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OF THE CZECH REPUBLIC 2018**

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# 1. BASIC TRENDS OF CZECH ECONOMY DEVELOPMENT IN 2017

## Economic relations with Asian-Pacific Countries

Business with timber and wood-based products with countries in Asian Pacific (mainly with China) is operated by only few bigger companies and rather in small volumes. Out of the 11 big companies it concerns mainly Czech State Forests and other seven global companies. Available information is incoherent. Presently, Czech Government is working on a programme to boost the share of Czech market with timber-based commodities with countries outside of the EU incl. countries in Asian Pacific. One can assume that data sources needed will be stabilised in the future.

## Czech economy development in 2017

At the beginning of 2017, in the Czech Republic it was predicted that the GDP growth will exceed the average growth over the last three years, i.e. exceeding 3.5%. However, the real Czech economy development in 2017 proved to be contrary to the prediction. The year of 2017 was a year of prosperity rather than decline based on the economic results. In real life, Czech economy experienced a dynamic growth, moreover, a balanced growth. The trust in Czech economy grew in 2017 and was the highest since 2008. The overall indicator was increased from 99.1% in December 2016 to 99.7% in December 2017.

2017 GDP grew by 4.6% in constant prices as compared to a 2.5% growth year-on-year in 2016. 2017 GDP value was the highest since the year of conjuncture, 2007, and the accelerated growth dynamics was reached by cooperation of all GDP elements. Gross value added (GVA) increased by 4.5% year-on-year in the Czech Republic in 2017. This means almost a double growth as compared to 2016. The high growth of GVA was helped mainly by processing industry, where the GVA grew by 7.6% year-on-year, i.e. the biggest growth over the past six years. In parallel, Czech construction industry helped too, i.e. by 3.3% GVA growth year-on-year, as well as energy sector, forestry, agriculture and fishery that grew by 4.7% year-on-year. Value added of this sector continues growing for the fourth year in a row, however the 2016 dynamics was reduced by half.

Czech economy growth was also contributed by family business. It generates jobs, can overcome hard times, and it adapts to changes and show high level of honesty. It plays a key role in regional development, it generates original products and shows high responsibility towards its founders and those to take over. Czech Republic has the chance to become the eleventh country to anchor family business in its law in the EU.

Along with the above, the Czech economy performance boosted also due to growing employment rate in 2017, i.e. 1.6% growth year-on-year. The unemployment rate dropped to 2.9%. The growth of consumer prices ranged in the upper half of the tolerance zone for inflation goals, and inflation rate reached 2.5% of the growth in the Czech Republic. As for foreign trade, export and import showed a 5.9% and 8.2% growth year-on-year respectively. In 2017, Czech Republic sold products and technologies for approx. CZK 4.2b. This is absolute record. In 2003, before joining the EU, Czech Republic exported goods and services for CZK 1.3b and in 2012, for CZK 2.98b. This development together with 2017 prove sufficient competitiveness of Czech companies.

In 2017, there was significant demand for Czech vehicles that make up to over a half of the Czech export as well as the demand for electric appliances and chemicals where the Czech exports fail to keep up with the growing demand. Growing import was caused mainly by machines and machinery, imports for vehicle production, electronic devices, etc.

In 2017, the Czech foreign trade balance recorded a surplus on the current account of payment balance of CZK 54.2b.

## Czech industry in 2017

As for Czech B+C+D industry, the IPP index grew by 6.5% year-on-year in 2017, as compared to 3.4% in 2016. IPP of processing industry (C) grew by 6.9% year-on-year, as compared to 4.1% and 5.5% in 2016 and 2015 respectively. The production of selected products within other non-metal mineral products grew by 11.4% year-on-year in 2017; by 10.7% within chemicals and chemical substances, any by 10.3% in automotive industry. Given the focus, equipment, quality of products and competitiveness of the Czech processing industry, it is a full-fledged part of developed EU countries with key relation to German industry.

Processing industry is the driver of Czech economy, implementation of science, modern technics and technologies, so it is capable of contributing to implementation of 4.0 industry in the Czech Republic. Presently, **IT, Robotics and Cybernetics Institute was set up at Czech Technical University in Prague** to facilitate the transfer of the Czech economy to 4.0 industry. Based on its position, concept and focus, it strives for changes in Czech education in order for the education to be 4.0-industry compliant. **In the Czech Republic**, there are more and more lines that are 4.0-industry compliant and collaborative robots are introduced in the industrial production. Robots that can collaborate with people, perceive human presence and collaborate with people during comprehensive assembly tasks. Implementers' industry is set up and growing, companies, which wish to help with implementation of interesting systems in the Czech economy, are growing. Czech Chamber of Commerce, a body not financed by the Government, is helping the new rise. Experience collected in Germany, Japan, USA, South Korea and other developed economies are assessed.

## Czech construction industry in 2017

It belongs to Czech key sectors. It is considered to be one of the most important indicators of economy development. Nevertheless, since 2000 Czech construction industry experienced the conjuncture from 2007 to 2008. Its production grew by 3.3% year-on-year as compared to 5.6% decline in 2016. Ground construction, i.e. apartments, offices or industrial halls, grew by 6.6% year-on-year. Building of network, mainly roads, experienced a 7.1% decline year-on-year.

It is satisfactory that Czech Republic is succeeding in finishing more and more wooden construction. E.g. in 2016, 2,013 wooden family houses were built, i.e. a year-on-year growth by 12% and their share in all build family houses exceeded 13%. In 2017, 2,214 wooden family houses were build and their share in all build family houses amounted to 14.4%.

Most wooden constructions were built in Prague, Central Bohemia and Northern and Southern Moravia. Just for the comparison with the past, e.g. in 1998, only 123 wooden family houses were built and their share in all build family houses amounted to 1.5%. The growth dynamics of finished wooden buildings and traditional family houses from 1998 to 2017 amounts to 18% and 4% respectively in the Czech Republic.

## 2. CZECH ECONOMY IN 2018 AND 2019

The prediction is based on the fact that the Czech Republic could continue in favourable development and economic conjuncture, however, with a lower growth rates due to risks lying outside the Czech Republic. The major risk presents the labour market and in the export mainly lower exports of vehicles that amount up to one third of the total Czech export.

In 2018, the success of Czech development will be influenced by fulfilling 4.0 industry related tasks. This means increasing investments into new technologies, cutting edge production facilities, mainly into smart robots and workers to communicate with them.

In 2018, the growth of Czech processing industry could reach up to 5.0% and the growth of construction industry performance up to 5.6% year-on-year.

Past years show that foreign companies generate up to CZK 300b profit in the Czech Republic that leaves the country without being used efficiently for the entire development of the Czech Republic.

