

MARKET STATEMENT OF THE CZECH REPUBLIC 2015

Main tendencies of macroeconomic and economic development in the Czech Republic (CZ) in 2015. Selected questions regarding processing industry and construction industry in CZ in 2015. Development of the Czech Republic and the macroeconomic development from 2016 to 2017. Forestry and wood-processing industry development in 2015. Incentives for timber and wood-based products market development. Value added of wooden products and product of wood-processing industry. Pulp production. Certification. Wood energy. Environmental and carbon footprint.

BASIC TRENDS OF CZECH ECONOMY DEVELOPMENT

1. MAIN TENDENCIES OF MACROECONOMIC AND ECONOMIC DEVELOPMENT IN THE CZECH REPUBLIC IN 2015.

Czech economy did well and after good results in 2014, it demonstrated that it had remained fit. In Q1 2015, the year-on-year economy growth slowed down; however the slowdown was not as big as expected. The economic growth was close to zero given the inflation and the situation on the labour market improved. The unemployment dropped; the registered unemployment dropped even more. In 2015, the Czech economy was stimulated by single-effects factors. The most important was the positive offer shock caused by low petrol oil prices on commodity markets. The Czech economy growth was driven only by domestic demand, with the private consumption being the fastest growing component, which was reflected by improving income situation of household given the almost negligible inflation.

Czech GDP growth was positive throughout the whole year. The year-on-year GDP increment amounted to +4.5%.

Many of the reasons of the fairly high growth of Czech economy were caused by factors with single effect or temporary factors. They comprised mainly using EU funds for the programme period 2007-2013 that had to be used only by the end of 2015. One can estimate that this influenced the GDP growth by 0.8 p.p. At the beginning of 2015, the GDP was increased by single relocation of current income from consumption tax on Tabaco from 2014 due to the validity of tobacco stamps; hence the effect amounted to approx. 0.2 p.p. Last but not least, the economic growth was positively influenced by oil price in CZK, which caused a GDP growth by 0.8 p.p. The macro economic environment was well balanced and the Czech Republic was by far the fastest growing economy in EU.

After decline recorded in 2013 and 2014 Gross value added in Czech economy (GVA) overcame growth problems and was finally in black figures. GVA grew in the majority of service areas, however, it dropped slightly in industry and in construction. Due to the dynamic growth, GVA achieved the year-on-year growth by +3.9% as compared to the year-on-year growth by +3.4% in 2014.

The use of European funds above by the yearend caused a big investment wave mainly in governmental sector and hence also the growth of gross fixed capital. Low inflation,

positive employment development, improved trust of consumers and faster growth of salaries accelerated the growth of Czech consumption by +3.0% year-on-year.

The **regular payment** balance in percentage of the GDP and calculated based on goods and service yield, minus primary and secondary annuities, was positive for the first time in 2014 since 2008 and in 2015, it grew by +0.2% year-on-year. After a long time and for the first time in the Czech history, the foreign trade showed good results, even though Czech economy was slowed down by problems outside the country.

Czech economy finally ranks among countries with structural excess in terms of foreign trade. As the pressure on increasing salaries and hence the distribution of GDP between net profit of companies and employees' reimbursement is growing, annuities will be increased and the growth of the payment balance will not be as fast in the future.

The growth of export of goods and services in fixed prices recorded a year-on-year growth by +7.7% as compared to the year-on-year growth by +8.7% in 2014. As for import of goods and services, it recorded a year-on-year growth by +8.2% as compared to the year-on-year growth by +10.1% in 2014. Hence, the total export and import of goods and service reached 3,492 bn CZK and 3,256 bn CZK respectively.

The export performance of Czech exports of goods and services since 2010 started to deteriorate; and if compared to the import demands, already since 2010. It reported the index of 121.3% year-on-year in 2015. The year-on-year growth in percentage meant a drop in the export performance by -0.8 p.p. in 2015. The problems of Czech export performance lay in low value added of products produced in multinational operations in the Czech Republic.

The Czech economy grows due to the foreign demand for quality Czech goods. The 2015 export figures comprised mainly the export of vehicles, electronic appliances and rubber and plastic, in spite of the problems of exchange rate. The import growth was driven by sub deliveries for car production and for other multinational entities, import of machinery and electronic devices and iron and chemical products.

Achieved GDP growth by 4.5%, low unemployment, higher growth of salaries and other facts confirmed the profitability of cooperation between CZ and Germany and EU membership.

However, not everything in this cooperation has advantages for CZ. Assembly of final products in some multinational factories provide low and lower value added to Czech products. This is caused by the fact that to export one CZK of these products, it is necessary to import needed and expensive components produced in other countries for more than one half of the sum gained on the export. E.g. export of cars. This does not help the efficiency and competitiveness of the Czech economy.

As for international comparison of labour efficiency, it is quite low as compared to EA 12 countries, with 65% of the EA 12 average. Since the slowdown of labour efficiency during the world economic crisis, there has been no visible improvement since 2015.

As for GDP per capita expressed in the common buying power, it grew gradually since 2012, when it reached 75% of EA 12 average to 77% and 81% of EA 12 average in 2013 and 2015 respectively.

2. ISSUES OF GROWTH OF PROCESSING AND CONSTRUCTION INDUSTRY IN 2015

a) Industry growth, mainly growth of processing industry in 2015.

Czech industry (marked according to Czech Statistical Office B+C+D) that comprises

along 24 sectors of processing industry also mining and processing of black and brown coal, crude oil and gas, ores, other harvest and mining activities as well as all supporting activities, plays a key role. This is mainly due to the contribution to gross value added by one third with the remaining part being contributed by processing industry (marked as C).

Industrial production indicator (IPI) of the entire Czech industry (B+C+D) reached a year-on-year increase by +4.6%. In 2013, IPI of the entire industry dropped by -0.1% year-on-year. However, already in 2014, this indicator recorded a year-on-year growth by +5.0%. The production dropped year-on-year due to decline of coal mining and lower production in electricity, gas, heat and conditioned air distribution, due to unplanned outage of Dukovany Nuclear Power Plant. In EU, the IPI recorded a year-on-year decrease by 1.8%, however, the Czech Republic recorded a major growth. Very good results of the last two years ranked the Czech industry among countries that already exceeded their pre-crisis industrial production of 2008.

Industry plays an essential role in the Czech Republic. In long-term, it generates approx. one third of the performance. In 2015, the total industry and processing industry contributed with 32.5% and 27.1% to the GVA. Approx. 98% of enterprises are under domestic control; however, this figure includes a big number of small enterprises incl. entrepreneurs – natural persons. Foreign investors are in bigger and major industrial operations, with economic importance outgrowing their numbers.

According to the data provided by Czech Statistical Office, the operations under foreign control make up to 59 - 60% of the entire income. Value added generated by these operations exceed the half of this indicator generated by the entire Czech industry. Over 45% of employees are working for foreign owners. The share of value added per employee indicates that the labour efficiency is higher in operations under foreign control rather than domestic control. As for processing industry, the situation is unique in the motor vehicle (except for motorbikes), lorries and trailers making sector that is the most important sector and during conjecture it belongs to reliable drivers of Czech economy. E.g. less important furniture production is own by domestic owners.

