

## **MARKET STATEMENT OF THE CZECH REPUBLIC 2012**

**Joint session of the UNECE Committee on Forests and the Forest Industry (71th session) and the FAO European Forestry Commission (37th session)  
Rovaniemi, Finland, 9-13 December 2013**

**Main economic trends in the Czech Republic in 2012 with a particular focus on manufacturing and building industries. Development forecast for the Czech Republic in 2013 and 2014. Comparison of economic forecasts for the world, the EU and some of its Member States, and the Czech Republic. Trends in the sector of forestry and the wood processing industry in 2012 and other key stimuli, tasks and measures supporting the development of the market with timber and timber products in the Czech Republic in 2012. Forest certification, sustainable forest management, wood energy, pulp and paper industry, and more.**

### **1. Key trends in the economic development of the Czech Republic in 2012 with a particular focus on manufacturing and building industries.**

a) **The economic growth in the Czech Republic** in 2012, measured as a growth rate of the gross domestic product (GDP), noted, according to the current data of the Ministry of Finance of the Czech Republic and the Czech Statistical Office, a year-on-year drop by 1.3% in constant prices. In quarter-on-quarter terms, the decline in the national GDP was as follows: by 0.5% in Q1, already by 0.6% in Q2, a slight improvement in the negative development in Q3 to -0.4%, and an even less negative value of -0.2% in Q4. The national GDP still noted a year-on-year improvement against 2010 and 2011 by 2.5% and 1.9% respectively. The economy of the Czech Republic thus remained in the red numbers throughout the year 2012. The technical aspect of the recession fully developed and surpassed in length the recession of 2009, when the economy recovered after three quarters of the year.

The EU economy has constantly been the key player in both the acceleration and the decline in the national economy. Nevertheless, this presumption was not applicable taking into consideration the EU growth in 2012. Despite the fact that the key countries for Czech export, i.e. mainly Germany and Slovakia, partly experienced positive performance, this did not suffice to secure growth of the Czech economy. The economic growth in Germany slowed down to year-on-year +0.7% (from 3% in 2011) but still remained in the black numbers. Along with the good performance of its external sector, which accelerated German exports of goods and services by 3.7%, the above-mentioned factors presumably helped the country withstand the economic problems.

Deepening problems induced by a poor foreign demand negatively contributed to the significantly unfavourable trend in the Czech economic growth in 2012 characterised by the above-mentioned excessive fall in GDP by 1.3%. These were mainly a long-standing crisis of the euro area experiencing unsatisfactory solutions, growing concerns regarding the upcoming economic recession, and internal causes of the Czech economy, which involved austerity measures pursued by the government as a necessary tool to consolidate public finances. The incomes of households worsened and the tension on the labour market increased. The growing problems in the EU were reduced when the threat of recession was removed by the accelerating growth of GDP EA-12 in the third quarter of 2012. The improvement was by mere 0.1% against the second quarter of the same year, which noted a decline by 0.2%, nevertheless, the trend in EA-12 in 2012 (i.e. a reported fall in GDP by

0.6%) indicated a certain delay in the expected recovery. This is not and will not be any positive signal for the Czech economy.

Despite all the difficulties, exports became the main driving force for the Czech economy in 2012. From a year-on-year increment by 13.7% in 2011, exports dropped to +6.4% in 2012 against the preceding year. However, their share in GDP was up against 2011 rising from 74.8% to 77.6%, i.e. an increase by 2.8%. In contrast, imports were dramatically reduced from year-on-year +11.4% in 2011 to mere +2.4% in 2012; however, the share in GDP rose to 72.8% against 70.7% in 2011. A fair growth in the share of imports in GDP by 2.1% was achieved.

The flagging Czech economy began to take its toll on the labour market. The employment rate increased on an annual basis by 0.4% in 2012, but at the end of the year, the recorded unemployment rate was only 0.8% higher over 2011. Real wages rose by 0.9% in Q4 of 2012 but, in year-on-year terms, noted a decline by 0.6%. The average inflation rate ended at 3.3% reaching the highest value in the past four years. There was a slight rise in prices, which was caused by increases in energy, timber, and food. However, a sluggish consumer demand prevented any greater growth of prices. Commencing in the second quarter of the year, the industrial production began to slump and the building industry retained its negative trend from preceding years also in 2012.

**b) Industrial production in the Czech Republic** was showing increments until the end of April and the beginning of May 2012. Until that time, the Czech industry was performing as a reliable driving force of the national economy. However, it continuously slackened, dropping to the red numbers from June 2012 until the end of the same year, except July and October. Utilisation of production capacities in the Czech industry fell from almost 90% to 76% in the second half of the year.

Following the severe monthly slumps, the year-on-year growth of the Industrial Production Index of the Czech Republic (referred to as the “IPI”) was reduced for the entire year 2012 by 0.7%. The original estimates had even talked about a drop by 1.2%. Compared to the development in 2012, the final data for 2011 show a year-on-year increase in the IPI by 7.5%. The IPI fall in 2012 was a real shock for both the Czech industry and the entire national economy, particularly taking into consideration for that period a relatively high annual rise in the index by up to 10.0% in 2010, a result of a strong rebound in the Federal Republic of Germany and economic recovery in major EU countries.

The MEDIUM HIGH TECHNOLOGY manufacturing sector plays a crucial role in the Czech manufacturing industry and encompasses chemical and electrotechnical industries, and mechanical engineering with its main focus on the production of machinery, equipment, weapons, automotive and other means of transport, aircrafts, engines, etc. In 2012, this sector suffered to a great extent from sales and subsequent production problems and represented the major cause of the slump in the entire Czech economy. The medium high technology manufacturing sector covers half of sales, precisely 49.5% of the entire manufacturing industry in the country.

Total 80.8% of export destinations were countries of the EU-27 in 2012, while the share of these countries in the Czech imports amounted to 64.1%. Thanks to its good competitiveness, machinery and transport equipment represented the main driver of exports to the EU-27 also in 2012, the share on the overall exports reaching 54.2%; road vehicles in particular amounted to 17.2%. In 2012, the Czech Republic exported 63.5% of its total industrial production to the countries of the euro area, while Germany constituted 31% of these exports. In the year 2012, the Czech Republic achieved its maximum trade surplus with Germany despite inherent problems of that country. While exports to the mentioned area rose on an annual basis by 3.7%, imports were up by mere 0.7%. The trade balance noted a year-on-year growth by CZK 29.4 billion in 2012. Slovakia was the second most significant

country as to the trade surplus achieved in the mentioned year. Foreign trade with Slovakia reported a surplus CZK 5 billion higher than in 2011. Nevertheless, the above stated was not enough to sustain the so much desirable growth of production of the Czech industry.

A very close mutual relationship between the Czech industrial production and that of the EU countries, in particular of Germany as our most significant trading partner, is highly favourable for the Czech economy. However, when the EU and especially the western neighbouring country have any unexpected problems, as was the case in 2012, these are transferred with an even greater impact on the economy of the Czech Republic. The mutual bond and cooperation of the two countries are unshakable, though.

**c) The construction output in the Czech Republic** sagged in 2012 by 6.5% against the preceding year. While the Czech construction showed positive year-on-year increments in output at constant prices between 2001 and 2007 (by 10.4% and 7.1% respectively), it stagnated in the year 2008. It has already been four years since 2009 that this sector only reports negative figures. For example, the year 2010 experienced a decline by 7.1% and the year 2011 by 3.5%, while the year 2012 was characterised with a drop by 6.5%. The persisting global economic recession also has an impact on the development in construction. As a result, the state, the businesses and households limited their investments in construction activities. Both building and civil engineering did not avoid a decline in production, which also reflected in employment. The number of employees in enterprises with 50 or more employees fell by 4.4% against 2011. The labour productivity of the basic construction output at constant prices declined by 2.2% in 2012 compared to the increase by 2.6% in 2011. The indicative value of buildings was also reduced in 2012, namely by 6.3% against the preceding year. Among subcategories, the value of new construction noted the most profound slump by 8.8%, while the value of renewals and enhancements increased by 22.8%.

Building engineering sagged in the first quarter of 2012 by 5.8% over the preceding year. The second quarter was characterised by a year-on-year increase by 0.1%, while both the third and the fourth quarter recorded a slump by 3.6% and even 5.9% respectively. Civil engineering gained no positive results in any quarter of the year 2012. Its output was significantly reduced by 21.7% in the first quarter. This decline slightly diminished and reached the value of -15.3% in the second quarter of the year.

Total 97,764 building permits were granted in 2012, which represented a decline by 8.8% over the year 2011. There were 54,431 permits for new construction and 43,333 permits relating to renewals and enhancement.

The reduced output in construction in 2012 reflected in both the euro area and the EU, with an identical decline by 5.3%. Comparing the values on an annual basis, Germany and Poland experienced the most severe drop. While in Germany the decline was associated with insufficient governmental support for the construction of photovoltaic power plants, Poland attributed the results to an inappropriate comparison with previous years, when the country was finishing construction relating to the organisation of the European Championship in football.