The 2019 forecast assumes that the **existing Czech economy growth** will be maintained, **even though the Czech economy will exceeds its potential**. Given the slowdown of the growth in Eurozone, tightening domestic monetary conditions and escalated situation on the labour market, the growth could slow down year-on-year in 2019, namely up to 3.3% of GDP. **In 2019, the public debt should drop to 30% of GDP, which would give the Government the needed space, should the economy be confronted with potential foreign shocks.** Both Czech industry and construction industry should do well also in 2019. The processing industry and construction industry growth could reach up to 4.8% year-on-year respectively.

## 3. ECONOMIC TRENDS IN FORESTRY AND WOOD-PROCESSING INDUSTRY IN 2017 IN THE CZECH REPUBLIC

### Forestry in the Czech Republic

Forestry in the Czech Republic is based on a fairly good forest quality. The forest areas grew again year-on-year, namely by 1,089 ha in 2017 and amounted to the total of 2,671,659 ha, even though the afforested area remains basically the same in the past years. Forest cover 2.7m ha, i.e. up to 33% of the Czech Republic, and it grew by almost 3% over the last 50 years.

If compared to 1930, the total timber stock in Czech forests doubled. However, not the entire timber stock is available for the harvest. The harvest in forest with protective or special function is limited in order to provide the protective function or by special management compliant with

nature conservation, and in reserves and first zones of national parks harvesting timber is prohibited. The average stock per one hectare of forest amount to 269 m<sup>3</sup>.

In 2017, the share broad-leaved species amounted to 42%, i.e. the record value since 1960. In 2017, almost 125m new trees were planted in Czech forests and 54% thereof were broad-leaved species, with beech and oak prevailing. As for coniferous species, spruce and pine prevailed.

The year of 2017 was marked with typical warm early spring with frost spells, major storms with strong winds during the summer followed by Xaviert and Herwart storms in winter. In 2017, temperatures strongly exceeded the average values, there was drought, water shortage with precipitation 50% below the standard values in the Czech Republic.

These adverse weather effects led to deterioration of the overall economic situation of forest owners – both state forest managers and communal and private forest owners, in the Czech Republic in 2017. After a significant decline of economic results from 2006 to 2009 followed by an improvement from 2010 to 2016, the results dropped again the level reached between 2010 and 2011, and the results are the worst in the past six years.

The economic results achieved by forest owner without management contribution declined from 4,119 CZK/ha in 2014 to 2,381 CZK/ha in 2017 and hence the result only for forest-related activities dropped from 4,984 CZK/ha in 2014 to 3,654 CZK/ha in 2017.

The adverse situation did not improve not even in 2017 when the harvest was the highest. In Czech forests, 19,387k m<sup>3</sup> without bark were harvested, which means a year-on-year growth over 10%. It is necessary to point out that the growth was caused by salvage felling due to insect and nature catastrophes as in two Moravian regions, the share of salvage felling exceeded 90% and the calamity continues.

In 2017, the harvest of coniferous and broad-leaved timber amounted to 17,730k m<sup>3</sup> and 1,652k m<sup>3</sup> respectively as compared to 15,924k m<sup>3</sup> and 1,693k m<sup>3</sup> respectively in 2016 i.e. a year-on-year increment of 11.3% in 2017. The volume of harvested coniferous timber grew by 3,350k m<sup>3</sup> from 2015 to 2017.

Supplies of coniferous timber recorded a significant year-on-year growth by 1,806k m<sup>3</sup>, whereas broad-leaved timber recorded a decline by 41k m<sup>3</sup>. The share of salvage felling in Czech forests grew year-on-year from 53.4% to 60.6%.

The surplus of mainly coniferous timber from calamities on the Czech market (that greatly exceeded the real capacity of processing capacities in the Czech Republic), its export was increased in 2017 (mainly to Austria and Germany) and for similar prices as paid by local clients. Due to the high offer of spruce roundwood and pulpwood for better prices (mainly spruce roundwood in deteriorated III.C and III.D quality class), the production of wood-processing industry both in the Czech Republic and Austria and Germany experienced a recovery. Prices dropped further due to permanently growing offer of spruce raw timber offered by suppliers and forest owners. Hence, the record prices recorded in Q1 2015 were dropping till YE 2017.

The export of raw timber incl. wood coal, chips, splinters, sawdust, wooden residues and waste and wooden pellets and other agglomerates grew by 1,552k m<sup>3</sup> year-on-year to the total of 8,855k m<sup>3</sup> in the Czech Republic in 2017. In 2017, the export of coniferous and broad-leaved roundwood and pulpwood grew by 1,301k m<sup>3</sup> and 56k m<sup>3</sup> year-on-year respectively. As for other commodities,

i.e. fuel wood, wood coal, chips, splinters, sawdust, wooden residues and waste and wooden pellets and other agglomerates, the export grew by 195k m<sup>3</sup> year-on-year.

Import of raw timber incl. wood coal, chips, splinters, sawdust, wooden residues and waste and wooden pellets and other agglomerates grew by 240k m<sup>3</sup> year-on-year to the total of 3,146k m<sup>3</sup> in the Czech Republic in 2017. In 2017, the import of coniferous roundwood and pulpwood grew by 132k m<sup>3</sup> year-on-year, however, import of broad-leaved roundwood and pulpwood dropped by 20k m<sup>3</sup> year-on-year. As for other commodities, i.e. fuel wood, wood coal, chips, splinters, sawdust, wooden residues and waste and wooden pellets and other agglomerates, the import grew by 137k m<sup>3</sup> year-on-year.

The export into EU-28 amounted to 98.6% out of the total export thereof 51.9% into Austria, 35.8% into Germany, 5.0% into Italy and 3.6% into Slovakia. Similarly, raw timber was imported mainly from EU-28 countries (89.7%) as follows: 34.6% from Slovakia, 31.7% from Poland and 13.3% from Germany.

In 2017, 2016 and 2015, domestic consumption of raw timber and wooden-based products amounted to 13,678k m<sup>3</sup>, 13,222k m<sup>3</sup> and 12,960k m<sup>3</sup> respectively. Hence, the domestic consumption of raw timber and wooden-based products grew by 3.5% and only by 2.0% in 2017 and 2016 respectively.

## Czech wood-processing industry

According to CZ-NACE sector 16, 17, 18 and 31; the sum of those sectors represents the Czech wood-processing industry (WPI CZ). WPI CZ without CZ-NACE 18 contributed to the growth of gross value added for agriculture, forestry, fishery, food making industry, wood-processing industry, paper industry and furniture production of 5.4% by 25%. Given the size of Czech agriculture and forestry, this is a good but undesired performance.

In 2017 the supplies of roundwood for wood-processing companies, mainly for saw mills, were fairly good. The prices of spruce roundwood dropped dramatically by 22-24% per m<sup>3</sup>. Prices were dropping also in the neighbouring countries, nevertheless, the prices of construction sawn wood grew partly due to the growing demand.

Wood-processing companies succeeded in working in shifts as they hired foreign workers and they are creating conditions preventing the workers from leaving. They achieved all this by increasing salaries significantly up to the limit of sustainability and staying competitive.