One can clearly conclude that industrial production is under the influence of EU countries in general. Germany has a key importance (over 22% of turnover, over 20% of value added and over 16% of employees); then USA, the first non-EU country, with a big difference, and then Slovakia.

As for processing industry, IPI reached a year-on-year increase of the production increment by +6.0%. In 2014 and 2013, this figure reached +6.7% and +0.8% respectively. The future development of processing industry will depend mainly on higher demand on both European and domestic markets. A crucial role for the Czech Republic will be played by the vehicle demand both in partner EU countries and worldwide.

In spite of the comparison with EU countries, the performance of processing industry was the double and it even exceeded the main cooperation partner, i.e. Germany.

In processing industry the production grew in 16 sectors in 2015 and it contribute to the total turnover by 78.4%. The main performance driver in the processing industry was traditionally the vehicle production with a growth by +11.5% and the total turnover share of 28.4%, followed by other processing industry with the increased growth of +10.5%.

The production of rubber and plastic products grew year-on-year by +9.8% and the production of basic pharmaceutical products and agents by +8.9%. The main decrease was recorded in the repairs and installation of machinery and devices, namely year-on-year by -7.5% and in chemicals and agents production by -5.7%; in timber processing, product of wooden and cork products, except for furniture by -3.1%; in printing and copying of recorded

carriers by +6.4% and paper and paper products and furniture recorded a year-on-year growth by +9% and +5.3%.

The development of foreign trade with goods and services reached record values and grew. In spite of high base for the comparison from the previous year, the turnover grew by +8.0%. The export had a lower growth dynamics, namely by +7.7% as compared to export that recorded growth by 8.2%, hence the balance was slightly positive. The biggest export in the Czech history was reached in 2015 and it confirms the competitiveness of Czech companies and the ability to keep their positions on foreign markets.

Similar to the past, the majority of the Czech export was traditionally done with developed market economies, namely by 90.8% from the total. The major part, 83.3%, was exported to EU countries and the import from EU countries amounted to 65.4%. The export in those countries recorded a year-on-year growth dynamics of export and import by +9.0% and +7.2%, respectively.

b) Growth of construction industry within Czech economy in 2015.

2015 was a very strong year for Czech construction industry; however it did not reach the level of 2007-2008. Even though the results can be considered successful.

Construction production grew in constant prices by 7.1% in 2015, and proceeded, like industry production, with fairly solid growth from 2014 and returned after five years into black figures. The good 2015 results can be credited mainly to investment activities renewed by the government and efforts to use the subsidies from EU funds.

The development of building construction and civil engineering was not even in individual quarters of 2015 and differed. As the building constructions grew by 2.6% in 2015, civil engineering recorded much faster, two-digit growth by 17.1%. As the sector is compensating for the red figures from the past already for the second year in row, the construction production was lower by -16.3% as compared to 2008, the year of conjuncture, and by -22.4% below 2007 figures.

Employment in construction industry in operation with over 50 employees was dropping continuously since 2010, but it started to slow down year-on-year in the last two years. The average number of employees per operation dropped by 2.0% and the salary a labour efficiency grew by +6.4% and 8.2%, respectively.

The redevelopment of construction is contributed mainly by support of development of industrial zones, foreign investments above with active support of Czech Ministry of Industry and Trade, developers' intentions to build apartments, housing development programmes and EU funds that should go mainly into infrastructure. The priority of Czech construction industry is to reduce energy demands of buildings; for this purpose the Czech Ministry of Industry and Trade allocated funds under respective operational programmes; i.e. funds needed for reconstruction of energy production capacities and networks and construction of high speed network of electronic communications. An opportunity for the construction industry is also reconstruction of landscape and anti-flood measures realised by the Ministry of Agriculture.

3. MAIN TENDENCIES OF CZECH ECONOMY DEVELOPMENT AND MACROECONOMIC DEVELOPMENT FROM 2016 TO 2017.

After two fairly successful years, the economists dealing with the 2016 – 2017 macroeconomic development of the Czech Republic forecasted quite successful further development also for a longer period; this would further strengthen Czech position and would give the same position as held in the history of the Western Europe.

The aim of Czech economists developed visions of the Czech Republic for 2016 and 2017 drafted in April 2016 by the Ministry of Finance as well as European vision and made them more efficient. However, a quarter year after the macroeconomic development prediction, it was clear that the April forecast will have to take into account along with the already incorporated negative effects also other unknown external effects that will distort the Czech development more than expected; i.e. the April prediction would have to be reduced.

Refined new prediction of the 2016-2017 Czech economy development was redrafted by the end of July 2016 and reacted to the newly emerging negative impacts arising from UK decision on Brexit.

These problems comprised issues caused by the significant drop in the pound exchange rate, decline of consumer credit index, UK companies' reports regarding losses due to no access to key European markets, deterioration of the overall economic forecast for the next 12 months. The problems already incorporated in the April prediction comprised impact of **increased volatility and uncertainty of world financial markets**, chaotic price development of some commodities, mainly crude oil, unpredictable development in China, Ukraine, Near East, North Africa and the impact of **migration crisis**.

The assessment of expected influence of original and new impacts of external environment on the April prediction for 2016-2017 resulted in slowing down both main production economic indicators, such as expected GDP growth, and other crucial production indicators.

New July prediction forecasted the GDP growth of only 2.2% year-on-year as compared to the 2.6% in the original prediction. This was a major drop if compared to the 2015 GDP real growth of +4.5%, namely by -2.3 p.p. However, this new and adverse change had to be accepted in the development.

However, the external impacts had to be taken into account also in 2017. Therefore, the new GDP growth was set to +2.5% as compared to the original 2.7%. It was necessary to accept this growth, in spite being insufficient. The main driver of GDP growth should be the consumption in the forecasted period.

Changes in the macroeconomic considerations regarding GDP for 2016 and 2017 influenced also other macroeconomic indicators, namely gross national income (GNI). The prediction was modified and newly it forecasted a growth of +5.8% in 2015 (April prediction: +5.1%); in 2016, due to the deterioration it was to grow only by +3.2% (originally by +4.1%). In 2017, the July prediction forecasted a year-on-year increment of +3.7% (originally by 4.0% higher). The July prediction forecasted the GNI year-on-year growth by +3.6% and +3.8% in 2018 and 2019 respectively (April prediction: growth by 4.1% higher).

In 2015, the GVA changed too. Newly a year-on-year growth by +3.9% was forecasted in 2015 (originally +3.6% higher). As for 2016, the preliminary growth of +2.9% was predicted. No predictions for 2017 and later years were made.

In parallel, to the new prediction, it was necessary to deal with pressure within the economy in relation to the deterioration of currency exchange rate below 27 CZK/EUR. The adopted solution was based on Czech National Bank having sufficient tools to prevent extreme appreciation. Appreciation of the currency exchange rate below the set limit could happen only in 2H 2017.