**d) Predictions of the economic growth in the Czech Republic for 2013 and 2014.** It is highly probable that the year-on-year growth of GDP for the current year, i.e. 2013, will rather stagnate than slightly increase. The recession already slowly diminished at the end of 2012 but did not fade in the beginning of 2013 as expected. The situation has not been improving until today. Hence, the revival of economic activities in the Czech economy is rather expected to be very slow, so that the growth of GDP in 2013 expressed in percentage of constant prices should perhaps show the value of 0.0% against 2012. There is a presumption

that the economy of the Czech Republic in the current year, i.e. 2013, will still be driven by net exports and, to a lesser extent, by formation of gross capital. Contributing jointly to the GDP growth, the mentioned factors should compensate for the expected decline in household consumption. In 2014, the growth of GDP could note an improvement over 2013 by 1.2%, should both the foreign trade and the gross domestic expenditure contribute positively. Despite the increase in both VAT rates by 1% as at 1 January 2013, the inflation rate is supposed to reach only 2.1% this year, while the consumer prices could rise by 1.7% in 2014. The inflation rate in both years should thus approximate the target value of the Czech National Bank.

However, there is an impending economic risk in the external environment. If the recession spilled over from the southern wing of the euro area hitting the countries which are major trade partners of the Czech Republic, i.e. particularly Germany, the contribution to our foreign trade would further diminish, negatively affecting the presumed year-on-year growth of GDP. The forecasts of the European Commission should also be mentioned. These state that the overall decline in GDP of Greece should amount to 23.6% compared to 2007. Such an economic slump could be comparable to the Great Depression in the USA between 1929 and 1933, when the country performance dropped by 28.5%. Nevertheless, the situation on the financial markets calmed down thanks to the intervention by the ECB and newly launched ESM. However, as the course of negotiations on the Cyprus rescue plan has shown, practically anything may be expected in the given area.

As far as other indicators of the Czech economy are concerned, the average inflation rate of 3.3% in 2012 mentioned above could only reach 2.1% in 2013 and 1.7% in 2014. The employment rate, which was up by 0.4% in 2012, is expected to decline slightly by 0.2% in 2013 and to stagnate in 2014. The unemployment rate should increment from 7.0% of the past year to 7.6% in 2013 and a slight increase approximately to 7.7% may be expected for 2014. Wages and salaries in the Czech Republic increased by 2% in 2012. The growth could reach the value of 1.4% this year and 2.7% in 2014. In both 2013 and 2014, the pace in growth of wages and salaries should slightly overtake the nominal growth of GDP.

The outlook for the trends in the construction industry in the Czech Republic is neither positive for the year 2013. Neither households nor enterprises can improve the negative situation. Anticipating even worse economic conditions, they invest into financially less demanding construction projects or they postpone this type of investment. Maintaining low interest rates or reintroducing such projects as the Green Saving programmes (Green Investment Scheme for insulation of buildings), programme Panel 2013+, etc., could represent some of the few favourable factors for the Czech construction.

The recession in the construction industry will continue in 2013 and will be particularly noticeable in the field of residential and public buildings. The year 2013 is expected to be characterised with an augmenting competition and subsequent higher pressure to reduce prices. Some of the construction companies will presumably not be able to cope with the situation and will exit. There is also a negative outlook in civil engineering, which is expected to drop in year-on-year terms by 5.1% in 2013. Since the German IFO Business Climate Index rose for the fifth time in the construction industry in the 1st quarter of 2013, showing the value of 6.9%, a certain positive trend may be envisaged in Germany for this year as well. The Czech construction industry could benefit from the situation in 2014.

#### **e) Development in forest management and the wood processing industry in the Czech Republic in 2012.**

**ea) Forestry in the Czech Republic** was not affected by the slump in economic activities in the Czech Republic in 2012 to the same extent as industry, which is the major player in GDP formation. Given the fact that the trends in the forestry sector currently cannot

be assessed using a GDP indicator, the present statement applies an available indicator, i.e. a gross value added (GVA). The GVA in constant prices in the Czech industry noted an overall year-on-year increase by 1.2% in 2012, while in forestry, the value amounted to +5.9%. According to the final data provided by the Czech Statistical Office, the overall year-on-year increase in GVA in the Czech industry was up 5.5% in 2011, the forestry sector reaching a positive value of 6.1% in the same year. Forestry has retained the mentioned rate of approximately +6% of growth in GVA since 2009. However, the GVA formed a year-on-year increment by nearly 6.9% in 2008 and the year 2006 noted an increase by 7.4% against 2005. In other words, the current situation also has a negative impact on forestry.

Although the figures show minimum differences in the growth pace in forestry after 2009, the stagnation in the sector is alarming. The implemented innovations apparently do not cover the drops in the value added in other areas of forestry and sophisticated solutions do not bring the needed improvement of performance. As a result, the competitiveness of the entire forestry sector deteriorates.

The mentioned issues do not only relate to logging and sales of timber, but, among other factors, they also affect non-market forest production, forest protection and development, and the use and preservation of all production functions that the forest may provide, including contribution to life.

The total timber reserves in Czech Republic currently amount to 685.6 million m<sup>3</sup>, while in 1930, it was only 307 million m<sup>3</sup>. The total volume of reserves more than doubled despite the fact that the final mean annual increment per 1 ha of timber land is currently 4.8m<sup>3</sup> underbark, against 3.1m<sup>3</sup> in 1930 (i.e. only 1.5 times higher). Not all the timber reserves in the country are equally accessible for logging with respect to the various forest functions. This also is the case of other countries. The average reserves per 1 ha of timber land are approximately 264 m<sup>3</sup>.

The annual felling volume in the entire territory of the Czech Republic reached 17.86 million m<sup>3</sup> in 2006. The average value since that time is approximately 15.6 million m<sup>3</sup>. The years 2011 and 2012 recorded total annual felling of 15.38 million m<sup>3</sup> and 15.0 million m<sup>3</sup> respectively. The average annual felling represents about 2.3% of the total timber reserves in the country, including those not predestined for felling. The yield from a hectare of timber land in the present decade was approximately 6.7m<sup>3</sup>/ha from the highest volume of total annual felling of 17.7 million m<sup>3</sup> and about 5.66m<sup>3</sup>/ha from total felling of 15.06 million m<sup>3</sup>. This shows an obvious potential of efficient utilisation of timber in coming years for both the national economy and the foreign trade.

The number of employees in forestry was 13,792 in 2012, while 16,041 people were employed in the sector in 2009. The employment in forestry has been constantly decreasing since 1989, which is a result of machinery and technology improvements, low wages, drops in performance, and a certain lack of attractiveness. The average monthly earnings in forestry and related activities reached CZK 23,037 in the year 2012, which was an increase by 4% over 2011. The Czech industry recorded an average of CZK 24,922, while the average monthly earnings in the entire Czech economy amounted to CZK 24,262. Due to the difference of CZK -1,885 against industry, the forestry sector does not result attractive enough for job seekers.

In 2012, the amount of subsidies from the state budget, budgets of regions and from EU funds granted for forest management (exclusively for forestry operations) reached, after reimbursement of all costs, expressed in percentage of the reported profit from 1 ha before taxation, total 0.03% in state forests, 0.2% in private forests, and 0.3% in forests owned by municipalities. In absolute numbers, subsidies per 1 ha of land in 2012 reached CZK 134 in state forests, CZK 451 in private forests, and CZK 468 in municipal forests. The highest

stated value still means mere 2% of the average monthly earnings in forestry. For comparison, an annual rent of 1 ha of forest land costs CZK 1,884.

As to the share of total costs in the output of forestry activities, this dropped in the period of 2010–2012 by 17.9% in state forests, but increased in both municipal and private forests by 0.4% and 4.1% respectively. The logging costs were reduced in year-on-year terms by CZK 9/m<sup>3</sup> along with timber transport costs, which went down by CZK 7/m<sup>3</sup> against the preceding year, mainly due to growing prices of raw timber. Due to floods, the costs of forest road repair and maintenance increased by CZK 6/ha of forest. The average profit of all forest owners was CZK 3,895 per ha in 2012, which was an improvement by 1.5% when compared to 2011. This profit only reached CZK 1,023 per ha in 2009. Such a swift growth of profit of forestry activities was gained practically only thanks to a marked rise in prices of decisive assortments of raw timber. The already very high prices of 2011 were further increased depending on assortments by 3–7% and even by more than 10% in fuelwood.

**eb) The wood processing industry of the Czech Republic** could very often pay forest owners for supplies of mainly roundwood only on the edge of business profitability. This was due to the mentioned conditions and economic issues in the EU, including the growth in prices of raw resources.

In 2012, the basic production characteristics of the below stated fields of the Czech wood processing industry (referred to as “the WPI“) did not develop as desired for their significance in the economy, among other factors, due to the above mentioned facts. The fields were, besides the major wood processor and producer of wood products CZ-NACE 16 – Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, CZ-NACE 17 – Manufacture of paper and paper products, CZ-NACE 18 – Printing and reproduction of recorded media, where the part involving work with paper, i.e. printing, forms a decisive share in all outputs of this field (about 93-94%), and finally CZ-NACE 31 – Manufacture of furniture.