The market with wooden products has been growing over the past years. Both production, export and import but especially domestic consumption are growing in the Czech Republic.

#### **4. POLITICAL MEASURES FOR ENHANCING TIMBER AND TIMBER-BASED PRODUCTS IN THE CZECH REPUBLIC OVER THE PAST 18 MONTHS AND IN 2017**

Economic stimuli and legislation in Czech forestry in 2017.

The market with all products manufactured in the Czech Republic, i.e. incl. the forest and wood-based products, observed effective legislation incl. the EU legislation, free competition and followed the existing demand and offer.

As for legislation regulating Czech forestry, the following measures were adopted by the Government in 2017:

- 1) Forest Act no. 289/1995 Coll., was amended as at 1 July 2017 by the Act no. 183/2017 Coll. This act amended certain acts in relation with adopting the act on reliability for misdemeanour and related proceedings and act on certain misdemeanours.
- 2) From 31 Dec 2017, Act no.225/2017 Coll., amends Act no. 183/2006 Coll., on town and country planning and building code (Building Act), as amended, and other related acts. The Forestry Act was enhanced by the competences of Ministry of Agriculture regarding assessing the project maturity of common interest energy infrastructure and for applying binding statement in joint planning and building procedure for projects of common interest energy infrastructure, i.e. Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009. In national parks and their protective zones, this competence is exercised by the Ministry of Environment.
- 3) Act no. 62/2017 Coll., amended from 1 May 2017 Act no. 149/2003 Coll., on placing reproductive material of forest important species and artificial crossbreeds on the market, in term of legal technicalities.
- 4) Act no. 183/2017 Coll., amended from 1 July 2017 Act no. 149/2003 Coll., on placing reproductive material of forest important species and artificial crossbreeds on the market. This act amended certain acts in relation with adopting the act on reliability for misdemeanour and related proceedings and act on certain misdemeanours, as misdemeanour facts in relation to reproductive material of forest species were modified.
- 5) Decree no. 68/2017 Coll., amended from 1 May 2017 the Decree no. 29/2004 Coll., implementing the Act no. 149/2003 Coll., on placing reproductive material of forest important species. Annex 7 was amended extensively.



## Measures mitigating climate changes and supporting timber market adopted in 2017.

European forestry policy included in the EU New Strategy for Forestry from September 2013 focuses also in the Czech Republic on mitigating climate changes, forest protection, establishing new afforested areas, preserving genetic resources as well as on modernising forest machinery and technologies. The impacts of climate change on protective measures in forests are dealt with by the Faculty of Forestry and Wood Sciences of Czech University of Life Sciences together with Faculty of Forestry and Wood Technology Mendel University Brno.

Basically, it is about the support of sustainable forestry including also the boost of forest ecosystems resistance, ecological value and forest stands potential, soil protection and regulation of water quality and quantity. It reacts also to the growing pressure on use of renewable resources, as wood has a great development potential in the Czech Republic.

Individual measures and operations in the forestry sector of Czech Government and Ministry of Agriculture adopted in order to support timber market in 2017 are as follows:

- 1) Ministry of Agriculture elaborated methodology procedures for defining clone identity of gen resources of the following selected forestry species: Norwegian spruce, European silver fir, Scotch pine, small-leaved lime, wild cherry, European larch and sycamore maple. Based on the DNA analyses (microsatellite loci), multi-loci genotypes profiles of individuals were acquired, which can be used for identification of clone identical trees and hence improve the quality of forest fund.
- 2) As for remedy of nutrition in forest stands where distortion in form of magnesium and calcium shortage was established, projects of forest soil chemical amelioration were implemented based on Government's resolution no. 22/2004 and pursuant to Government's resolution no. 1031/2016.
- 3) Forests were reforested after calamities, which led to mitigation of damage caused by nature catastrophes and catastrophic events. The operations target forests in the entire Czech Republic except for Prague.
- 4) Investments into forest machinery, forestry technology increase forest economic value by using environmental friendly technologies and machinery when managing forests and limit the damage inflicted to forest soils and stands. Machinery and technologies for tending forest stands or investments into production of high-quality reproductive material of forests species.
- 5) We carried on with construction and reconstruction of forest roads in order to increase their density, provide for amelioration or facilities for the purpose of forest protection.
- 6) In 2017, investments into amelioration and pioneering species were carried out; these species prevent gradual soil degradation, improve water regime of forest solid, help support the forest stand skeleton, and hence, improve the resistance against weather impacts and reduce forest stands susceptibility to insect-induced calamities.

- 7) Also non-reproductive investments were carried out in order to boost environmental and social forest functions. The transformation of forest stands by using alternative tree species focuses on forests with alternative species in immission areas based on Governmental Decree no. 78/1996 Coll., on zoning forests influenced by immissions.

#### Governmental stimuli for producing timber energy and its use in 2017.

In the Czech Republic, the original legislation for using renewable resources was adopted by the Government in 2005, namely Act no. 180/2005 Coll. In 2012, the Government adopted another act, namely no. 165/2012 Coll., on supported energy resources, which amended the original act above. This amendment introduced support for bio methane and changed the way of financing the support for newly built resources. The follow-up documents stipulated the use of renewable resources for producing bio methane, electricity and way of storing the documents and records on fuel used for production from renewable resources, reporting and recording electricity and heat generated from supported resources and bio methane as well as other obligations. Stimuli for efficient use of timber were also stipulated by Government's resolution no. 392/2016 Coll. that focuses Czech economy on generating higher share of value added from processing timber as Czech strategic commodity. This resolution also focuses on more efficient results of timber market which is to increase competitiveness of Czech forest and wood-processing companies.

Timber biomass is used for producing energy from timber in the Czech Republic. The advantages of processing biomass are the balanced level of carbon dioxide – the same amount is released as used by the plant while growing – and absolute marginal amount of sulphur. The disadvantage, similar to other combustion processes, is the production of nitrogen oxides. Timber energy has several sources in the Czech Republic: forest chips, bark, saw mill residues, secondary products of furniture production and of timber recycled from used consumer goods. This also increases the share of forest residues generated during harvest.

In the Czech Republic, the WPI itself is a major producer of renewable energy from timber biomass. WPI uses 75% of energy used by Czech industry directly for drying timber and for producing boards. As for efficient and modern use of energy from timber or from saw dust from WPI and harvest residues from forest production, the energy sector is supported by the Government.

In 2014 and 2017, 274 GWh and 572 GWh of electricity were produced from bio mass respectively, this means a 208.8% growth in three years. As for renewable resources, 2,462 GWh and 2,791 GWh of electricity were produced in 2014 and 2017 respectively.

#### Research and development to support higher market efficiency in 2017.

Research and development contribution to higher efficiency of the Czech market is realized mainly by production entities and relevant sectors, universities and other professional private institutions. Technical institutes and private education agencies react actively to producers'

requirements. In parallel, regional entities that have their area well mapped and may provide interesting and unusual solutions participate in the activities.