Salaries and wages will be supported in 2016 and 2017. As compared to the nominal growth of salaries by +2.5% in 2011 and 2012, in 2015 the growth was +2.7% and in 2016 the indicator should grow to 104.4%; the April prediction forecasted a growth only by 4.3%. In 2017, the year-on-year growth is estimated to be +4.7% and compared to +4.5% in April 2016.

In 2011, unemployment grew by +6.7%. It dropped to +6.1% in 2014; in 2015 it reached a year-on-year growth by +5.1%. In 2016, the unemployment should drop by 4.1%. The drop should proceed also in 2017 to 4.0% as compared to 2016.

Labour efficiency was predicted to grow by +3.0% in 2015; it was increased in the July prediction to 3.3%. Given the reduction of single effects or temporary factors and external factors one does not predict a higher labour efficiency year-on-year growth. In 2016, the labour efficiency year-on-year growth should amount to 0.6%, which was influenced by the boosting employment. As for 2018 and 2019, the labour efficiency is expected to grow by +2.4%.

Under these circumstances, the main task for the developed Czech economy is to increase competitiveness via fast and efficient adaptation to the new input conditions and European and world market requirements, as well as to keep its positions on international markets and try to strengthen these positions. This should have a positive impact on the GDP growth.

Czech economy is already now aspiring to orientate Czech companies and the entire economy on implementing the changes brought by the fourth industrial revolution. In order to accelerate the development dynamics, mainly of Czech industrial operations and other Czech companies, the government is not waiting aside and it informs the companies about the intentions related to the fourth industrial revolution that are part of materials of both EU and Czech and other countries. Czech government is trying to prevent isolated development of Czech companies; it rather wants the companies to adapt to foreign trends, to define necessary investments in order to get ready for the transfer to communication and production facilities that will be compatible and interoperable within global customer-supplier chains. Implementation of these changes will be initiated mainly by new experience and realised intentions from Germany and Japan that should basically define the Czech economy.

4. 2015 FORESTRY AND WOOD PROCESSING INDUSTRY DEVELOPMENT

a) In forestry, the GVA expressed in 2010 constant prices of forestry and wood harvest, i.e. CZ-NACE 02, grew year-on-year by + 0.56% and by +0.61% in 2015 and 2014 respectively.

The harvest of both coniferous and broad-leaved timber amounted to 16,163 k m³ and to 15,476 k m³ in 2015 and 2014 respectively. In 2015, the share of salvage felling with 8.5 m m³ contributed greatly to the total figure; this was one of the reasons for the total harvest growing by +4.4%.

The increased 2015 harvest resulted to the harvest per capita amounting to 1.53 m³; in 2014 to 1.47 m³.

The total of 14,385 k m³ coniferous timber was delivered to the market, i.e. by +6.8% as compared to 2014; and 1,778 k m³ broad-leaved timber were delivered in 2015 as compared to 2,004 k m³ in 2014, i.e. a decrease by -11.3%.

The export of raw timber (round wood, pulp wood, wooden coal, fuel wood, saw dust, residues, waste, pellets and agglomerates) amounted to 6,508 k m³; in 2014 this figure

amounted to 6,917 k m³, i.e. by -409 k m³ less. The year-on-year growth was lower as compared to 2014, i.e. it reported a decrease by -5.9%.

Import of raw timber (same structure as for export) amount to the total of 2,303 k m³ and of 3,531 k m³ in 2015 and 2014 respectively, i.e. by 226 k m³ less. The year-on-year dynamics recorded a decrease by -6.4%.

The domestic consumption of raw timber amounted to 12,960 k m³ and to 12,090 k m³ in 2015 and 2014 respectively. Hence the domestic consumption of raw timber grew by significant 7.2%.

Czech Republic has been famous for high exports of raw timber, mainly round wood and sawn wood. In 2014, the export amounted to 38.4% and to 34.8% in 2014 and 2015 respectively.

The share of the coniferous forest area, i.e. covered by spruce, pine and larch, is being reduced, and the share of broad-leaved forests is growing. This tendency is supported by subvention policy aiming in long term at achieving optimal composition of tree species in forests. The tree species composition of Czech forests has been changing over the last 30 years.

Moreover, the ratio of mixture of individual tree species within forest space differentiation units in favour of mixed stands and stands with mainly broad-leaved species is growing. E.g. coniferous species covered 76.5% of the total forest area in 2000, in 2013 this figure dropped to 72.9% and to 72.3% in 2015. Spruce covered 54.1% of the total forest area in 2000; in 2013 and 2015 it covered only 51.1% and 50.6% respectively. Pine covered 17.6% of the total forest area in 2000; in 2013 and 2015 it covered only 16.6% and 16.5% respectively.

As for broad-leaved species, the percentage of forest area has been growing year to year. The broad-leaved species covered 22.3% of the total forest area in 2000, in 2013 and 2015 it covered 25.9% and 26.5% respectively. Oak covered 6.3% of the total forest area in 2000; in 2013 and 2015 it covered 7.1%. Beech covered 6.0% of the total forest area in 2000; in 2013 and 2015 it covered only 7.8% and 8.2% respectively.

The age composition of forests has been improving thanks to the typological system used in the Czech Republic. The growth of average age of tree species has carried on also in the recent years and it relates to the increase of the overaged forest stands and the area of average rotation. E.g. as for spruce the average middle age area grew from 51 years in 1950 to 63 year of average age in 2015. As for pine, the middle age area grew from 60 to 74 years in the same period; as for larch it grew from 49 to 63 years; as for oak from 52 to 71 years and beech from 66 to 65 years.

The gradual growth of average age of tree species persisted in the recent years and it related to the increase of the area covered by overaged forests and average rotation.

b) In the wood processing industry in the Czech Republic, the main material – timber – is mainly of domestic origin and is a competitive advantage for import-independent operations; expect for imports of tropical timber and complementing items.

Wood processing, product of wooden and cork products excl. furniture showed a year-on-year decrease of IPI by -3.1% in 2015, as compared to the year-on-year decrease by -3.5% in 2014 in spite of revenues growing year-on-year by +2.6% but with the year-on-year labour efficiency decreasing by -3.1%. In 2015, this sector produced the total of 26,326 production units, i.e. a year-on-year decrease by -4.4%. The sector employed the total of 30,815 employees, i.e. a year-on-year decrease by 0.1%. This sector is dominated by small

companies, local or family operations. There are only 11 big companies (7 thereof are foreign) that are usually big saw mills. The equipment of employees with long-term tangible and intangible assets is low if compared to big producers. Underinvestment is reflected in old devices and technologies mainly at small producers. The export grew year-on-year by 0.5%, however the import grew by +8.4%.

Paper and paper products reported an IPI year-on-year growth by +6.4%, after a growth drop of -6.9% in 2014. Revenues in current prices grew year-on-year by +9.1% and from direct export by +10.8%. The labour efficiency recorded a year-on-year increase by +4.3%. In 2015, this sector produced the total of 928 production units. Czech paper and pulp industry is an integral part of the European paper industry. Similarly, small enterprises produced 90%, medium enterprises 8.5% and the rest was produced by big enterprises with over 250 employees. The sector employed 17,585 employees and the number dropped year-on-year by -3.8%. Generally, the number of employees has been dropping. The equipment of employees with long-term tangible and intangible assets grew slightly. The export grew year-on-year by 12.7%, however the import grew by +8.9%.