The development in CZ-NACE 16 was significantly adverse compared to other fields of the WPI. The growth index in this type of industrial production declined in year-on-year terms by up to 8.2%. Taking into consideration the development from January to May 2013, when the growth index of industrial production rose by 4.0%, a certain improvement in the field can perhaps be expected in 2013. In 2012, processing of wood experienced the most severe sag of all fields of the WPI. The mentioned sector, especially 16.1. - Sawmilling and planing of wood, which mainly relates to sawmills, experienced severe economic downturns in 2012 as opposed to 2011 and other years. Sales of own products and services in section 16.1. dropped again in year-on-year terms by 5.6% (total NACE 16 fell only by 3.5%), the value added was reduced by 20.4% (total NACE 16 fell by 4.5%), and the number of employees was down by 7.2% (total NACE 16 fell by 3.3%). The year-on-year exports in NACE 16 rose only by 1.4% in 2012, while the year 2009, for example, was characterised by an increase by 8.1%. Imports only reached the value of +1.8%.

The situation in section 16.1. has a serious impact on competitiveness. This is obvious from the trend of labour productivity from the value added and from the gross operating surplus. The labour productivity from the value added dropped within the observed field by 14.3% in 2012 against 2011, while the entire CZ-NACE 16 declined by mere 1.2%. The gross operating surplus in 16.1. experienced an incredible slump by 48.7% and reached a yearly value of CZK 9,768,882 thousand (against CZK 14.2 billion in 2006), while the entire NACE 16 fell by 14.7%. It shall be observed, however, that the drop in the gross operating surplus in 16.1. in the period of crisis of 2009/2008 only amounted to 24%, i.e. only a half.

CZ-NACE 17 was actually successful within the wood processing industry since the decline in the growth index of industrial production was only by 1.0% in 2012. In sales of

own products and services, particularly thanks to a large year-on-year increase in prices of resources by -0.9%, there was even an increment reported against 2011, namely by 2.1%. Positive results were also noted in the created value added in NACE 17. In year-on-year terms, the improvement of 2012 by 3.8% meant, at current prices, CZK 12,666.4 in 2011 and CZK 13,141.6 million in 2012. The labour productivity from value added per employee noted a year-on-year increase by 2.7% and reached CZK 731,218 thousand. The gross operating surplus was also up in 2012, precisely by 6.5% to the yearly CZK 5,898,182 thousand.

CZ-NACE 18 did not meet with any success in 2012. The year-on-year fall in the growth index of industrial production was by 3.2% in that year. The crisis forced 110 out of total 8,647 enterprises to exit. The sales of own products and services dropped against the preceding year by 5.9%. The value added was reduced by 4.8% and the labour productivity from value added per employee noted a year-on-year decrease by 2.8%. The gross operating surplus fell by 11.1%, i.e. from CZK 5,216.9 million to CZK 4,637.5 million.

CZ-NACE 31 did not show negative results in the year of crisis. Nevertheless, the slumps in exports largely affected the field and its necessary progress. The sales of own products and services increased by 1.5% in 2011 against the preceding year, while the prices in the respective construction were stagnating. In 2012, this year-on-year value was only +1.1%. The value added fell by 1.3% against 2011, when the drop was more profound by 3.6%. However, the labour productivity from value added per employee in furniture production proved viable as the only field of the WPI and showed a year-on-year increase by 4% in 2012, while in 2011 it was up only by 1.7%. Compared to NACE 17, its rise was 1.3% higher in 2012 than in 2011. The gross operating surplus in furniture production was up by 5.3% over the preceding year. The fall in exports also affected furniture production, which reduced its growth to a year-on-year value of +3.6% in 2012 compared to +9.6% in 2011 and even +12.6% in 2010.

## **2. Measures adopted in the Czech Republic in the past 18 months to support market with forest-based products.**

**a) Measures relating to economic stimulus.** In the course of the past 18 months, the Government of the Czech Republic did not take any essential prescriptive measures to support economically the market with forest-based or any other products in the sector of forest management, wood processing industry, or any other sector of the entire economy.

It may be stated for the entire sector in the Czech Republic that no economic stimulus that would support or influence through non-market or other mechanisms the free trade with any products, including forest-based products, either was implemented in the past years or is currently being launched. The market with all products in the Czech Republic is based on free competition according to the existing supply and demand.

Any relief, whether implemented in the forestry sector or even encompassing the entire economy, such as contributions for goods insurance for export, assisting businesses in search of new markets for their products, or support to secure certain non-wood functions of the forest, may by no means considered as stimulus. These are purely solutions generally implemented in other EU economies and always in compliance with applicable EU programmes and rules.

Neither the Government nor the respective ministries considered in 2012 implementation of non-market or any other measures that would restrict the free market in the Czech economy, also with respect to the worsening problems in the euro area that significantly strengthened sales opportunities of the Czech economy abroad.

**b) Measures relating to climate change and supporting timber market.** In 2012, there was no need for the Government of the Czech Republic or the respective ministry to introduce specific new measures relating to climate change that would support timber market. As mentioned in the Market Statement 2011, this issue in the Czech Republic remains covered by the National Forest Programme II (referred to as “NFP II“). The NFP II addresses the issue of climate change under its climate protection policy (including measures presented as recommendations for forestry practice), which builds on the respective EU measures and is defined as a research task “Impact of Climate Change on Forest Protection Measures“. The research is being carried out by the Faculty of Forestry and Wood Sciences of the Czech University of Life Sciences Prague in cooperation with the Faculty of Forestry and Wood Technology of Mendel University in Brno. It also involves employment of principles of sustainable forest management to enhance competitiveness of the sector, including support of timber market. The defined measures are promptly implemented into practice since they are determined under direct cooperation of both faculties in Prague and Brno with the Academy of Sciences of the Czech Republic.

Nevertheless, the actual direct solutions put into practice and relating to international organisations in the Czech Republic are the competence of the Czech Hydrometeorological Institute. Direct climate protection in the Czech Republic is monitored under the United Nations Framework Agreement on Climate Change (UNFCCC) and on the basis of documents resulting from the Kyoto Protocol. Based on the above-mentioned, the respective national body draws up and submits an annual greenhouse gas inventory, as was the case in 2012. The inventory reports any changes in land use according to the classification established by the International Panel for Climate Change (IPCC), expressed in gigagrams (Gg), and an overview of emissions and removals in Land Use activities, Land Use Change and Forestry activities under LULUCF regulations, expressed in Gg CO<sub>2</sub> equivalent.

It may be noted that the task to increase the share of broadleaf tree species in Czech forests, which was set by the Government of the Czech Republic in the NFP, is one of the significant measures relating to climate change that the country has adopted and that supports the timber market. It also represents an essential adaptation measure aimed at securing long-term stability of forest stands and carbon fixation. The Czech forestry counts with a more intensive use of biomass for energy in the future and a higher share of carbon fixed in wood products.

An amendment to the Air Protection Act came into force with effect from 1 September 2012 and shall ensure improvement of ambient air to the level that poses no health risks. It also reduces the administrative burden and simultaneously further motivates those who reduce emissions beyond the levels established by law. The charges for air pollution will remain unchanged to be gradually increased between 2017 and 2021. However, these will be newly paid only by companies that exceed a limit of CZK 50,000 for the discharge of pollutants. Municipalities will further have power to delimit low-emission zones in polluted towns, spa resorts, or municipalities in protected areas so as the local industrial enterprises are obliged to close down old plants when introducing new ones in order not to increase emissions in the area.

**c) Measures relating to wood energy production (government stimulus for enhancement).** Act No. 165/2012 Coll. on subsidised energy sources and amendments to certain acts was approved in 2012 with force from 1 January 2013. It amends Act No. 402/2010 Coll. on the support of electricity generation from renewable energy sources and on amendments to certain acts (Act on Subsidised Renewable Sources), which amended the original Act No. 180/2005 Coll. This act changes the system of financing the support of newly implemented sources and introduces support of biomethane. The act is followed by newly

adopted decrees, three most important being stated below. Decree No. 347/2012 Coll. took effect on 5 November 2012 and establishes the technical and economic parameters for determining the purchase price of individual sorts of renewable sources for electricity generation and the service life of plants that produce electricity from renewable sources. Decree No. 477/2012 Coll. defines individual kinds and parameters of subsidised renewable sources; uses of renewable sources for production of electricity, heat or biomethane; reporting the volumes of purposefully produced biomass on arable land and grassland for biogas production; filing documentation and records on fuel utilised for the production of electricity and heat from renewable sources and biomethane production and on the technology used for the production of this fuel; the share of biodegradable and degradable component of unsorted municipal waste, and sustainability criteria for bioliquids. The third is Decree No. 478/2012 Coll. on reporting and records of electricity and heat from subsidised sources and biomethane, the quantity and quality of actually acquired and utilised sources and the implementing of other provisions of the Act on Subsidised Energy Sources.

**d) Measures to support higher market efficiency and involvement of research and development.** Enforcement of higher efficiency of the market in the Czech Republic practically in all spheres of economic activities, in particular in production and largely in relation to small and medium enterprises, is addressed not only by the respective central bodies but also by a number of private organisations and institutions. Universities, scientific and technical institutes and numerous educational entities are notably active in the sector. Finally yet importantly, a significant role is played by various regional agencies. The outputs of these entities are generally used within various opportunities to enhance the market efficiency or applied to specific cases and their detailed solutions. The aim is to calculate and enforce efficient innovations, new technology transfers and efficient technical projects in the given entity and to provide advisory and consultation services. In addition, a number of the mentioned services have been recently focusing on search of suitable and perspective partners for Czech trade and cooperation relationships with the EU and other countries in the world with the objective to establish mutually highly favourable international cooperation in production and mutual trade, and in science and technology, while preserving and protecting the intellectual property.