Concept of research and development for higher market efficiency in the Czech Republic as the key document is drafted by both Government and individually by its central bodies.

This area is covered by a document called "Competitiveness Analysis of the Czech Republic" produced by the Ministry of Industry. The analysis comprises the participation of research and development in the competitiveness issues. It describes actual tasks for bodies, organisations, enterprises and institutions for higher market efficiency and it comprises the analysis for higher market efficiency in selected areas incl. actual initiatives and proposals.

This document is followed by the International Competitiveness Strategy. This document focuses on long-term development priorities of Czech economy from international perspective. Hence, it is drafted in a way allowing the priorities to be adapted both to changes in global economy and the position of open and export-dependent Czech economy. It relates also to the introduction of changes relating to fourth industrial revolution. Ministries and Czech Government are informing Czech companies immediately about intended changes relating to fourth industrial revolution that are part of documents of the Czech Republic, EU and other countries.

Recently, private institutions and the Government focus on efficient search for suitable and perspective partners for Czech business and corporation relations within EU countries and other countries, and not only in relation to USA where these activities provide desired affects but also in countries located in the East. As showed by the International Competitiveness Strategy, it is not easy for Czech economy to reach more efficient solutions for competitiveness in real life, also due to persisting risks in the outer environment.

#### Measures for increasing responsibility of social associations in 2017.

There have been no major changes since the last report. Measures for increasing social responsibility of social associations are handled according to the effective legislation all over the country. As for forestry. These issues are incorporated in the National Forestry Programme as a task to support the improvement social situation of forestry workers and employees.

Social associations registered in forestry in the Czech Republic are voluntary, non-profit and non-government organisations. Their task is to protect the interest of citizens, workers and employees in forestry, support in increase of producers operating within forest management and for sustainable forest management. These private associations within Czech forestry should help the forestry employees with maintaining social securities and dealing with social issues, legal and other consultancy, cooperation and solving problems with local authorities as well as issues of economic management and handling forest property in order to educate due managers in this area. The Government does neither regulate, nor steer, nor finance these associations. Hence, the Government does not issue any guidelines or adopts measures for their activities incl. social support. As Czech voluntary, non-profit and non-government organisations, they are partially financed by the Government, but not by foreign organisations.

E.g. these associations comprise Association of Forestry Entrepreneurs at Agrarian Chamber of Czech Republic. This association provides legal consultancy, represents its members in legal acts and

in creation of National Forestry Programme, monitors the maintenance and development of social security on behalf of all forestry employees; it has the task to keep and improve the performance on forestry market, to develop professionally forest management as such under sustainable and due forest management and handling of forest estates.

Another important entity is the Academy of Agricultural Sciences – forestry that unifies people working in research and science and at forestry universities. It has many expert commissions used by the Ministry of Agriculture and other central bodies, expert parts and mainly forestry employees.

Association of Municipal and Private Forests in the Czech Republic is another association. This association enforces ownership rights of its members, rises the prestige of foresters, use of forest biomass and other activities incl. social responsibility; it activates the cooperation mainly with local authorities and sometimes also with ministries and other central bodies and institutions.

One should not omit other important associations: Czech Association of Forestry Entrepreneurs. This is a forestry non-governmental organisation enforcing the interests of SME incl. social issues; Association of Forestry Sole Traders that creates the best conditions for employees to develop forestry in CZ, supports conduct of business, intermediates contacts between traders, defends its members, etc.

## Measures adopted by the Government relating to research and development for supporting market with timber and timber products in 2017

In 2017 same as in the past, the following institutions are entrusted with research related to basic and applied research and to research for boosting market with timber and timber products: Forest and Game Management Institute, Faculty of Forestry and Wood Sciences and Faculty of Environmental Sciences of Czech University of Life Sciences, and Faculty of Forestry and Wood Technology Mendel University Brno, Academy of Science in České Budějovice and Brno and private research institutions. Universities establish their research bases such as School Forest Enterprise Masarykův les in Křtiny, established by Mendel University Brno. Other research institutes comprise e.g. association of Czech companies Crea Hydro and Power Czech Renewable Energy Allianz.

The issues of basic, technological and applied research of timber market and wood-based products in forestry focused on strengthening the competitiveness of forestry and development, improvement of new approach to planning and realistic solutions for and optimisation of harvest-transporting technologies in forests. It also focuses on supporting ecological forest management in general in the Czech Republic. The research also focused on forest and landscape ecosystems, forest and forest environment assessment, increasing forest resistance to climate change as well as new procedures of forest management, new opportunities for forestry and water and watering systems.

It also focused on improving the quality of forest enterprise management, issues of economic efficiency of low forest, economic efficiency of cultivation, development and modelling of growing processes. Last but not least researchers worked on use of landscape within Central Europe, ecophysiology of plants and on use of biomass for energy purposes.

As for wood processing industry, the expert organisations and respective central bodies, if own research was not required, focused mainly on solutions for wood processing production development and the issues relating to efficiency and effectivity of the market with wooden

products. Hence, the research focused on intentions of boosting the interest in modern wooden houses in the Czech Republic and on implementing new methods of design and production of wooden constructions and their parts in order to increase the automated and integrated production. We have been successful in fulfilling these tasks recently.

## **5. MARKET WITH RAW TIMBER IN THE CZECH REPUBLIC IN 2017**

### Stock, harvest and market with raw timber in 2017

The total stock of raw timber are fairly good in the Czech Republic and amount to 699m m<sup>3</sup>. This was contributed greatly by the total increment of 22.1m m<sup>3</sup> without bark in 2017.

From the total stock above, the harvest and supplies (without import) to the internal market of coniferous and broad-leaved timber, i.e. coniferous and broad-leaved roundwood and pulpwood and coniferous and broad-leaved fuelwood, amounted to 19,387k m<sup>3</sup> in 2017, as compared to 17,617k m<sup>3</sup> in 2016 and only 16,163k m<sup>3</sup> in 2015. The year-on-year harvest growth amounts to 11% in 2017. The growing harvest is caused mainly by salvage felling.

The share of coniferous timber, i.e. coniferous roundwood, pulpwood, and fuelwood, was growing due to salvage felling. It amounted to 86.7% in 2012, then grew to 87% in 2014, to 89% in 2015, and 90.4% in 2016; the 2017 figures indicate a share of 91.5%.

The raw timber export and import, i.e. coniferous and broad-leaved roundwood, pulpwood, and fuelwood (roundwood in the rough), amounted to 6,801k m<sup>3</sup> and 1,934k m<sup>3</sup> respectively. In 2016 the export and import of roundwood in the rough amounted to 5,420k m<sup>3</sup> and 1,821k m<sup>3</sup> respectively. The change in the trends can be credited to salvage felling caused by drought and bark beetles.