Furniture production reported the IPI growth of +5.3% with revenues in regular prices growing year-on-year by +6.6% and from direct export by +6.1%. Currently, the production of Czech furniture is dominated by modern technologies incl. nanotechnology of modern tools, machines and devices.

The value added per employee grew year-on-year by +6.5%. Export and import grew by 6.9% and 24.6%, respectively.

5. INCENTIVES FOR TIMBER AND WOOD-BASED PRODUCTS MARKET DEVELOPMENT IN 2015.

a) Measures in terms of economic stimuli and forestry-related legislation.

Similar to the past, the government did not provide any economic support to the market, timber harvest, forestry activities, wood or furniture production; similarly it did not provide any stimuli violating the principles of market economy incl. incentives of economic or market, administrative nature or any other stimuli of domestic or foreign market. In the Czech Republic, it was not necessary to adopt any economic or other stimuli that would change, limit or support free market within Czech economy. The market with all products – incl. forestry and wooden-based products – manufactured in CZ was and is based on relevant EU legislation, free competition and is in line with existing demand and offer.

b) Measures for climate change supporting timber market

The emission inventory of greenhouse gases is being drafted in line with United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol; the inventory also comprises the balance of emission and declines in land use and the balance of land-use changes and forestry (LULUCF).

In the Czech Republic the emission inventory according to UNFCCC is based on the definition of areas and changes of six basic land-use categories according to the Intergovernmental Panel on Climate Change (IPCC) such as Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land that are monitored on the level of individual cadastral units in the Czech Republic. The emission inventory is basically the quantification of the emission and drops of greenhouse gases such as carbon dioxide (CO₂).

For the monitoring period (2013-2020) we also report the carbon stock stored in wooden products.

Kyoto protocol rules set forth that the LULUCF contribution to the reduction commitment of the Czech Republic shall be reflected in the final balance at the end of the entire first monitoring period of Kyoto protocol. Moreover, the reflected contribution of forest management shall be significantly capped by 0.32 mil. tons C/year (i.e. -1.173 mil. tons CO₂).

One can assume that the drops in the forest management will be decreasing in the future. The reasons for that lie mainly in the age structure of forest stands in the Czech Republic and the planned increase of broad-leaved species share. This should provide for forest stand stability and carbon storage in long term. In the future, one can also expect a higher use of biomass for energetic purposes and higher share of carbon stored in wooden.

In CZ, it has been set that the issues above will be presented by the National Forestry Programme. This programme deals with these issues by defining the climate protection policy (incl. measures formulated as recommendations for forestry praxis); this policy is a follow-up of relevant EU measures and it is formulated as a research task, namely "Impact of Climate Change on Forest Protection Measures". The task comprises also the application of principles of sustainable forest management for increasing the forestry competitiveness incl. non-administrative support of timber market. Formulated measures are then implemented as they are drafted in cooperation with the Czech Academy of Sciences that cooperates directly on this task together with both Forestry and Wood Technology Faculties in Prague and in Brno. The Czech Hydro Meteorological Institute is responsible for direct solution in the praxis and in relation to international organisations.

c) Government stimuli for wood energy production and its use in the Czech economy.

Producing renewable energy, also from wood, and its use in Czech economy has been always supported by the Czech Government, both by relevant legislation and other regulations. Wood and harvest residues for energy production have no own standard to be used for energy production in the Czech Republic, but they are included in the term of renewable energy production. In 2015, it is estimated that 2.0 m m³ of harvest residues were produced. Modern and efficient use of wood energy, i.e. sawdust originating from wood-processing industry, is supported in the energy sector both by the Government.

In 2005, Czech government adopted Act no. 180/2005 Coll., as original standard for use of renewable resources. In 2016, Act no. 165/2012 Coll., on supported energy resources and on change of other acts, was adopted and came in force from 1 Jan 2013; this Act amended Act no. 402/2010 Coll., on support of production of electricity from renewable energy resources. Hence, the way of financing of newly constructed resources was changed and the support of bio methane was introduced. The Act was supported by Decrees. Currently, new biotechnologies for conversion to bio-fuel, energy and other product with higher value added are being developed. This will strengthen the competitive position of processing industry and sustainable development.

Harvest residues are dominated by two groups: wooden chips and splinters and wooden pellets. In 2015, 743.4 k m³ of chips and splinters were available as compared to 726 k m³ in 2014, i.e. a year-on-year growth by 2.3%. In 2015, 374.8 k m³ were exported, i.e. a year-on-year decrease by -18.5%. The import amounted to 374.4 k m³ in 2015.

Saw dust is the wooden material generated by wood processing industry and it is used for pellets production. In 2015, the saw dust production reached 640 k m³.

Efficient Czech saw mills produced 671 k t and 813 k t of wooden pellets in 2014 and 2015 respectively, i.e. a year-on-year growth by 21.2%. The total figure consisted of 232 k t of

EN plus A1 type; i.e. a year-on-year growth by 34%. The majority of wooden pellets produced in CZ are exported. As for EN plus A1 pellets, the exports amount almost to 100%. The ash share is only 0.7%. The majority of certified pellets are exported mainly to Germany, Austria and Italy. In 2014 and 2015, the export amounted to 701 k t and 714.7 k t, i.e. a growth by 2%. The import amounted to 117 k t and 299 k t in 2015 and 2014 respectively.

d) How does the involvement of the research and development support higher market efficiency in the Czech Republic.

The preconditions of wood processing for efficient use of timber products in favour of the Czech Republic and Czech export lie in the own, sufficient – also in the future – high quality raw material as well as in qualified, experienced, efficient manpower for reasonable prices. Sophisticated products with high value added for reasonable international prices may allow for a higher share of this sector as compared to the existing 2.5% of Czech GDP.

This area is regulated by the Analysis of the Competitiveness of the Czech Republic that deals with the engagement of research and development in the competitiveness issues. In order to increase the market efficiency, it outlines also some actual tasks for bodies, organisations, enterprises and institutions as well as the analysis for increasing the market efficiency in selected areas incl. needed incentives and proposals.

There is follow-up document, namely Strategy of International Competitiveness. This document focuses on development priorities of Czech economy from international perspective for longer period. Therefore, it is drafted in a way allowing adaptation of priorities to changes in global economy and in the position of open and export dependant Czech economy. It also incorporates the changes relating to the fourth industrial revolution. Neither the sector nor Czech government are waiting aside, but they inform Czech companies about the intentions nor changes relating to the fourth industrial revolution as defined in strategic documents of EU, Czech Republic and other countries.

Technical institute and many private education agencies exercise major activities relating to the producers' requirements. Many regional bodies that have well mapped their own territories and can provide interesting and unusual solutions to the operations take part in these activities with various successes.

Recently, both private institutes and the government focus on efficient search of suitable and prosperous partners for Czech trade and cooperation relations with partners from EU countries and worldwide and not only in relation to USA where these activities generate needed effects, but also far eastern countries. It is clear that the Strategy of international competitiveness, newly to increase the competitiveness of CZ in real life, is not easy also due to persisting risks in the external environment.

e) Measures for increasing responsibility of social associations (corporations).