Enforcement of higher market efficiency in the sector of forest production and the wood processing industry, including involvement of research and development, is, from the statutes of national central bodies, the responsibility of the Ministry of Agriculture and the Ministry of Industry and Trade of the Czech Republic.

The programmes of enforcement of higher market efficiency in forestry are administered by the Ministry of Agriculture under the Rural Development Programme of the Czech Republic (RDP). The Programme ends in 2013 and is based on the National Strategy Plan for rural development, which was drawn up in compliance with the Council Regulation (EC) No. 1698/2005 and partly covered from the European Agricultural Fund. The measures under the RDP of the Czech Republic aim at enhancing competitiveness in both forestry and agriculture. They shall support the dynamic business development in the sectors by securing higher efficiency of forestry enterprises, provide for restructuring of both sectors and ensure improvements in protection of the environment and the landscape. The main task is to deal with poor investment in forestry and infrastructure. Besides the RDP, the issue of market efficiency in forestry is indirectly addressed by the Supporting and Guarantee Agricultural and Forestry Fund, which, in contrast, mainly focuses on reducing the interest burden of loans, mediating loans, and financial support for insurance. Despite their appropriateness and purposefulness, the programmes and their outputs did not bring the desired effects.

Among other instruments for enforcing higher market efficiency under the responsibility of the Ministry of Industry and Trade, there is, for instance, the Operational

Programme “Enterprise and Innovation“ (OPEI), which ends in 2013. The OPEI draws funds from the state budget, structural funds, and the Cohesion Fund. The Programme mainly focuses on small and medium enterprises with the main aim of enhancing the competitiveness of industry as a major potential for creation of national GDP. The OPEI consists of about 20 individual programmes, which may be used even by entities outside the sectors of wood processing and production. It serves to enhance the development of businesses, to increase the efficiency of production, and to support further and more efficient search of markets for products and generally better utilisation of the market. It focuses on improving management and acquiring know-how with the view to increasing the level of sophistication in production, the value added, productivity, etc.

**e) Measures to increase responsibility of social associations (corporations).** The issues of social care or social responsibility are generally addressed in the Czech Republic by the respective ministry in accordance with the legal regulations in force uniformly in the entire country. For the forestry sector, they are also implemented in the National Forest Programme as a task to improve the social situation of workers in forestry.

Social associations (corporations) registered in the forestry sector of the Czech Republic are voluntary, non-profit and non-governmental organisations, set up mainly with the aim to protecting the rights of citizens, workers in the sector. None of the mentioned voluntary, non-profit and non-governmental organisations involved in forestry of the Czech Republic presents an increase in responsibility for social issues as a single title. Such activities are always part of legal advisory services, employment and similar activities. There are only few such organisations.

The focus and responsibilities, including social responsibility, are a matter of internal decisions of these organisations, which are by no means regulated or otherwise influenced by the state. Hence, the state establishes no directives or support of any of their activities, whether social or financial, or of any other kind.

The Czech Association of Entrepreneurs in Forestry at the Agrarian Chamber of the Czech Republic is one of the relatively significant institutions in Czech forestry. In addition to provision of legal advisory services, representation of its members in legal events and drafting the national Forest Programme II, the association committed itself to monitor for all employees in forestry maintenance of social security in employment, to preserve performance on the forestry market while maintaining professional forest management practices as a whole, and to duly manage and dispose of the forest property. The Czech Academy of Agricultural Sciences – Department of Forestry represents another major entity, which associates experts in forestry research and higher education. A number of its expert committees are used by the ministry and other expert entities and. Among other activities, these committees also help solve social issues and inquiries being made. An association to be mentioned is the Association of Municipal and Private Forest Owners in the Czech Republic. Among its major activities, such as enforcing property rights of its members, increasing the prestige of work in forestry, utilisation of forest biomass, and other activities, including social responsibilities, this entity facilitates active cooperation mainly with local authorities, in some cases even with ministries and other central bodies and institutions. Among the number of similar and sometimes more important associations, the Czech Association of Entrepreneurs in Forestry, as an expert NGO, promotes the interests of small and medium enterprises, including social issues. Further, there is the Association of Traders in Forestry whose task, besides creating most favourable conditions for workers to support development in forestry, is to promote business, mediate contacts among traders, defend its members, and other activities.

**f) Measures in research and development to support market with wood and wood products.** This section was obligatorily reported on in 2011 and the year 2012 did not bring any significant changes. The activities are conducted by public and private research institutions. The established practice in forestry is that the mentioned institutions conduct research activities according to the requirements, specifications and orders placed by central bodies and organisations, such as ministries, entrepreneurial associations of respective business entities, and other parties concerned.

Among public forestry institutions, the major player is the Forestry and Game Management Research Institute (FGMRI). As to universities, there is the Faculty of Forestry and Wood Sciences and the Faculty of Environmental Sciences of the Czech University of Life Sciences Prague, the Faculty of Forestry and Wood Technology of the Mendel University in Brno, Academy of Sciences of the Czech Republic in České Budějovice and in Brno, and private research institutes.

In the field aimed at increasing the market with wood and wood products, the research launched in 2011 continued focusing on enhancing performance and efficiency of wood and wood processing industries, mainly of small and medium enterprises. Work continued in the field of silviculture contributing to the increase in raw timber production and growing fast-growing tree species for non-wood purposes. Activities also aimed at improving management in forestry businesses, issues of economic efficiency of low forests, economic efficiency of breeding, development, and growth process modelling. Finally yet importantly, the work involved new planning and optimisation in the forest, logging and transport technologies, use of the landscape in the conditions of Central Europe, tree species ecophysiology, etc.

While the research financed by the state has its function and is required in the Czech Republic, it is missing in the wood processing industry. Such research institutes used to operate before 1989, but they gradually disappeared due to transformation into private entities and subsequent insufficient demand and funds. Nevertheless, this research is still conducted in case of need by large, particularly supranational entities. Basic and applied research in forestry focuses on forest and landscape ecosystems, assessment of forests and their environment, enhancing resilience of forests to climate change, research relating to new technologies of forest management, new opportunities for forestry and partly for wood technology, on social development of the Czech society, landscape management, new disciplines in bionics, biomechanics and bioenergetics, application of new computational methods in physical and biological processes, modification of natural resources features, and partly on research relating to used design in dwelling, new solutions to wooden constructions and their components, which should perhaps increase the interest in wooden buildings, etc.

### **3. Contribution of timber and paper market development to the manufacturing industry and thus the overall development of the Czech economy.**

**a) Assessing the output of the wood processing industry (WPI) in 2012 against the output achieved by the entire manufacturing industry in the Czech Republic.** As described above, four branches of industry operate on the market of wood processing and various wood products in general. These are CZ-NACE 16 – Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials, CZ-NACE 17 – Manufacture of paper and paper products, CZ-NACE 18 – Printing and reproduction of recorded media, and CZ-NACE 31 – Manufacture of furniture. All together, they are simply referred to as the WPI.

According to the data by the Ministry of Industry and Trade of the Czech Republic, this sector employed total 90,075 persons in the country in 2012. This represented 8.5% of the entire manufacturing industry of the Czech Republic. There were total 50,337 enterprises involved in the WPI in 2012, i.e. 26.7% of the total number of enterprises in the manufacturing industry in the country. The WPI sales of own products and services in 2012 totalled CZK 201,733.6 million, i.e. a year-on-year drop by 1.7% (increase in the entire manufacturing industry by 2.8%). The WPI shared, in 2012, 5.95% of the sales in the overall manufacturing industry. The value added in the WPI in 2012 reached CZK 54,055.7 million, which represents a year-on-year decline by 2.1% (+1.1% as to the entire manufacturing industry). The share of the value added in the overall manufacturing industry amounts to 6.95%. The labour productivity from value added per employee in the WPI in 2012 was CZK 606,278 with a year-on-year increase by 0.45% (+1.2% for the entire manufacturing industry). The share of the WPI in the entire manufacturing industry as to labour productivity was quite satisfactory and reached 82.85%. The gross operating surplus in the WPI in 2012 totalled CZK 23,605,314 thousand, dropping against the preceding year by 6.9% (-1.5% in the entire manufacturing industry). Its share on the entire manufacturing industry was 6.92%.

The documented outputs of the WPI for 2012, compared to the outputs for the entire manufacturing industry of the Czech Republic, indicate the current position of the WPI in the entire mentioned sector. With respect to the crisis and the shares of the WPI in the entire manufacturing industry acquired in that period, especially as to the value added and gross operating surplus, the development and the contribution to the national manufacturing industry cannot be considered as purely negative. However, the recorded annual trend in all indicators demonstrates a largely unfavourable situation. This apparently pointed to the controversial links between forest production and industrial wood processing, and subsequently the loss of competitiveness of the WPI, mainly in CZ-NACE 16.

The WPI has not seen any satisfactory development in the recent years. Section 16.1., which represents more than a third of the entire NACE 16, significantly lagged behind. Competitiveness appears to be a real issue that should not be underestimated. It is obvious that when the EU comes out of the crisis, the Czech Republic will swiftly recover from all the slumps and lagging. The existing problems in the sector will have to be removed.