Bark beetle calamities lasting over three years due to drought as well as consequences of several natural disasters in 2017 lead to major issues with raw timber sales, mainly sales of roundwood for saw mills. The timber sales dropped also in the neighbouring countries. In 2H 2017, this led to the decline of export prices of all coniferous assortments incl. sawnwood. The prices of spruce roundwood dropped by 22-24% per m<sup>3</sup>. Declining exports caused the performance growth of local saw mills, improvement of supplies to wood-processing companies and the rise of domestic consumption from 6,763k m<sup>3</sup> in 2016 to 7,141k m<sup>3</sup> in 2017.

### Market and harvest of round wood, incl. pole and mining timber in 2017

The harvest (supplies) of coniferous and broad-leaved roundwood amounted to 11,488k m<sup>3</sup> in 2017, as compared to 10,341k m<sup>3</sup> in 2016. The year-on-year growth of harvest amounted to 11.0% in 2017 as compared to 15.4% in 2016. In 2015 the year-on-year growth was only 4.9%. From the total harvest of coniferous and broad-leaved roundwood of 11,488k m<sup>3</sup>, coniferous roundwood amounted to 10,986k m<sup>3</sup> in 2017, as compared to 9,869k m<sup>3</sup> in 2016, i.e. a year-on-year growth of 11.3% in 2017 as compared to 16.6% in 2016. The harvest of broad-leaved roundwood amounted to 502k m<sup>3</sup> in 2017, as compared to 472k m<sup>3</sup> in 2016.

The total export of coniferous and broad-leaved roundwood amounted to 4,910k m<sup>3</sup> in 2017, as compared to 3,872k m<sup>3</sup> in 2016. In 2015, it amounted only to 3,131k m<sup>3</sup>. Import of coniferous and broad-leaved roundwood amounted to 1,088k m<sup>3</sup> in 2017, as compared to 866k m<sup>3</sup> in 2016. In 2015, it amounted only to 1,132k m<sup>3</sup>. Domestic consumption of coniferous and broad-leaved roundwood amounted to 7,666k m<sup>3</sup> in 2017, as compared to 7,335k m<sup>3</sup> in 2016.

The export of coniferous roundwood amounted to 4,781k m<sup>3</sup>, as compared to 3,806k m<sup>3</sup> in 2016 and the import of coniferous roundwood amounted to 936k m<sup>3</sup>, as compared to 700k m<sup>3</sup> in 2016). The import of coniferous roundwood amounted to 8.5% of total coniferous roundwood harvest, as compared to 7.1% in 2016. Domestic consumption of coniferous roundwood amounted to 7,141k m<sup>3</sup> in 2017, as compared to 6,763k m<sup>3</sup> in 2016. The harvest of broad-leaved roundwood amounted to 502k m<sup>3</sup> in 2017, export to 129k m<sup>3</sup> and import to 152k m<sup>3</sup>. Domestic consumption of broad-leaved roundwood amounted to 525k m<sup>3</sup> in 2017, as compared to 572k m<sup>3</sup> in 2016. Both in 2017 and 2016, the growing trends can be credited to by salvage felling, as mentioned above.

#### Market and harvest of pulp wood incl. ground wood in 2017.

In 2017, the total production of coniferous and broad-leaved pulpwood amounted to 5,523k m<sup>3</sup> as compared to 4,932k m<sup>3</sup> in 2016. In 2015, it amounted to 4,863k m<sup>3</sup>. The year-on-year increment amounted to 12% in 2017. The import and export amounted to 810k m<sup>3</sup> and 1,673k m<sup>3</sup> respectively. The consumption of coniferous and broad-leaved pulpwood amounted to 4,660k m<sup>3</sup> as compared to 4,507k m<sup>3</sup> in 2016.

In 2017, the total production of coniferous pulpwood amounted to 5,102k m<sup>3</sup> as compared to 4,505k m<sup>3</sup> in 2016. In 2015, it amounted to 4,403k m<sup>3</sup>. The year-on-year increment amounted to 13.3% in 2017 as compared to 2.3% in 2016. The import and export amounted to 687k m<sup>3</sup> and 1,599k m<sup>3</sup> respectively.

The domestic consumption of coniferous pulpwood amounted to 4,190k m<sup>3</sup> as compared to 4,032k m<sup>3</sup> in 2016.

In 2017, the total production of broad-leaved pulpwood amounted to 421k m<sup>3</sup> as compared to 427k m<sup>3</sup> in 2016. The dynamics of the decline amounted to -1.4%. The import and export amounted to 123k m<sup>3</sup> and 74k m<sup>3</sup> respectively. The domestic consumption of broad-leaved pulpwood amounted to 470k m<sup>3</sup> as compared to 475k m<sup>3</sup> in 2016.

#### Coniferous and broad-leaved sawnwood production and market in 2017

In 2017 and 2016, the production of coniferous and broad-leaved sawn wood amounted to 4,305k m<sup>3</sup> and 4,063k m<sup>3</sup> respectively. The production grew year-on-year by 6%.

The export and import of coniferous and broad-leaved sawn wood amounted to 3,632k m<sup>3</sup> and 834k m<sup>3</sup> respectively.

In 2017 and 2016, domestic consumption of coniferous and broad-leaved sawn wood amounted to 1,507k m<sup>3</sup> and 1,327k m<sup>3</sup> respectively.

Increase sawnwood consumption in 2017 was caused mainly by continuously growing share of wooden buildings, mainly of construction of wooden family houses, as described above. Building

wooden houses is a good start for WPI, however, it will necessary to produce products with high and higher value added and product that are competitive both on domestic and foreign market.

Sawnwood is produced mainly by big producers such as Stora Enso Timber, s.r.o, Ždírec nad Doubravou, Stora Enso Timber Planá s.r.o., Mayer-Melnhof Holz Paskov, Pila Lukavec Sawmill and Pila Javořice Sawmill. The export of coniferous and broad-leaved swan wood amounted to 84.40% of the total breakdown in 2017.

## Market and production of fuelwood in the Czech Republic in 2017

The production of fuelwood has been growing and covers the needs of both domestic clients and foreign demand. In 2014, 2015, 2016 and 2017, the production of coniferous and broad-leaved fuelwood amounted to 2,111k m<sup>3</sup>, 2,336k m<sup>3</sup>, 2,344k m<sup>3</sup> and 2,376k m<sup>3</sup> respectively. The increments in production are not caused by changes in winter temperatures but rather by disposing wood from salvage felling.

The export and import of coniferous and broad-leaved fuelwood amounted to 218k m<sup>3</sup> and 36k m<sup>3</sup> respectively in 2017. Domestic consumption of all coniferous and broad-leaved fuelwood amounted to 2,194k m<sup>3</sup>, as compared to 2,174k m<sup>3</sup> in 2016.

The production (supply) of coniferous fuelwood amounted to 1,642k m<sup>3</sup>. The export and import of coniferous fuelwood amounted to 115k m<sup>3</sup> and 15k m<sup>3</sup> respectively. Domestic consumption of coniferous fuelwood amounted to 1,542k m<sup>3</sup> in 2017, as compared to 1,457k m<sup>3</sup> in 2016.