The area of social associations remained unchanged in 2015 as compared to 2014; this area did not require any major changes since the split-up of former Czechoslovakia. Generally, the issues related to social responsibility are handled by the responsible ministry under the unified approach and pursuant to the provisions valid for the entire Czech Republic. They are also elaborated in the National Forestry Programme as a task to support the improvement of social situation of forestry employees.

Social associations and corporations 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 individual voluntary, non-profit and non-government 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, financial or any other support.

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 public.

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.

f) Measures taken in the field of research and development in order to boost the timber and wooden product market.

In the Czech forestry, the research and development is financed by the Government and it is desired. Nevertheless, research institutes present in the past are missing within the wood-processing industry since 1990. This is caused by the sector transforming into small and medium private entities after 1989 and mainly by the lack of funds. Small and medium enterprises of the wood-processing industry do not order research, even though they would need it. Big and very big wood processing enterprises are part of production of global central multinational and international chains and realised the research via their own parent companies and do not request it from Czech government in 2015. As for small Czech and Moravian wood processing enterprises, the lack of funds above remained an issue also in 2015 and persists till now. Should small enterprises need incentives for research or competitiveness, they took care of them via two expert organisation of wood processing industry, also via cooperation with Forestry and Wood Technology Faculty of Mendel University Brno or via respective programmes realised by the relevant programmes run by the Ministry of Industry and Trade

In 2015, the forestry research and development was carried out by the following organisations: Academy of Sciences, research institutes, universities and scientific institutes, and the following forestry institutions: Forest and Game Management research Institute in the lead. In parallel, universities took also part in the research: Faculty of Forestry and Wood Sciences and Faculty of Environment of Czech University of Life Sciences Prague, Faculty of Forestry and Wood technology of Mendel University Brno, Academy of Sciences in České Budějovice and Brno and private research sites.

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 in forestry focused on strengthening the competitiveness, forestry sustainability and development, improvement of new approach to planning and realistic solutions for and optimisation of harvest-transporting technologies in forests and 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, etc.

In 2015, researcher proceeded in investigating the issues of silviculture of fast growing tree species for other but timber producing purposes, mainly for energy. The list of activities of the basic, technological and applied research in forestry is focused in different direction as compared to wood processing industry, which is inevitable for this area.

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 manners. The increase and elaborated ways of the most realistic increase of performance and efficiency of forestry and wood-processing sectors, mainly of small and medium enterprises, demonstrates in growing interest in wooden constructions. However, in other areas, this desired effect has not yet demonstrated.

6. RAW TIMBER MARKET DEVELOPMENT IN 2015

a) Raw timber market in 2015. The stock of raw timber in Czech forests amounted to 692.6 m³ in 2015 as compared to 307 m³ in 1930. This shows clearly that the stock of raw timber has more than doubled in the Czech Republic.

From the stock above, 16,163 k m³ were harvested and delivered to the market. In 2014, this figure amounted to 15,476 k m³. In 2016, up to 16,380 k m³ of coniferous and broad-leaved raw wood could be delivered to the market. However, from 2013 to 2015, the year-on-year increment was caused mainly by salvage felling. In 2015 and 2014, salvage felling amounted to 8.5 m m³ and 4.5 m m³ respectively.

In 2015, the share of coniferous timber in the total harvest amounted to 67% and it dropped year-on-year by -2%. The total of 14,385 k m³ of coniferous timber was delivered to the market.

In 2015, the exhalation felling dropped; however, modern damage of forest demonstrated which causes again unplanned felling of damaged stands. This modern damage is caused by “wash-down and spray” of road salt in winter, soil damaged by imissions in the past and adverse impact of nutrition deficiencies. This damage has been recorded on ten thousands of ha. The forest in Ore Mountains and in Orlické Mountains.

The export of raw timber amounted to 6,508 k m³ in 2015 and to 6,917 k m³ in 2014, i.e. a drop by -5.9%. This decline was caused mainly by the excess of bark beetle timber that sell badly also outside of the Czech Republic, which generated general economic problems in forestry. Import of raw timber amounted to 3,305 k m³ in 2015.

Export of coniferous and broad-leaved round wood and pulpwood recorded a year-on-year by 401 k m³ and amounted to the total of 4,530 k m³ in 2015.

As for the total import of coniferous and broad-leaved round wood and pulpwood in 2015, it amounted to 2,329 k m³; i.e. by 110 k m³ lower in year-on-year comparison.

Prices started to grow in 2010 and reached the peak in Q1 2015. In the rest of 2015, they dropped gradually. Mainly coniferous round wood and pulpwood recorded the drop due to the higher felling of bark beetle timber. The felling of broad-leaved timber dropped and the prices grew due to increased demand.

The overall export of raw timber dropped by -409 k m³ and in parallel the income of the export dropped by -39 m CZK; the total import dropped by -226 k m³ and in parallel the income of the export dropped by -83 m CZK.

Even though the consumption of coniferous round wood grew significantly as compared to 2014 by +559 k m³, the majority of the material was further exported abroad, namely 34.9% of produced coniferous round wood. In some regions, this caused lack of coniferous round wood and pulpwood for reasonable prices for domestic saw and pulp mills; this had to be compensated by import, mainly from Slovakia, Poland and Germany.

b) Market with round wood, incl. pole and mining timber in 2015. Production (deliveries) of coniferous and broad-leaved round wood amounted to 8,964 k m³ in 2015 and to 8,548 k m³ in 2014; i.e. a year-on-year growth by +4.9%. Coniferous round wood deliveries amounted to 8,468 k m³ in 2015 and 7,955 k m³ in 2014. In 2013, it amounted only to 7,925 k m³. In 2015, 496 k m³ of broad-leaved round wood were produced as compared to 593 k m³ in 2014 and to 720 k m³ in 2013.

Export of coniferous and broad-leaved round wood amounted to 3,131 k m³ and 3,214 k m³ in 2015 and 2014 respectively, i.e. a year-on-year drop by -2.6%. Import of coniferous and broad-leaved round wood amounted to 1,132 k m³ and 1,193 k m³ in 2015 and 2014 respectively, i.e. a year-on-year drop by -5.1%.

Coniferous round wood export amounted to 2,948 k m³ and 3,058 k m³ in 2015 and 2014 respectively, i.e. a year-on-year drop by -3.6%. Broad-leaved round wood export amounted to 183 k m³ and 156 k m³ in 2015 and 2014 respectively, i.e. a year-on-year increase by +17.3%. Broad-leaved round wood import amounted to 980 k m³ and 1,044 k m³ in 2015 and 2014 respectively, i.e. a significant year-on-year drop by -6.1%.

Domestic consumption of coniferous round wood totalled to 6,500 k m³ and 5,941 k m³ in 2015 and 2014 respectively, i.e. a year-on-year increase by +9.4%.