**b) Comparison of trends in annual indexes of selected production characteristics in individual branches of the wood processing industry** with the output of the entire manufacturing industry in the Czech Republic proves that, despite having kept pace with the average of the entire manufacturing industry in the past, the situation in the mentioned branches of the WPI significantly deteriorated after 2011, especially in logging and timber transport.

The two charts below show annual indexes of selected production indicators in sales, value added, and labour productivity per employee between 2006 and 2012 in four branches of the WPI and in the entire manufacturing industry.

CZ-NACE	2006/2005	2007/2006	2008/2007	2009/2008	2010/2009	2011/2010	2012/2011
16 Sales	113.1	112.4	94.6	86.4	101.3	103.0	96.5
16 VA	116.2	105.7	94.0	85.2	102.4	99.2	95.5
16 LP/empl.	115.4	106.1	95.9	95.8	110.5	101.8	98.8
CZ-NACE							
17 Sales	99.8	111.9	91.5	87.3	110.5	103.0	102.1
17 VA	103.5	114.6	90.5	88.2	106.9	92.0	103.8
17 LP/empl.	102.4	110.5	94.3	98.6	109.6	94.7	102.7

CZ-NACE							
18 Sales	107.5	110.0	104.5	88.5	97.9	95.9	94.1
18 VA	112.9	103.6	106.3	90.6	97.3	94.3	95.2
18 LP/empl.	110.5	100.8	103.9	102.5	101.9	96.5	97.2
CZ-NACE							
31 Sales	101.5	107.3	95.6	81.8	96.5	101.5	101.1
31 VA	99.2	105.9	100.1	87.8	95.8	96.4	98.7
31 LP/empl.	100.6	106.9	106.7	98.6	103.8	101.7	104.0
<b>Total manufacturing industry</b>							
MI Sales	111.8	109.5	98.6	83.7	111.3	108.2	102.8
MI VA	113.2	107.7	95.3	86.0	109.4	105.5	101.1
MI LP/empl.	112.0	105.2	95.6	98.6	112.1	103.1	101.2

Sales = Sales of own products and services    VA = Value added    LP/empl. = Labour productivity from value added per employee

The chart below compares the trends in annual labour productivity from value added per employee in CZK at current prices (LP/empl.) between 2005 and 2010 in individual branches of the WPI and the same indicators for the entire manufacturing industry of the Czech Republic.

CZ-NACE	2005	2006	2007	2008	2009	2010	2011	2012
16 LP/empl.	475 060	548 325	581 567	557 944	534 422	590 410	601295	
					594288			
17 LP/empl.	652 393	668 301	738 397	696 002	686 490	752 252	712295	
							731218	
18 LP/empl.	568 650	628 252	633 131	657 802	674 231	687 232	662981	
							644283	
31 LP/empl.	366 534	368 820	394 180	420 666	414 592	430 394	437683	
							455323	
MI	563 565	631 168	663 720	634 437	625 465	700 978	722542	731756
WPI average	515 659	553 425	586 819	583 104	577 434	615 072	603564	606278

As the chart illustrates, mainly NACE 17, i.e. pulp and paper industry, gained between 2005 and 2010 better results in LP/empl. than the average of the entire manufacturing industry. Printing and reproduction of recorded media also partly noted better results in the same indicator in 2005, 2008, and 2009. However, there were slumps compared to the entire manufacturing industry from 2010 to 2012 in both NACE 17 and NACE 18. It shall be taken into account that the Czech manufacturing industry involves fields (refineries, chemistry, pharmacy, beverages) where LP/empl. is up to a double of that of the WPI, or fields where this indicator approaches the value of CZK 1 million (motor vehicles, other transport equipment). Moreover, the equipment particularly in the mentioned fields is automatized to such an extent that the wood processing industry can never reach. The situation is very similar in technology.

Besides the trend in LP/empl., it is reasonable to assess the development in the gross operating surplus (GOS). Based on the two mentioned indicators, we may also presume the trend in the competitiveness of the sector as compared with the entire manufacturing

industry in the Czech Republic. The chart below gives data on the gross operating surplus in CZK thousand in current prices.

CZ-NACE	2006	2007	2008	2009	2010	2011
16 GOS	14232191	14920032	12641001	9976525	11105718	11451405
17 GOS	7333848	8654488	6851748	5764087	6633768	5539800
18 GOS	6652657	6490447	6763853	6124877	5905129	5216851
31GOS	3816789	3781981	3715198	3220659	3231231	3134858
MI	381118503	401276260	332480419	271856599	328007762	346429189
WPI	32035485	33846948	29971800	25086148	26875846	25342914
	23605314					

The annual gross operating surplus of the WPI as a whole has been constantly declining since 2007 (except the year 2010). This indicator in the entire manufacturing industry (MI) of the Czech Republic has seen a similar trend, but there was a year-on-year increase in 2010 and 2011. A considerable difference between the WPI and the entire MI as to the gross operating surplus, i.e. to the disadvantage of the WPI, was only reported in 2010 and beyond. In 2010, the GOS in the entire MI in the country increased against the preceding year by 20.7%, while in the WPI it was only by 7.1%. There was a further drop in the WPI in 2011. Whereas the GOS in the entire MI of the Czech Republic experienced a year-on-year increment by 5.6%, this indicator sagged in the WPI by 5.7%, which is an opposite trend. The GOS in the WPI experienced another year-on-year fall in 2012. It fell by 6.9%, while the decline in the entire MI of the country was only by 1.5%. Since the major contributor to the GDP, i.e. production of motor vehicles, experienced a decline in the mentioned indicator against 2011 by 5.4%, the pace of slump in the WPI should tend to slow down rather than accelerate, as reported.

#### 4. Wood and wood products market in 2012.

##### a) Timber (total timber, roundwood, pulpwood and fuelwood).

aa ) **Timber market.** As stated above, the total timber reserves in the Czech Republic in 2012 reached 685.6 million m<sup>3</sup>. The average reserves per 1 ha of forest stands (including clear-cut areas) amount to 264 m<sup>3</sup>. Out of these reserves, total 15.06 million m<sup>3</sup> of hardwood and softwood were logged and supplied on the market purely from the Czech forests in 2012. This was 0.32 million m<sup>3</sup> less in comparison to the year 2011 but 0.62 million m<sup>3</sup> more against 2000.

Comparing logging of hardwood and softwood, the share of logged hardwood practically began to increase in 2006, when it represented 8.82% of total logging. This share was 9.98% in the year 2010, even 13.26% in 2011, and 13.35% in 2012. This was the highest increase in the volume of hardwood logging in the Czech Republic since 2000. The proportion of hardwood and softwood logging in the country is partly determined by the structure of available reserves in mature stands but mainly by the increasing demand for hardwood on the timber market. However, this rather applies to the situation abroad than in the Czech Republic.

The mentioned fall in total logging in 2012 against 2011 was affected by lower performance of economies in both the EU and the Czech Republic. The volumes of logging in the Czech Republic were greatly influenced by the EU stagnation caused by problems in the euro area. As a result, there was a decline in production in the country, mainly in the construction industry, which reported a drop in demand for wood and wood products between 2008 and 2012 by up to 30%.

This was consequently reflected in the entire wood processing industry, most profoundly in small and medium enterprises, which had to purchase raw material for prices even beyond profitability of their production. This trend is definitely not favourable for processing of domestic raw timber. The Czech Republic has long been among the major exporters of timber in the world with respect to the national volumes of logging. This fact undoubtedly does not contribute to the national economy.

The country is thus permanently facing a situation when excessive volumes of domestic raw material are exported instead of being processed by the national wood processing industry into products with a higher value added or directly into sophisticated wood products. This is obviously an effect of poor competitiveness, which the EU itself requires to be improved. In consequence, by exporting timber we help the target countries reduce their unemployment and contribute to their higher GDP. This is just the opposite of what the Czech economy needs today.

Exports of timber, i.e. softwood and hardwood roundwood, pulp, charcoal, fuelwood, chips and particles, sawdust, wood residues and waste, reached the total volume of 5,453 thousand m<sup>3</sup> in 2012, which represented a rise by 299 thousand m<sup>3</sup> over 2011 and 5.8% in year-on-year terms. There was a partial decline in total exports of hardwood and pulpwood, precisely by 86 thousand m<sup>3</sup> against the preceding year, and further in exports of chips and particles, and wood residues.

The total imports of timber (classified as in case of exports) in 2012 amounted to 2,601 thousand m<sup>3</sup>. In year-on-year terms, there was an increase by 292 thousand m<sup>3</sup>, i.e. by 12.7%. Imports rose both in softwood and hardwood roundwood, but also in charcoal, fuelwood, chips and particles, and wood residues and waste.

**ab) Market with roundwood, including pole and mining timber.** Roundwood, as the basic raw material for wood processing in Czech sawmills, comes practically exclusively from national sources. Imports of this kind are exceptional. The total supplies of softwood and hardwood roundwood, including pole and mining timber, excluding imports, were considerably reduced in the country from 2010. In year-on-year terms, this reduction was by 6.3% in 2011 (to total 8,838 thousand m<sup>3</sup>) and by 2.5% in 2012 (to total 8,621 thousand m<sup>3</sup>).

For comparison, the total logging of timber in the Czech Republic noted a year-on-year drop by 8.2% in 2011 and by 2.1% in 2012.