The production of broad-leaved fuelwood amounted to 734k m<sup>3</sup>. The export and import of broad-leaved fuelwood amounted to 103k m<sup>3</sup> and 21k m<sup>3</sup> respectively. Domestic consumption of broad-leaved fuelwood amounted to 652k m<sup>3</sup> in 2017, as compared to 717k m<sup>3</sup> in 2016.

## **6. MARKET WITH OTHER WOODEN PRODUCTS IN THE CZECH REPUBLIC IN 2017**

In the Czech Republic, this market with other wooden products comprises also the market with agglomerated products as well as pellets and other agglomerated products, chips, splinters and sawdust and wood residues.

The most productive commodity of the first group is the production of particle boards. As for Czech producers of agglomerated material, there were the two major market players, along with the small ones, namely KRONOSPAN CR, spol. s. r. o. in Jihlava and Dřevozpracující družstvo Lukavec in Lukavec.

In the second group, the annual production of pellets and other agglomerated materials prevails. The dynamic growth tempo of annual production of other wood-based products has been changing in the recent years. E.g. in 2014, the growth of veneer production amounted to 7.1%, in 2017, a year with good economy, it was only 3.8%. The particle board production grew by 0.4% and 4.0 year-on-year in 2014 and 2017 respectively. The production of fibre boards recorded a significant decline, as the production dropped from 41k m<sup>3</sup> in 2014 to 33k m<sup>3</sup> in 2017, i.e. a

production decline by 19.5%. Pellet and other agglomerated materials production grew by 4.2% year-on-year in 2017.

#### Market with particle boards incl. OSB in 2017

The production of this commodity, i.e. particle boards and OSB amounted to 1,156k m<sup>3</sup> in 2017 as compared to 1,112k m<sup>3</sup> in 2016. The production of this commodity is the highest from other wood-based products. If expressed in m<sup>3</sup>, it is beaten only by pellets and other agglomerated materials production. The export of particle board incl. OSB amounted to 1,512k m<sup>3</sup> and 1,442k m<sup>3</sup> in 2017 and 2016 respectively. The import of particle board incl. OSB amounted to 757k m<sup>3</sup> and 729k m<sup>3</sup> in 2017 and 2016 respectively. The domestic consumption amounted to 401km<sup>3</sup> and 399 m<sup>3</sup> in 2017 and 2016 respectively. The growth of domestic consumption amounted to 0.5% in 2017, as compared to 1.5% in 2016.

OSB desks production amounted to 673k m<sup>3</sup> in 2017 as compared to 645k m<sup>3</sup> in 2016. The export amounted to 650k m<sup>3</sup> and 588k m<sup>3</sup> in 2017 and 2016 respectively. Import of OSB desks amounted to 180k m<sup>3</sup> and 133k m<sup>3</sup> in 2017 and 2016 respectively.

#### Market with fibreboards in 2017.

The market with this commodity has been dropping every year. In 2017, the production of fibreboards amounted to 33k m<sup>3</sup> and in 2016, it was only by one thousand m<sup>3</sup> lower. This creates a certain problem as the low production requires high annual imports. In 2017, the export amounted to 103k m<sup>3</sup> as compared to 99k m<sup>3</sup> in 2016. However, the export was possible only because of the import amounting to 247k m<sup>3</sup> in 2017 as compared to 240k m<sup>3</sup> in 2016. Annual domestic consumption amounted to 177k m<sup>3</sup> and 173k m<sup>3</sup> in 2017 and 2016 respectively.

#### Market with plywood and batton plywood in 2017

The production of plywood and batton plywood has experienced a certain boom recently as compared to particle boards.

E.g. in 2015, 2016 and 2017 the production amounted to 180k m<sup>3</sup>, 212k m<sup>3</sup> and 220k m<sup>3</sup> respectively. Imports of plywood and batton plywood in total, in spite of the growing production, grew too. The import amounted to 96k m<sup>3</sup>, 93k m<sup>3</sup> and 88k m<sup>3</sup> in 2017, 2016 and 2015 respectively. The export amounted to 163k m<sup>3</sup> and 161k m<sup>3</sup> in 2017 and 2016 respectively. The domestic consumption of plywood and batton plywood in the Czech economy is fairly good, and amounted to 153k m<sup>3</sup> in 2017, i.e. 69.5% of the total production. In 2016, the domestic consumption amounted to 144k m<sup>3</sup>.

#### Market with wooden pellets in 2017

The production of wooden pellets and other agglomerated materials amounted to 505k tons in 2017. Domestic production of wooden pellets for energy purposes recorded a significant growth, as the production of certified EN plus pellets amounted to 311k tons (highest quality with year-on-



year growth by 64k tons), and non-certified pellets to 21k tons. The import and export of pellets and other agglomerated materials amounted to 111k tons and 493k tons in 2017 and 2016 respectively. Domestic consumption recorded 122k tons, i.e. 24.2% of the production.

The biggest pellet producers in the Czech Republic are Mayer-Melnhof in Paskov, Pfeifer Holz, Stora Enso Wood Products Ždírec, s.r.o. and Biomac; they use their own sawdust and shavings for their production. One third of the pellets is used on the domestic market (the number of kettles combusting pellets grew to 25k in the Czech Republic) and remained 2/3 of the production were exported to Italy, Austria and Germany.

## **7. WOOD PULP AND PAPER PRODUCTION IN THE CZECH REPUBLIC IN 2017**

This production comprises statistical classification of economic activities under CZ-NACE 17: paper and paper-based products and pulp, paper and cardboard production.

The total amount of timber used for paper and viscose cellulose amounted to 3,721k m<sup>3</sup> of raw coniferous timber thereof 2,380k m<sup>3</sup> coniferous pulpwood (thereof 714k m<sup>3</sup> imported) and 1,341k m<sup>3</sup> coniferous wood chips and splinters (thereof 137k m<sup>3</sup> imported).

In 2017, paper and cellulose industry produced 460k tons of paper cellulose, thereof 452k tons of chemical cellulose. The production of paper cellulose hence grew by 11k tons year-on-year.

Paper, cardboard and paperboard production according to CEPI classification used in paper and cellulose industry grew by 113k tons year-on-year and reached the total of 908.4k tons, i.e. 14.2% growth.

In the Czech Republic, the structure of paper and cellulose industry still does not correspond to the domestic demand. Paper consumption significantly exceeds production capacities of local paper mills. The same goes for the produced assortments, as it does not correspond to the demand, and therefore, Czech Republic has to import the majority of the goods such as printing and writing paper, packing paper and wrapping material. This means a major loss in the Czech foreign trade balance.

The company of Mondi is intending to enhance the paper production in the Czech Republic, incl. increasing the production of bleached and non-bleached cellulose in the Stětí mill and it is preparing a record investment (CZK 13b for installing new cellulose mill, sawmill, kettle and other specialised machines within next years) in order to modernise the production and to comply with strict EU environmental rules for paper and pulp production.