Domestic consumption of broad-leaved round wood amounted to 465 k m³ and 586 k m³ in 2015 and 2014 respectively, i.e. a year-on-year drop by -20.6%. The results of

domestic consumption of broad-leaved round wood reflect the impacts of foreign trade. Import of broad-leaved round wood amounted to 36.9% and 26.3% in 2015 and 2014 respectively.

c) Market with pulp wood incl. ground wood in 2015. The production of coniferous and broad-leaved pulp wood amounted to 4,863 k m³ and to 4,817 k m³ in 2015 and 2014 respectively, i.e. a year-on-year increase by +1%. The comparison between 2014 and 2013 showed an increase by +1.9%.

In 2014, the production of coniferous pulp wood showed a year-on-year increase by significant +7.8% to the total of 4,351 k m³ and in 2015 the year-on-year increase amounted to +1.2% to the total of 4,403 k m³. In 2015, 2014 and 2013 the broad-leaved pulp wood production amounted to 460 k m³, 466 k m³ and 467 k m³.

The import of coniferous pulp wood amounted to 1,000 k m³ in 2015 and 1,014 k m³ in 2014. There was a breakpoint in 2012, when the import amounted only to 749 k m³. In 2015, the year-on-year drop amounted to -1.4%. The import share amounted to 22.7% and 23.3% of the total production in 2015 and 2014 respectively. In 2015 the export amounted to 1,294 k m³ and 1,543 k m³ in 2014, i.e. a year-on-year drop by -16.1%.

Import of broad-leaved pulp wood amounted to 197 k m³ in 2015 and 232 k m³ in 2014, i.e. a year-on-year drop by -15.1%. Export of broad-leaved pulp wood amounted to 105 k m³ in 2015 and 174 k m³ in 2014, i.e. an enormous year-on-year drop by -39.6%

Domestic consumption of coniferous pulp wood totalled to 4,106 k m³ and 3,822 k m³ and 3,868 k m³ in 2015, 2014 and 2013 respectively. Domestic consumption of broad-leaved pulp wood totalled to 552 k m³ and 524 k m³ in 2015 and 2014 respectively.

Similarly to round wood, the export of pulp wood was high if compared to the total harvest. In 2015, the total export amounted to 29.4% and 35.5% of the total harvest in 2015 and 2014 respectively. In 2013, the figure equalled to 29.5%.

d) Breakdown of coniferous and broad-leaved round wood in 2015. In 2014, the domestic consumption of coniferous round wood amounted year-on-year to 5,941 k m³, to 6,500 k m³ in 2015 and the prediction for 2017 forecasts 6,750 k m³. The domestic consumption of broad-leaved round wood amounted to 465 k m³ in 2015 but to 586 k m³ in 2014. The production of coniferous and broad-leaved sawn wood at domestic saw mills grew year-on-year significantly by +289 k m³ to the total of 4,150 k m³.

The sawn wood demand persisted with minor peaks both abroad and in the Czech Republic where the coniferous sawn wood production grew in year-on-year comparison by +29 k m³. Mainly big saw mills with annual breakdown exceeding 200 k m³ depend on the export, such as Stora Enso Timber, s. r. o., Ždírec nad Doubravou, Stora Enso Timber Planá s. r. o., Mayer - Melnhof Holz Paskov, Saw Mill Lukavec and Saw Mill Javořice, etc. as well smaller wood processing enterprises. The export amounted to 3,323 k m³ out of the total of 3,920 k m³; the import to cover domestic consumption of 1, 131 k m³ amounted to 534 k m³.

6,965 k m³ out of the total round wood production of 8,964 k m³ were broken down and the total of 4,150 k m³ of coniferous and broad-leaved sawn wood were produced; thereof 3,920 k m³ of coniferous and 230 k m³ of broad-leaved sawn wood. The production dynamics reached a year-on-year growth by + 7.5% in 2015 and a decline by -4.4% in 2014. In 2015, the decline was stopped and reversed to a growth, which is an indication for improved development - after many years - for Czech saw mills that are not part of international chains, for small enterprises located rather in areas without developed industry and that are not equipped with modern technologies, machinery and devices and therefore cannot compete with multinational companies.

In 2015, the coniferous and broad-leaved production grew year-on-year by +289 k m³. The export of coniferous and broad-leaved sawn wood grew year-on-year by +239 k m³ in 2015; the import dropped by -21 k m³. This resulted in partial growth of domestic sawn wood consumption by +29 k m³.

The partial growth of domestic sawn wood consumption is the result of recovery of Czech construction industry. The share of wooden houses grew significantly. According to the Czech Statistical Office and Association of Assembled houses, 13,412 houses were built in 2015, thereof 1,791 wooden houses, i.e. a share of 13.35%.

e) Market with fuel wood in the Czech Republic in 2015. The production amounted to 2,336 k m³ and 2,111 k m³ and 2,182 k m³ in 2015, 2014 and 2013 respectively. The total coniferous fuel wood production amounted to 1,514 k m³ and 1,166 k m³ and 1,267 k m³ in 2015 and 2014 and 2013 respectively. The total coniferous fuel wood production amounted to 822 k m³ and 945 k m³ and 915 k m³ in 2015 and 2014 and 2013 respectively. In 2015, the production grew year-on-year by + 10.7%; in 2014 the coniferous fuel wood dropped by -8% and broad-leaved fuel wood grew by +3.3%.

The import of fuel wood amounted to 18.8 k m³ and 22 k m³ and 56 k m³ in 2015 and 2014 and 2013 respectively. The export of fuel wood amounted to 160.5 k m³ and 169 k m³ and 172 k m³ in 2015 and 2014 and 2013 respectively. The import recorded a year-on-year drop by -14.5% in 2015 and by significant -60.7% in 2014. The export recorded a year-on-year drop by -5% in 2015 and by -1.7% in 2014. Domestic consumption of fuel wood amounted to 2,194.3 k m³ and 1,964 k m³ and 2,066 k m³ in 2015 and 2014 and 2013 respectively. The Czech market was fully saturated with fuel wood, both coniferous and broad-leaved.

The price per m³ amounted to CZK 787 in 2013; in 2014 it grew to CZK 812; in 2015 it remained the same. Broad-leaved fuel wood price per m³ amounted to CZK 1,005 in 2013, in 2014 it grew to CZK 1,062; in 2015 it grew again to CZK 1,111.

7. Market with other wooden products in the Czech Republic in 2015

In the Czech Republic, this market with sophisticated products concerns basically the market with agglomerated products such as particle boards incl. OSB, fibreboards and plywood.

a) Particle boards incl. OSB in total. The production amounted to 1,040 k m³ and 1,036 k m³ and 1,032 k m³ in 2015 and 2014 and 2013 respectively. It is apparent that the production of this article has been growing; however, it does not reach the figures from 2011, when we delivered 1,052 k m³ of particle boards incl. OSB on the market. In 2015, the production grew year-on-year only by +0.4% and by 0.8% as compared to 2012.

Import of particle boards incl. OSB amounted to 1,390 k m³ and 1,342 k m³ and 1,335 k m³ in 2015 and 2014 and 2013 respectively. In 2015, the import amounted to 743 k m³; in 2014 it amounted to 690 k m³, i.e. by 8.2% more as compared to 2013, when the import amounted to 638 k m³ but only to 480 k m³ in 2012. In 2015, the import grew year-on-year by +7.7% and the production grew only by 0.4%. In 2014, the import grew year-on-year by +8.2% and the production grew year-on-year by +3.9%.