Supplies of softwood roundwood, including pole and mining timber and excluding imports, were also reduced. Czech foresters supplied total 7,911 thousand m<sup>3</sup> of this timber in 2012, i.e. 1.1% less than in the preceding year, when such supplies were reported as amounting to 8,014 thousand m<sup>3</sup> with a year-on-year slump by 10.8%. Hardwood roundwood (including pole and mining timber and excluding imports) experienced even a steeper year-on-year decline in both mentioned years. In 2012, Czech sawmills were supplied total 710 thousand m<sup>3</sup> of this assortment, dropping by 13.9% in year-on-year terms.

Exports of softwood roundwood (including pole and mining timber) amounted to 2.57 million m<sup>3</sup>, compared with 3.1 million m<sup>3</sup> in 2011. In contrast, imports of this assortment to the Czech Republic reached 1.0 million m<sup>3</sup> in 2012 and 1.67 million m<sup>3</sup> in 2011. This is a year-on-year fall in exports of softwood roundwood in 2012 by 0.53 million m<sup>3</sup>. Imports of softwood roundwood dropped in year-on-year terms even more, precisely by 0.67 million m<sup>3</sup>.

The share of softwood roundwood exports in total supplies to the Czech Republic in 2012 was 32.5%, compared to 38.7% in 2011. The share of imports in total supplies reached 12.6% in 2012 and 20.9% in 2011.

Total 0.233 million m<sup>3</sup> of hardwood roundwood (including pole and mining timber) were exported from the country in 2012, while in 2011, the national exports of the assortment reached 0.39 million m<sup>3</sup>. This is a year-on-year fall by 41%.

Imports of hardwood roundwood to the Czech Republic amounted to 0.09 million m<sup>3</sup> in 2012, against 0.11 million m<sup>3</sup> in 2011. Hence, the year-on-year decrease was by 18.2%.

As to the issue of roundwood market, it should be noted that the reductions in the supplies of timber for Czech sawmills very negatively reflected in the acquired gross operating surplus specifically in raw timber processing. As already mentioned, the GOS mainly in small and medium Czech enterprises dropped in year-on-year terms by incredible 48.7%, while the entire wood processing industry recorded a decline by 14.7%. In the crisis period of 2008/2009, sawmills still experienced a decline in the GOS “only” by 24%. This inevitably had a destructive impact on particularly small Czech businesses, which were sometimes forced to exit. The resulting loss of jobs is critical for the people in the regions lacking any other job opportunities. It is practically impossible to find a new job there, regardless the earnings.

**ac) Softwood and hardwood roundwood breakdown.** The situation on the roundwood market indicated a year-on-year decline in logging in 2012. Hence, the supplies of roundwood for breakdown dropped as well. The total amount of softwood and hardwood roundwood (including pole and mining timber) supplied to Czech sawmills in 2012 was only 6,800 thousand m<sup>3</sup>. Such supplies reached 7,000 thousand m<sup>3</sup> in 2011 and 8,000 thousand m<sup>3</sup> in 2010. In comparison with 2011, the year 2012 recorded a decline by 195 thousand m<sup>3</sup> (i.e. by 4.4%) in the production of sawnwood from the entire volume of processed softwood and hardwood roundwood determined for breakdown. The total volume of the produced assortment in 2012 reached 4,259 thousand m<sup>3</sup>.

The wood processing industry almost exclusively processes the domestic renewable raw material – timber, most of all softwood roundwood. The volume of softwood and hardwood sawnwood produced by Czech sawmills noted a year-on-year decrease undoubtedly due to a lower demand. This was higher abroad, while the decline in the consumption of sawnwood was more apparent in the Czech Republic. Major sawmills with their place of business in the Czech Republic, such as STORA ENSO TIMBER ŽDÍREC, s. r. o., STORA ENSO TIMBER PLANÁ, s. r. o., MAYER - MELNHOF HOLZ PASKOV, and other wood processing plants, strongly depend on export. Out of the total production of softwood sawnwood, i.e. 3,997 thousand m<sup>3</sup>, exports represented 2,910 thousand m<sup>3</sup>. As stated in Section e), 502 thousand m<sup>3</sup> of softwood sawnwood were imported to cover the domestic demand of 1,589 thousand m<sup>3</sup> of this assortment.

**ad) Market with pulpwood, including timber for wood pulp production.** Supplies of softwood and hardwood pulpwood, including timber for wood pulp production, to the market of the Czech Republic were gradually reduced from 2010. In 2012, they amounted to 4,420 thousand m<sup>3</sup>, dropping against 2011 by 209 thousand m<sup>3</sup>, i.e. by 4.5%.

Supplies of purely softwood pulpwood (including timber for wood pulp production) to the Czech market went also gradually down from 2010. The market was supplied with 3,949 thousand m<sup>3</sup> in 2012, compared to 4,277 thousand m<sup>3</sup> in 2011. This was a reduction by 7.7%. In round numbers, the year-on-year decrease from 2010 to 2011 was 10%, with the volume of 4,747 thousand m<sup>3</sup> of softwood pulpwood supplied to the country in 2010.

In case of hardwood pulpwood (including timber for wood pulp production), the supplies on the Czech market totalled 471 thousand m<sup>3</sup> in 2012. The production of hardwood pulpwood noted a year-on-year increase against 2011 by considerable 119 thousand m<sup>3</sup> and reached total 352 thousand m<sup>3</sup>. This was thanks to higher logging volumes with respect to the expected increase in the production of this assortment. However, this presumption proved justified only partly, mainly in relation to the domestic consumption.

In 2012, the country imported total 749 thousand m<sup>3</sup> of softwood pulpwood, while in 2011, it was 1,087 thousand m<sup>3</sup>. That is a fall by 338 thousand m<sup>3</sup>. Exports of this assortment were 1,040 thousand m<sup>3</sup> against 1,564 thousand m<sup>3</sup> in 2011. The exports thus sagged in year-on-year terms by 33.5%. The decrease in exports of hardwood pulpwood (including timber for pulp wood production) was not so sharp. The volume of 36 thousand m<sup>3</sup> of this assortment was imported to the Czech Republic in 2012, while these imports reached 22 thousand m<sup>3</sup> in 2011. This is an increase by 63.6%. The Czech Republic exported 68 thousand m<sup>3</sup> of hardwood pulpwood in 2012 and 74 thousand m<sup>3</sup> in 2011, which is a year-on-year reduction by 8.1%.

The domestic consumption of softwood pulpwood in 2012 noted a year-on-year decline to 3,658 thousand m<sup>3</sup> against 3,800 thousand m<sup>3</sup> in 2011. In percentage, the reduction is by 3.7%. In contrast, the domestic consumption of hardwood pulpwood rose to 439 thousand m<sup>3</sup> in 2012 from the volume of 300 thousand m<sup>3</sup> in 2011.

The overall foreign trade with softwood and hardwood pulpwood (including timber for wood pulp production) reported imports to the Czech Republic of 785 thousand m<sup>3</sup>. However, the figure was 1,109 thousand m<sup>3</sup> in 2011, which is a slump by 29.2%. The exports of the mentioned assortment from the country totalled 1,108 thousand m<sup>3</sup> in 2012 and dropped sharply against 2011 by 31.6%.

**ae) Fuelwood market.** The total supplies of softwood and hardwood fuelwood to the Czech economy in 2012 amounted to 2,020 thousand m<sup>3</sup>. This was 106 thousand m<sup>3</sup> more than in 2011, i.e. a year-on-year rise by 5.5%. Compared to 2010, the supplies of fuelwood to the country rose by 55 thousand m<sup>3</sup>. Softwood fuelwood supplies to the Czech market reached 1,196 thousand m<sup>3</sup>, which is an increase by 14% against 1,049 thousand m<sup>3</sup> in 2011. As to hardwood fuelwood, the Czech market was supplied with 824 thousand m<sup>3</sup>. This is a decline by 41 thousand m<sup>3</sup>, i.e. by 4.7%.

While the year 2011 recorded total 46 thousand m<sup>3</sup> of softwood and hardwood fuelwood imported to the Czech Republic, the observed year 2012 was characterised with a fall by 54.3% to total 21 thousand m<sup>3</sup>. Exports of softwood and hardwood fuelwood reached 137 thousand m<sup>3</sup> in 2012, compared to 112 thousand m<sup>3</sup> in 2011, and incremented, in year-on-year terms, by 22.3%.

The domestic consumption of fuelwood in the Czech Republic reached total 1,904 thousand m<sup>3</sup> against 1,848 thousand m<sup>3</sup> in 2011. This was an increment by 6%. Generally, there were higher volumes of softwood fuelwood consumed.

The market notably affected the growth of fuelwood prices. An average price of fuelwood grew in year-on-year terms by 9.5% in softwood and by 10.3% in hardwood. An average price of all fuelwood reached CZK 1,000/m<sup>3</sup>, compared to CZK 907/m<sup>3</sup> in 2011. This is an increase by 10.3%, a value equal to hardwood.

**b) Wood energy (Government incentives to increase wood energy production).** The Directive 2009/28/EC of the European Parliament and of the Council of 2009 on the promotion of the use of energy from renewable sources lays down, for the EU as a whole, a 2020 target to reach 20% of energy production from renewable sources and 10% in energy from renewable sources in transport. The share determined by the European Commission for

the Czech Republic is minimum 13% of energy production from renewable sources in final gross energy consumption. To meet the target, the country shall also ensure minimum 10% of energy from renewable sources in transport.

