23	20	20
	Exports	1000 m³			1	0	0
	Apparent consumption	1000 m³			22	20	20
8.3.2	MDF/HDF (Medium density/high density)						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	116	140		140	140
	Exports	1000 m³	22	21		20	20
	Apparent consumption	1000 m³	94	119		120	120
8.3.3	Other fibreboard						
	Production	1000 m³	0	0		0	0
	Imports	1000 m³	87	60		70	70
	Exports	1000 m³	0	0		0	0
	Apparent consumption	1000 m³	87	60		70	70
9	WOOD PULP						
	Production	1000 m.t.	653 C	687 C		675	675
	Imports	1000 m.t.	159 C	162 C		175	175
	Exports	1000 m.t.	230 C	312 C		300	300
	Apparent consumption	1000 m.t.	582	537		550	550
12	PAPER & PAPERBOARD						
	Production	1000 m.t.	806 C	763 C	758	900	950
	Imports	1000 m.t.	434 C	427 C	427	400	400
	Exports	1000 m.t.	649 C	601 C	709	700	750
	Apparent consumption	1000 m.t.	591	589	476	600	600
5.1	WOOD PELLETS						
	Production	1000 m.t.	135	206		200	200
	Imports	1000 m.t.	45	43		45	45
	Exports	1000 m.t.	161	229		225	225
	Apparent consumption	1000 m.t.	19	20		20	20