Domestic consumption grew. In 2015, it amounted to 393 k m³ and 384 k m³ and 335 k m³ in 2015 and 2014 and 2013 respectively. In 2015 and 2014, the year-on-year growth was +2.3% and +14.6% respectively.

The particle boards incl. OSB report an export several times higher than domestic consumption. This shows that CZ is lacking behind in consumption and in production of highly sophisticated wooden products, mainly if compared to developed economies.

b) Fibreboards. The annual production of fibreboards has been traditionally low. In 2015 and 2014, it amounted only to 44 k m³ and 41 k m³ respectively, i.e. similar production since 2012. In 2015, the production grew year-on-year by +7.3%; this growth was needed given the development of the past three years, but even though it was not sufficient.

As for agglomerated products, In 2015 the major Czech producers remained KRONOSPAN CR, spol. s r. o. in Jihlava and Dřevozpracující družstvo Lukavec in Lukavec.

The import of fibreboards amounted to 222 k m³ and 236 k m³ in 2015 and 2014 respectively. The import is six times bigger as compared to domestic production. The export dropped year-on-year by -5.9% in 2015.

Export of fibreboards amounted to 93 k m³ and 91 k m³ in 2015 and 2014 respectively. Hence, the exports are 2.1 to 2.2 times higher as the production and they grew year-on-year by +2.2% in 2015.

Annual domestic consumption of fibreboards is not high. It amounted to 173 k m³ and 186 k m³ in 2015 and 2014 respectively, i.e. a year-on-year drop by 7.0%. It will not be possible for the domestic production to catch up with the level of 2014 earlier than 2017.

c) Plywood. Plywood production grew gradually from 2012 to 2014. In 2012, the production amounted to 178 k m³; in 2013 it amounted to 180 k m³ and to 181 k m³ in 2014; in 2015 it dropped again to 180 k m³. It was expected that the production will reach 184 k m³ in 2015.

Plywood import reached 88 k m³ in 2015 as compared to 82 k m³ in 2014. In 2015, similarly to 2014, the export amounted to 124 k m³. The export and import of plywood amounted to 68.9% and 48.9% of the production respectively.

Domestic consumption reached 144 k m³ in 2015. In 2014, it reached 139 k m³. Hence the domestic consumption of plywood grew year-on-year by +3.6%. It is expected that the domestic consumption of plywood will grow by 2% in the next two years.

8. WOOD PULP AND PAPER IN THE CZECH REPUBLIC IN 2015.

The paper industry managed by international value chains and recently – in some areas – in contradiction to the needs of the Czech consumers.

The wood consumption for paper and viscous pulp amounted to 3,669 k m³ of coniferous raw timber in 2015 and to 4,010 k m³ in 2014. In 2014, the total of 2,772 k m³ of coniferous pulp wood and 1,238 k m³ of wood chips and coniferous splinters were used. In 2015, the figures were lower and reached 2,229 k m³ of coniferous pulp wood and 1,440 k m³ of wood chips and coniferous splinters.

The pulp and paper industry reduced significantly the production of cellulose and other pulp over the past. In 2012, 2013, 2014 and 2015, it produced 692 k t of pulp, 449 k t, 445 k t, and 431 k t respectively.

In 2012, 2013, 2014 and 2015, the production chemical cellulose amounted to 689 k t, 445 k t, 442 k t and 431 k t respectively. If comparing 2012 and 2015, the production dropped by significant 37.4%, i.e. by -258 k t. The drop recorded in chemical pulp was basically the same as in case of the pulp in general between 2012 and 2015; the production

remained unchanged and in 2012 and 2014 it amounted to 3 k t and in 2015 and 2013 4 k t.

As already reporting in the previous market statements, the structure of paper and pulp industry does not meet the domestic demand in the Czech Republic. The paper consumption is higher as the production in paper factories of value chains.

The produced assortments do not correspond to the Czech demand and the majority of the goods (printing and graphical paper, wrapping paper and material and hygiene goods) have to be imported. This results on significant loss in foreign trade balance. This situation cannot be reversed by higher production of paper, cardboard and paperboard that grew year-on-year by +5.1% in 2015.

Based on the Association of Czech Paper Industry it is apparent that the total consumption of paper, cardboard and paperboard amounted to 1,411 m t in 2015. The production of paper, cardboard and paperboard amounted to 740 k t in 2015; however 773 k t were then exported. 1,444 k t were imported to satisfy the domestic consumption of paper products

9. CERTIFICATION OF FOREST PRODUCTS IN THE CZECH REPUBLIC IN 2015

In the Czech Republic, There are two certification systems - FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification Schemes).

a) PEFC Czech Republic. In the Czech Republic, over 70% of forests are certified (up to 450 individual forest owners) and over 200 entities participate in the processing chain and hence demonstrate their social responsibility. In the Czech Republic, the Czech PEFC system assessed new Czech standards by the international independent certification body, Form International, and they are approved by the of International PEFC Council. The requirements of the most common forest certification system were adapted to the local priorities and conditions. Then, the entire Czech Republic was re-certified according to the new standards.

Once the EU regulation no. 995/2010, known also as the European Union Timber Regulation, was without delay transposed into Czech legislation, the PEFC certification in the Czech Republic focused on implementing this EU legislation in first place. Companies and enterprises importing or bringing timber on the Czech market for the first time are obliged to have so called due diligence system.

In the Czech Republic, Act no. 226/2013 Coll. applies both to domestic timber production as well as on imported timber and wooden products. Czech Republic succeeded in complying with these requirements. In 2015, similarly to 2014, concepts for promotion of products marked with PEFC ČR logo were elaborated intensively. Many Czech forest owners – regardless the ownership type and forest size – showed interest in PEFC certification and in acquiring independent confirmation of correct forest management.

b) FSC® Czech Republic. The FSC® ČR institution is the Czech representative of the international organisation Forest Stewardship Council® (FSC) that provides forest owners, foresters and wood processors in the Czech Republic with universal and supporting information service relating to the certification. It also focuses on the consumers and their education. Also FSC® ČR adapted to the provisions of the Timber Regulation. This is an excellent tool both for foresters and wood processors when documenting the legality of timber. Generally, the focus and activities of both certifying organisations was similar in 2015.

Similarly they both achieved equal results in 2015. FSC enhanced created web pages with information about workshops for public.

Forest certification has existed for many years and is one of the most efficient non-governmental tools supporting sustainable forest management.

In 2015, the praxis showed that in spite a wide range of measures there are cases – even though only dozens of m³ when not all documents proving legal harvest are required when buying the timber. Therefore, it is mandatory to store all purchase and sales related documents for 5 years since 2014. The checks are carried out by the Czech Trade Inspection authority.

10. VALUE ADDED IN WOOD PROCESSING INDUSTRY AS COMPARED TO PROCESSING INDUSTRY

The wood processing industry reported year-on-year positive values of the annual value added increments over the last three years. In 2015, it was 10%. However, the year-on-year increment of the same indicator in processing industry reported also positive increments in the same period and since 2010 in higher numbers as compared to wood processing industry. In 2015, it was 14.4%.