A statistical survey relating to the use of renewable and secondary energy sources, conducted by the Ministry of Industry and Trade, shows a considerable increase in the consumption of fuel for energy production based on wood biomass. Between 2004 and 2011, there was an increment by 67% in wood waste, chips and particles, by 48% in briquettes and pellets, and by 26% in fuelwood, which is preferably used by households. The consumption of cellulose extracts is more or less balanced as no considerable changes took place in the production capacities relating to paper and pulp wood. In the year 2012, the country also achieved an increment in the consumption of fuel based on wood biomass in energy production.

The actual utilisation of residues, e.g. wood for energy purposes, in the Czech Republic has been addressed to meet the obligations laid down by the Directive 2009/28/EC. To this end, Act No. 165/2012 Coll. on supported energy sources and amendments to certain acts was adopted in 2012, coming into force on 1 January 2013 (see 2/c). To meet the EU objectives, the Czech Government drew up a new Biomass Action Plan of the Czech Republic for the period 2012–2020 (adopted on 12 September 2012) and the National Renewable Energy Action Plan, discussed and approved on 8 November 2012.

The Biomass Action Plan of the Czech Republic follows the updated State Energy Policy, which defines the role of biomass in energy policy of the country with a view to the future. The document states data on major fields of biomass use for energy purposes and proposes suitable measures of sustainability in the sector until 2020. In contrast to the National Renewable Energy Action Plan (NREAP), it does not establish binding shares of energy from renewable sources but describes a real potential of individual kinds of biomass for efficient energy use. The NREAP expects the targets laid down by the European Commission to be met, namely the share of 14% of renewable energy sources in the final gross energy consumption and 10.8% of renewable energy sources in the final gross consumption in transport. The Action Plan aims to go beyond the obligatory targets in 2020 along with the fact that when the share of energy from renewable sources in the final gross consumption in the respective period reaches 13%, no operating subsidies will be granted for any renewable energy sources in the upcoming period. Having adopted the NREAP, the Czech Government also acknowledged the update of the State Energy Policy of the Czech Republic.

In addition to a number of other measures adopted by the Czech Government with respect to the given issue in 2005, 2007, and 2009, the Ministry of Industry and Trade of the Czech Republic introduced, in 2011, the State Programme for Support of Energy Savings and Use of Renewable Energy Sources, referred to as the Programme EFEKT 2011. Further measures to enhance the use of forest biomass in energy production are determined by Programme No.4, which is part of the National Forest Programme.

**c) Forest products certification.** Support of sustainable forest management was the main impulse for the introduction of certification schemes in both the world and the Czech Republic. Sustainable forest management was defined by the Second Ministerial Conference on the Protection of Forests in Europe held in Helsinki in 1993, as the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.

Forest certification, which has already been established in the Czech Republic for many years, currently proves to be one of the most efficient market tools for the support of sustainable forest management. The certification process in the Czech Republic involves a procedure, when an independent organisation issues a certificate for the forest owner confirming that the given forest management practices comply with the established criteria of sustainable forest management. By accepting the certificate, the forest owner confirms the obligations to manage the forests according to the given criteria. Such obligations refer to logging and a wide range of social, environmental, and economic functions of the forest that relate to the sustainable use of natural resources. The forest certification scheme thus fully complies with the definition established by the Helsinki Resolution.

There are currently two certification schemes in the Czech Republic – FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification Schemes).

#### **PEFC**

In 2012, an international independent certification body Form International accomplished assessment of new Czech standards. This process confirmed compliance with all international requirements for the assessment of sustainable forest management. The Czech system was recognized again by the Council of PEFC International in April 2012, which successfully finalised a long process of national standards review. Thus, it may be assumed that the requirements of the world's largest forest certification system had been adequately adapted to the local priorities and conditions. This process was followed by recertification of the entire region of the Czech Republic according to the new standards. A large number of forest owners, regardless the type of ownership or size of their forests, showed their interest in the PEFC certification system to obtain an independent confirmation of due management of their forests. The size of forests certified under PEFC has already surpassed 70% of the entire forest area of the Czech Republic.

#### **FSC**

At the end of 2012, FSC certificates for forest property were owned by Mendel University in Brno, Training Forest Enterprise Masaryk Forest Křtiny, Prague City Hall, the Krkonoše Mts. National Park Administration, and a group certification Nestátní lesy Svitavsko (Non-state Forests Svitavsko). A document called “Manual for Foresters/Forest Managers” was drawn up as a step-by-step guide for foresters through an environmentally friendly forest management, which also involved an economic study comparing clear-cutting and close-to-nature systems of forest management. The year 2012 brought an increase in the number of certificates in the respective manufacturing industry, namely from 117 to 178, i.e. by 52%. Tetra Pak is one of the significant companies that got certification in the Czech Republic in 2012.

#### **d) Value added of wood products.**

The annual value added (VA), valued in current prices and expressed in CZK thousand, realized in 2006 and 2012 as a sum of all four wood-based fields (i.e. the wood processing industry), showed a drop by 13.8% for the observed period of 7 years. On the contrary, the manufacturing industry of the Czech Republic as a whole noted a slight increase in the VA by 3% in the same period. The deteriorating trend of the VA in the WPI remains alarming.

All four fields of the WPI individually experienced a desired increase in the VA between 2006 and 2007. NACE 16 increased by 5.7%, NACE 17 by 14.6%, NACE 18 by 3.6%, and NACE 31 by 5.9%. As stated above, there was a gradual reduction of the VA in all fields between 2007 and 2009 due to problems outside the Czech Republic. The year 2008 was partly exceptional, when NACE 18 noted an increment in the VA by 6.3%. That

year, NACE 31 also retained the pace of the VA growth. In the main field, NACE 16, there was a year-on-year increase in the VA between 2009 and 2010 by 2.4% and in NACE 17 by 6.9%. On the other hand, NACE 18 fell by 2.7% and furniture (NACE 31) even by 4.3%. Moreover, the slumps did not cease. The VA in NACE 16 declined in 2011 against 2010 by 0.8%, in NACE 17 by 8%, in NACE 18 by 5.7%, and in NACE 31 by 3.5%. Compared to 2011, the year 2012 brought the following: decrease by 4.5% in NACE 16, increase in NACE 17 by 3.8%, and decrease in NACE 18 and furniture by 4.8% and 1.3% respectively.

In contrast to the trend in the WPI in the preceding years, the development was dramatically negative, particularly in 2011 and 2012, except 2009. This was obvious not only from the VA indicator, as described in the text relating to the WPI above. The competitiveness and efficiency of the WPI fields in the national economy were considerably weakened. This was neither expected nor forecasted. Cooperation and common efforts of forest production and industrial manufacturing sectors, assisted by the respective ministries and the EU, will be required to ensure the necessary competitiveness and efficiency of Czech wood products on the domestic and global market. Financing new and highly efficient machinery and technologies will play a key role in this sector of the Czech economy on the way to enforce its better competitiveness.

**e) Softwood sawnwood market.** Due to the reduced breakdown of softwood roundwood already known from 2010, the production of softwood sawnwood further decreased in the following years. Namely, production of softwood sawnwood amounted to 3,997 thousand m<sup>3</sup> in 2012, which meant a decline by 156 thousand m<sup>3</sup> against 2011. In year-on-year terms, the drop was by 3.8%. This production was already reduced between 2010 and 2012 by considerable 11%, i.e. a volume of 495 thousand m<sup>3</sup>. As to annual production of 2012, this was a shortfall of 12.4%.

In 2012, exports of softwood sawnwood amounted to 2,910 thousand m<sup>3</sup>. This represented approximately three quarters, precisely 72.8%, of the total annual production of this assortment. In contrast, exports of 2011 totalled 3,084 thousand m<sup>3</sup>. In other words, there was a decline in softwood sawnwood exports in 2012 by 5.6%. The slump in the mentioned year-on-year exports by 174 thousand m<sup>3</sup> represents -4.4% of the annual production of 2012. This was caused by problems in export opportunities. Despite the fact, total 74.3% of all the produced sawnwood was exported in 2011. In 2012, 502 thousand m<sup>3</sup> of softwood sawnwood were imported to the Czech Republic, while in 2011, it was 741 thousand m<sup>3</sup>. The decrease in imports was sharp, by 32.2% in year-on-year terms.

The situation in 2012, especially as to softwood sawnwood, shattered the already long-time persisting negative trend in the wood processing industry in the Czech Republic. As a matter of fact stated in the national news, the consumption of wood and wood products in the country has been severely lagging behind the consumption in developed economies. The annual consumption of wood per capita in the USA or Japan is 150% higher than in the Czech Republic. The share of timber used in the Czech building industry reaches a fifth of that in Germany or comparable Austria. Timber is minimally used for house building in the Czech Republic and the most recent trend is rather negative. The increasing export of wood products and reduction in building industry in the country considerably contribute to the unfavourable trend.