Overall and based on data provided by Czech Association of Pulp and Paper Industry the total consumption of paper, cardboard and paperboard amounted 1,686k tons in 2017. The production amounted to 908k tons, but 816k tons were exported incl. re-export, and 1,494k tons were imported to satisfy the overall demand for paper products.

Paper consumption has been growing and it reaches 150kg per capita. Paper recycling dropped by 1% year-on-year. In 2017, 1,017k tons of paper were collected for recycling (i.e. 64.1% of domestic consumption of paper, cardboard and paperboard); however only 22% thereof were recycled locally and the remaining part was exported.

## **8. CERTIFICATION IN THE CZECH REPUBLIC IN 2017**

Current certification requirements for use of forests do not focus only on harvesting timber, but they comprise a comprehensive complex of social, ecological and economic function of forests with sustainable use of natural resources. In the Czech Republic, there are two certification systems - FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification Schemes). By this certificates, forest owners declare their commitment to manage their forests according predefined criteria. However, forest certification is not a must, it is forest owners' facultative tool (decision).

Both systems have one thing in common: principle of sustainable forest management. This was also the topic of Mariánské Lázně +70 International conference – celebration of 70 years of

cooperation between UNECE and FAO in the field of forestry that was held in September 2017 in the Czech Republic, as the participants discussed issues regarding PEFC and FSC certification. The results of almost 90 participants from all over the world showed that forest owners have serious concerns regarding the meaning of certification in Europe and North America, because both regions have a long-lasting and high-quality tradition as well as strong forestry legislation, which makes the certification redundant. It was made clear that double certification means useless extra costs and that existing IKEA pressure that it will buy only wood with FSC certificate spreads discord among furniture producers and other wood processors. Participants agreed to carry on with the dialogue on abolishing forest certification with support provided by UNECE and FAO in two regions above; they required missing data on volumes of certified products and assessment of real benefits of the certification.

**FSC® Czech Republic.** FSC ČR is the Czech representative of the international organisation of Forest Stewardship Council® (FSC) that created and maintains the certification scheme for forest certification and wood-based products in forests covering over 198m ha in 83 countries. The total of 33,626 C-o-C certificates were awarded. At YE 2017, forests with FSC certificate covered 53,379 ha, i.e. 2.9% as compared to PEFC certificate in the Czech Republic.

In 2017, 226 C-o-C certificates were awarded in the Czech Republic.

**PEFC Czech Republic.** PEFC Česká republika is an independent organisation that is to support sustainable forest management, use of wood as ecological, renewable source, nature conservation and sustainable development of the society. PEFC Česká republika is part of the most spread forest certification system based in Geneva and it is the national PEFC governing body in the Czech Republic. Currently, 300m ha of forests are certified under PEFC system worldwide and over 18,000 processing and business companies are holding C-o-C certificates. In the Czech Republic, 70% of forests are certified under PEFC system and over 200 companies show their social responsibility by participating in PEFC Chain of Custody. PEFC logo is globally known and trustworthy brand providing information on the origin of forest-based products.

## **9. VALUE ADDED OF WOOD-PROCESSING INDUSTRY AND PROCESSING INDUSTRY IN THE CZECH REPUBLIC IN 2017**

The year-on-year growth of value added amounted to 9.3% in the wood-processing sector in 2017. In absolute figures, the value added of WPI amounted to CZK 45,730,652k. If compared to entire processing industry, the year-on-year growth amounted to 6.1% in 2017 and in absolute figures to CZK 899,427,480k.

The WPI performance grew year-on-year by 3.7% in 2017 and in absolute figures to CZK 163,752,235k. The performance of the entire processing industry grew year-on-year by 6.9% in 2017 and in absolute figures to CZK 3,866,098,583k.

If compared to processing industry, the WPI sector makes up to only a small share of the performance that amounts only to 4.2% of the annual performance of processing industry. Value added, of processing industry and WPI grew by 6.1% and 9.3% respectively year-on-year; in spite the share of WPI value added in the entire processing industry remains low, it recorded a share of 5.1% as compared to 4.2% share of performance.

The indicator of the share of WPI value added and reached performance amounts to 27.9%. The same ratio for processing industry (value added and performance) amounts to 23.3%.

With regard that the annual value added of processing industry is almost 19.7 times higher if compared to WPI, it is clear that processing industry as such will play major role in the development of Czech economy. Industry sector processing timber achieved fairly good ratio between value added and performance, in spite having smaller shares in the Czech economy development as compared to processing industry I 2017. This indicates a good efficiency and it is a good base for the future.

For WPI is typical that the factories dispose of sufficient high-quality raw material as well as highly skilled workforce. The disadvantage lies in the size: mainly SME and privatised family companies. They cannot compete with huge multi-national corporations based in the Czech Republic, as these companies' incomparable and modern machines, facilities and technologies as compared to Czech WPI, which Czech small companies cannot afford. They are also better off in term of industry<sup>4</sup>. Expected changes in the globalisation will lead to changes in Czech wood-processing factories.

## **10. CONTRIBUTION OF WOOD PROCESSING INDUSTRY PRODUCTS TO PROCESSING INDUSTRY DEVELOPMENT IN THE CZECH REPUBLIC**

For industrial sectors of Czech industry that process timber achieved fairly good ratio between value added and performance, in spite having smaller shares in the Czech economy development as compared to processing industry in 2017. This is good, WPI and its products, even though desired by and sometimes crucial for other Czech economy sectors, cannot contribute to faster and more efficient development of the market with processing industry. Given the WPI contribution to scope and development of Czech industry, it is clear that there is and will be a certain contribution.

The fact that WPI reached a higher growth dynamics of value added and even a better ration between value added and performance as compared to processing industry in 2017 indicates that these results good be a good incentive for other sectors of Czech industry. High-quality, competitive goods for fair price supplied by WPI to other sectors surely contribute to their development, facilitates identification of new markets, support close link and mutual interdependency, which again supports and improves business relations and creates new both individual and collective possibilities the enterprises.

## **11. USE OF WOOD BASED ENERGY IN THE CZECH REPUBLIC IN 2017**

In the Czech Republic, biomass combustion generated 274 GWh electricity in 2014 as compared to 572 GWh in 2017. The total of 2,462 GWh electricity were produced from renewable resources in 2014 as compared to 2,791 GWh in 2017.

It is true that the share of renewable resources has been growing lately. The share of timber in renewable resources is quite high. This is caused by the limited use of other renewable resources e.g. water, because the Czech Republic lies in several catchment areas on a "Europe's roof". Hence, the electricity production in water plants can be increased by the maximum of 20%.

The geographic positions and other conditions, the Czech Republic is doomed to belong to the countries with the most expensive energies. Sun shine does not reach the parameters of southern countries and wind are not the best too. But the Czech economy requires a lot of energy. This is the

reason for using biomass. However, there are issues indicating the shortage of biomass useable for energy purposes.