The domestic consumption of softwood sawnwood noted a year-on-year decrease by significant 12.2% in 2012, amounting to an annual volume of 1,589 thousand m<sup>3</sup>, compared to 2,026 thousand m<sup>3</sup> in 2010. The consumption of particle boards dropped by 5.8% and of plywood by unbelievable 45.4%. These were the sharpest drops reported in the past twenty years.

**f) Hardwood sawnwood market.** In 2012, there were total 710 thousand m<sup>3</sup> of hardwood sawnwood supplied on the Czech market, which is a reduction by 13.8% against 2011. The production of hardwood sawnwood of 2012 was down by 39 thousand m<sup>3</sup> compared to 2011, i.e. by 1.3%. The annual production of 2012 amounted to 262 thousand m<sup>3</sup> against 252 thousand m<sup>3</sup> in 2010 and 301 thousand m<sup>3</sup> in 2011.

Hardwood sawnwood, more expensive than softwood sawnwood, was exported in 2012 in the total amount of 242 thousand m<sup>3</sup>. Inconceivable 92.4% of the overall production of this assortment was exported. It even exceeded the exported volumes of 2011 by 2 thousand m<sup>3</sup>. During the period of an economic downturn, it can be observed that “a drowning man will clutch at a straw”. This is an unfavourable phenomenon in the economy. On the other side, imports of hardwood sawnwood totalled meagre 178 thousand m<sup>3</sup>, compared to 289 thousand m<sup>3</sup> in 2011. This is another considerable year-on-year slump by 38.4%, i.e. by 111 thousand m<sup>3</sup>.

Due to the above mentioned facts, the domestic market suffered from a lack of softwood and hardwood sawnwood throughout the course of the year. The Czech Republic exported the material for (or even below) the manufacturing costs, instead of more expensive finished products of the wood processing industry. Moreover, particularly small producers in the WPI were forced to reduce the number of employees due to the lowering production.

The annual domestic consumption of hardwood sawnwood in the Czech Republic was the lowest in recent years. It totalled 198 thousand m<sup>3</sup> in 2012, while the years 2011 and 2010 reported a still favourable consumption of 350 thousand m<sup>3</sup> and 342 thousand m<sup>3</sup> respectively.

**g) Market with wood-based panels (particle board incl. OSB, fibreboard, and plywood).** Companies KRONOSPAN CR, spol. s r.o. in Jihlava and Dřevozpracující družstvo Lukavec in Lukavec remained, also in 2012, the major and decisive producers of wood-based panels in the Czech Republic.

**In the sector of wood-based panels, including OSB (referred to as “WBP“),** the production of the assortment with a high value added continuously decreased from 2010 to 2012 as a result of a declining demand. In 2012, the production of WBP, including OSB, totalled 1,033 thousand m<sup>3</sup>, compared to 1,052 thousand m<sup>3</sup> in 2011 and 1,085 thousand m<sup>3</sup> in 2010. The figures represent a year-on-year fall by 1.8% in 2012, and by 3.04% in 2011 against 2010.

In 2012, as was the case in the two preceding years, most of the production, including imports, was exported from the Czech Republic. In comparison to the year 2010, the country exported 50 thousand m<sup>3</sup> more that year. The total increase in exports of the mentioned product was by 4% in three years. In volumes, total exports of 2012 amounted to 1,335 thousand m<sup>3</sup>, while the actual annual production reached the volume of 1,033 thousand m<sup>3</sup>. The volume of annual exports in 2012 represented 88.2% of the total production including imports. In 2011, this was 87.6%.

In case of imports, it resulted cheaper for the exporters, in the Czech Republic very often also producers, to import the foreign products to the country and sell it along with their own products. The annual imports to the Czech Republic gradually increased. In year-on-year terms, it was by 0.6% in 2011 and by 0.8% in 2012. The imports of 2011 amounted to 476 thousand m<sup>3</sup>, while the observed year 2012 already reported 480 thousand m<sup>3</sup> of WBP imported to the country.

The slump in the Czech economy was also reflected in the domestic consumption of wood-based panels, including OSB. It showed a dramatic year-on-year decline in 2011 by

30.8% and further reduction in 2012 by 5.8%, when any deeper slump was practically impossible. In absolute numbers, the annual domestic consumption of WBP, including OSB, in the Czech Republic amounted to 178 thousand m<sup>3</sup> in 2012, 189 thousand m<sup>3</sup> in 2011, and 273 thousand m<sup>3</sup> in 2010.

**Particle boards.** As the preceding annual reports already demonstrated, the production of this assortment in the Czech Republic is traditionally low. The imported volumes are more than five times higher than the actual national production, which was 41 thousand m<sup>3</sup> in 2012, i.e. down by 1 thousand m<sup>3</sup> against 2011.

Imports of particle boards reached 217 thousand m<sup>3</sup> in 2011 and 211 thousand m<sup>3</sup> in 2012. On an annual basis, the decrease was by 2.8%. Exports of the assortment dropped in 2012 against 2011 by notable 12.4%. In volumes, 85 thousand m<sup>3</sup> of particle boards were exported from the country in 2012 and 97 thousand m<sup>3</sup> in 2011. Out of the overall production and imports, the Czech Republic exported, or rather re-exported, 33.7% in 2012 and 37.5% in 2011.

The domestic producers reoriented on better accessible and cheaper products, which increased an annual domestic consumption in the national economy. In 2012, the annual domestic consumption of particle boards totalled 167 thousand m<sup>3</sup>. In 2011 and 2010, it amounted to 162 thousand m<sup>3</sup> and 164 thousand m<sup>3</sup> respectively.

**Plywood.** While the annual production of plywood in the Czech Republic in 2010 was surpassed by the annual domestic consumption by 12 thousand m<sup>3</sup>, the two following years noted an opposite trend. The domestic consumption sagged in 2011 by notable 63 thousand m<sup>3</sup> against the annual production. This reverse development compared to 2010 was caused by a sharp increase in exports and partly imports, along with a year-on-year decline in production of plywood. The situation on the market with plywood was different in 2012, though. In consequence of a further year-on-year drop in the national plywood production by 3 thousand m<sup>3</sup>, it was indispensable to partly increase the respective imports, namely by 6 thousand m<sup>3</sup> in year-on-year terms. However, the exports were considerably reduced against 2011 in relation to the general problems in export. As opposed to the annual production, the slump in the domestic consumption of plywood reoccurred, though, precisely by 46 thousand m<sup>3</sup> annually.

The annual consumption of plywood reached 178 thousand m<sup>3</sup> in 2012. The years 2011 and 2010 reported volumes of 181 thousand m<sup>3</sup> and 204 thousand m<sup>3</sup> respectively. The volumes of imported plywood were as follows: 71 thousand m<sup>3</sup> in 2012, 65 thousand m<sup>3</sup> in 2011, and 48 thousand m<sup>3</sup> in 2010. In 2012, the Czech Republic exported 117 thousand m<sup>3</sup> of plywood, while these exports reached 128 thousand m<sup>3</sup> in 2011 and only 36 thousand m<sup>3</sup> in 2010.

Disorder in this commodity market also affected its domestic consumption. The total annual consumption of plywood in 2012 amounted to 132 thousand m<sup>3</sup>, while in 2011 and 2010, it was 118 thousand m<sup>3</sup> and 216 thousand m<sup>3</sup> respectively.

**h) Wood pulp and paper.** The annual consumption of raw softwood timber in the Czech Republic for the production of wood pulp was total 3,459 thousand m<sup>3</sup> in 2012. This volume involved 2,287 thousand m<sup>3</sup> of softwood pulpwood and 1,172 thousand m<sup>3</sup> of softwood chips and particles. As the consumption in 2011 reached 3,576 thousand m<sup>3</sup>, the year-on-year decline in the supplies of this type of timber was by 3.3%. Out of the total volume, the industry consumed 2,479 thousand m<sup>3</sup> of pulpwood and 1,097 thousand m<sup>3</sup> of wood chips and particles. In 2012, the consumption of pulpwood dropped by 192 thousand

m<sup>3</sup>, i.e. by 7.7% in year-on-year terms, against 2011. However, compared to the year 2011, the consumption of chips and particles augmented by 6.8% in 2012.

In 2012, the pulp and paper industry of the Czech Republic produced total 692 thousand m<sup>3</sup> of pulpwood. This production amounted to 704 thousand m<sup>3</sup> in 2011, which represents a year-on-year fall by 1.7%. However, the national production of this material was 722 thousand m<sup>3</sup> in 2010. Thus, against the mentioned 692 thousand m<sup>3</sup>, the production went down by 4.2% in three years.

From the total volume of produced pulpwood of 692 thousand m<sup>3</sup>, the pulp and paper industry of the country produced, in 2012, 689 thousand m<sup>3</sup> of chemical pulp. The remaining volume represented other pulpwood. In 2011, total 704 thousand m<sup>3</sup> of produced pulpwood was used to produce 697 thousand m<sup>3</sup> of chemical pulp, 3 thousand m<sup>3</sup> of mechanical pulp, and the remaining volume was other pulpwood. The assortment is given in the chart.

According to the CEPI classification used in pulp and paper industry, the production was up by 106 thousand tons in 2011 and totalled 843 thousand tons. The year-on-year increment was 14.4%. In the field of paper, paperboard and cardboard, the production in 2012 exceeded even that of the year 2010, which reported 769 thousand m<sup>3</sup> of the produced assortment. The increase in this production in the mentioned period was 9.6%.