Czech Republic committed to the EU to use over 13% of its own energy consumption originating from renewable resources by 2020. This commitment for 2017 was fulfilled. However, the current situation of energy from renewable resources indicates that there is a significant shortage of domestic timber for further increase of the share of energy from renewable resources. This means that the situation of using timber for energy from renewable resources is serious and that the sales prices of energy from forests biomass are to be reduced. This is also caused by much lower efficiency of processing timber for producing energy, which means higher amounts of recycled paper that is to be transported at long distances.

In the Czech Republic, there are two main groups of biomass, i.e. forest residues, wooden chips and splinters, and wooden pellets. In 2017, 759.5k m<sup>3</sup> of wooden chips and splinters were produced as compared to 750.4k m<sup>3</sup> in 2016. In 2017, the import of wooden chips and splinters amounted to 383k m<sup>3</sup> as compared to 381.0k m<sup>3</sup> in 2016. On the contrary, the export of wooden chips and splinters amounted to 338k m<sup>3</sup> in 2017 as compared to 361k m<sup>3</sup> in 2016. In 2017, the production of pellets amounted to 107k m<sup>3</sup> as compared to 110k m<sup>3</sup> in 2016. In 2017, the export of pellets amounted to 845k m<sup>3</sup> as compared to 785k m<sup>3</sup> in 2016. The majority of produced pellets was exported. As for pellets EN plus A1, the export amounted almost to 100%. They comprise only 0.7% of ash. The majority of certified pellets is exported to Germany, Austria and Italy.

This predicts that the WPI is a major processor of energy derived from timber that represents approx. 75% of energy used by WPI for drying timber and producing boards. Czech Republic is striving for renewable energy resources such as photovoltaics, photothermic, heat pumps, lighting reconstruction projects, electro mobility, etc. In spite of growing problems of producing electricity from biomass, Czech economy is focusing on using agriculture land for planting tree species and crops for energy purposes, as long as it is profitable.

## **12. EVALUATING CARBON FOOTPRINT IN THE CZECH REPUBLIC IN 2017.**

Carbon footprint **as indirect consumption indicator energy products and service** (CCF – Company Carbon Footprint) **has been monitored for several years in the Czech Republic.** Using carbon footprint for **measuring greenhouse gas reflecting the activities or products of companies** relates also to Kyoto protocol. From this protocol, national and corporate commitments for reducing greenhouse gas (GHG) is derived.

In the Czech Republic, this is **anchored in the standard ČSN ISO 14064 – greenhouse gases, ISO 140.**

In 2017, Czech companies with different focus showed growing interest in defining carbon footprint of their operations, its verification and offsetting of generated GHG emission.

Nevertheless, carbon footprint was tackled by Czech companies also before 2017. As already described in 2016 Market Statement. The problem is that even though Czech corporations tackle

carbon footprint, they do not publish data on their carbon footprint situation. However, Czech subsidiaries of foreign companies pay this issue great attention.

Currently the GHG production per capita exceeds the European average in the Czech Republic and this situation persists. Czech Republic is still in ecological deficit under 20m of global hectares. Transportation and construction sectors contribute greatly to the carbon footprint. Carbon footprint assessment show that there is a year-on-year improvement in 2017. Available data on ecological footprint in the Czech Republic indicate a clear decline of the total ecological footprint as compare to the past.

Since 2004, when the National Programme was drafted, there was a political development both in the Czech Republic and in the world (in EU and UNFCCC). In the Czech Republic, new Climate Change Policy for the Czech Republic was drafted. This policy was submitted to the Government in June 2016 for its information. In parallel, the process of assessing the consequences of this concept on the environment (SEA) was started. The draft of Climate Change Policy for the Czech Republic comprises the current strategy for climate protection to 2030 with forecast to 2050 and proposed measures for efficient GHG reduction.

Ecological footprint of the consumption, one of basic indicators of ecological footprint, was fairly reduced. As the total available bio capacity grew slightly, the reduction of ecological footprint in the Czech Republic can be credited to reduction of GHG from fossil fuels as well as reduced footprint of forestry and agriculture. The ecological footprint per capita dropped too due to dropping carbon footprint, however, it does not reach the global goals.

In the Czech Republic, the carbon footprint concept is usually part of corporate social responsibility. Companies of certain "maturity" deal with the carbon footprint. Therefore, it is only a question of time till also big Czech market players will start dealing with the carbon footprint. It is true that corporations see the need to set and monitor the corporate carbon footprint only as an extra burden.

In 2017, the **carbon footprint of Czech cities** improved year-on-year. There are more cities that set their carbon footprint. In January 2018, there was an assessment of cities with +5,000 inhabitants that **present and assess their environmental situation incl. carbon footprint on their web pages. The best results were achieved by town of Svitavy, Ostrava and Tábor.**

**Czech Cabinet Office organised seminars and other supporting events to boost the monitoring of carbon footprint already in first four months of 2017.** In March 2017, the **Cabinet Office** drafted the report of meeting the goals of sustainable development that as presented on UN High-Level Political Forum in July 2017. Other events for **monitoring carbon footprint** were organised by Ministry of Environment in May 2017; the Ministry set its own carbon footprint too.



Summary of statistics and estimates (1000 m<sup>3</sup>)

Product	Year	Production	Imports	Exports	Apparent consumption
Sawnwood, coniferous	2016	3 830	629	3 528	931
	2017	4 070	724	3 520	1 274
	2018	4 020	716	3 462	1 274
Sawnwood non-coniferous	2016	233	119	148	204
	2017	235	110	112	233
	2018	237	111	115	233
Sawlogs and veneer logs, coniferous	2016	9 869	700	3 806	6 763
	2017	10 986	936	4 781	7 141
	2018	10 800	920	4 579	7 141
Sawlogs and veneer logs, non-coniferous	2016	472	166	66	572
	2017	502	152	129	525
	2018	505	149	125	524
Pulpwood (round, split) coniferous	2016	4 505	800	1 273	4 032
	2017	5 102	687	1 599	4 190
	2018	5 120	689	1 614	4 195
Pulpwood (round,split) non-coniferous	2016	427	129	81	475
	2017	421	123	74	470
	2018	428	125	75	473
Veneer sheets	2016	24	64	59	29
	2017	25	66	62	30
	2018	27	65	61	31
Plywood	2016	212	93	161	144
	2017	220	96	163	153
	2018	210	93	153	150
Particle board	2016	1 112	729	1 442	399
	2017	1 156	757	1 512	401
	2018	1 180	770	1 540	410
Fibreboard	2016	32	240	99	173
	2017	33	247	103	177
	2018	34	248	105	177
Wood pulp *	2016	449	239	16	672
	2017	460	235	18	677
	2018	468	236	20	684
Paper and paperboard *	2016	795	1 445	949	1 291
	2017	908	1 494	913	1 489
	2018	910	1 455	915	1 450

\* 1000 mt