The situation differs if comparing the year-on-year value added increment per employee in wood processing industry and processing industry. In wood processing industry, the increments were positive; in 2015 it amounted to 7.2%. The same indicator reported also positive figures in processing industry, but in higher annual volumes as compared to wood processing industry; in 2015, it amounted to 11%.

When comparing the two previous indicators (annual value added increments and annual value added increments per employee), it is clear the processing industry has better effects of positive value added than wood processing industry. Higher value added figures recorded in processing industry are and cannot be a surprise. This is given both by the equipment: machines and devices and technologies that are not that advanced in wood processing industry and by the scope of and quality of subsidies and incentives realised in wood processing industry as compared to processing industry. The performance of wood processing industry measured by value added will never comparable to processing industry sectors, especially to sectors such a car manufacture.

It is almost sure that the higher performance of annual value added increments and annual value added increments per employee in wood processing industry were not bad in the past years. However, one will never be able to compare the prosperity of wood processing industry with processing industry; it can be improved if wood processing industry increases mainly the investments.

This applies also to the timber export indicators. The value added in the foreign trade indicators shows how much one has to import in order to gain one Czech koruna from the export of the products; this indicator amounts to 0.3 CZK, which is acceptable. However, the export of these goods is not favourable and it does not reflect the real potential of wood processing industry.

11. HOW DOES THE DEVELOPMENT OF WOOD PROCESSING INDUSTRY PRODUCTS HELP THE DEVELOPMENT OF PROCESSING INDUSTRY IN THE CZECH REPUBLIC?

It is extremely difficult to present considerations about or statistical compression of how does the development of wood processing industry products help the development of processing industry in the Czech Republic due to objective reasons. Many indicators that would have to be used are not available or the indicators do not have the same

measurements units.

After making the comparison and with certain inaccuracy, one could use time lines of some suitable financial indicators such as SPREAD, ROE and r_e .

As for the time lines, SPREAD indicator shows the profit efficiency, ROE reports the percentage of net income from own capital and r_e shows the development of alternative costs for own capital. This would allow for an indirect assessment with certain probability from financial-economic prospective.

Based on the development lines, one could roughly estimate whether the enterprises in individual sectors or the sector as such is or is not able and has or has not the presumptions for helping with its production or other activities the processing industry to develop.

The development lines of those three indicators indicate that the market development with products manufacture by wood processing enterprises help positively to the development of processing industry. This is document also by many sectors of Czech economy being reliable on wood-based products. However, it is crystal clear that his help is rather stagnating than boosting.

12. ISSUES RELATED TO WOOD ENERGY PRODUCTION IN THE CZECH REPUBLIC IN 2015

The European Parliament and Council adopted Directive no. 2009/28/EC on the promotion of the use of energy from renewable sources. In 2011, Czech Ministry of Trade and Industry derived from this Directive the National Programme for Energy Savings and Use of Renewable Resources, so called EFEKT programme. It is a national subvention programme established in 1998 before the Czech Republic joined EU. It is one of the tools providing for compliance with international commitments, mainly reduction of the share of energy consumption and GDP by 1% per year. It defined goals within increasing the energy use efficiency, reduction of energetic demands and goals for use of renewable and secondary resources in line with the adopted national energy concept and sustainable development principles. The EFEKT programme is approved each year and for 2015, it was approved under the resolution no. 921 as at 12 November 2014.

As for the use of residues, e.g. timber, many measures are directed to compliance with commitments set forth under Directive 2009/28 EC. In order to approve the Act on supported energy sources, 2012 -2020 Biomass Action Plan and National Action Plan for Renewable Energy Sources were drafted. It is a follow-up of the updated National Energy Concept defining the role of biomass in the main areas of energetic use of biomass and it proposes suitable measures for sustainability of this area to 2020. National Action Plan for Renewable Energy Sources assumes that the shares defined by the European Commission, namely 14% of renewable energy in the gross final energy consumption and 10.8% share of renewable energy in gross final consumption in transportation, will be reached.

Other measures for improving use of forest biomass for energy are set forth under programme 4 that is part of the National Forestry Programme. The total estimated and calculated potential of agricultural and forest biomass for energy (without households) ranges from 160.2 – 217.2PJ/year with the medium value of 189.7 PJ/year. The main share of this potential lies in agricultural biomass (85%) with complementary share of forest wood mass (15%). The energy potential of biological degradable household waste is 25PJ/year. If compared to the potential of currently used biomass of 94PJ/year, the found total energy

potential is almost double of the existing one.

18 May 2015, Czech government adopted the updated National Energy Concept for the next 25 years. The main reason for adopting the National Energy Concept was to define priorities and Government's strategic intentions within the energy sector and to provide to investors, citizens and state administration stability in these turbulent and fast changing times.

The main pillars of the strategy comprise the boost of nuclear energy production incl. the maximum use of the waste heat, reducing coal energy production, development of efficient energy from renewable sources with gradual reduction of financial support of new sources and focusing on reaching the renewable energy share in electricity production exceeding 15 % and last, but not least, use of waste in facilities using waste for energy production and to reach up to 80% of the combustible part of the sorted waste by 2040.

We produce energy (except for transportation) mainly from coal, nuclear energy, to a lesser extent from gas and only marginally from renewable energy resources. Energy is also produced from **household waste**; the annual production amount to 3 m t; 75% are dumped, 15% are used for material and only 10% are used for producing energy.

In 2015, EFEKT Programme spent CZK 21,572 k for supporting direct energy saving events. This sum brought total investment of CZK 57,741 k and means savings of 7,462 GJ/year (i.e. more than 1,906 MWh/year) and a reduction of emission by 2,303 t CO₂ per year. The average investment costs it save 1 GJ amount to CZK 7.74 k to which the subsidy from EFEKT Programme contributed with CZK 2.89 k.

13. EVALUATING CARBON FOOTPRINT IN THE CZECH REPUBLIC

In the Czech Republic, the main anthropogenic greenhouse gasses controlled by the Protocol comprise: carbon dioxide, methane, nitro oxide, partially fluorinated and fully fluorinated hydrocarbons and sulphur hexafluoride. The carbon footprint indicator is monitored based on several sources: fossil fuel combustion, carbon in traded products, national share on CO₂ emissions from international transport and some emissions from non-fossil sources such as deforestation. The total volume of carbon is transferred in global hectares while using annual forest increment.

In the Czech Republic, there are forests growing to cover the carbon footprint. This is caused by the new forests being planted on non-forest land and by refined data in the land registry office. In 2013, the total forest area amounted to 2,663,731 ha; in 2014 and 2015 it amounted to 2,666,376 ha and to 2,668,392 ha, i.e. a year-on-year growth by . 2,016 ha.

In 1990, the aggregated greenhouse gas emission amounted to 190.5 m t of CO₂ eq. In 2012, the value reached already 131.5 m t of CO₂ eq. This decline was caused mainly by the economic transformation and the decline of heavy industry in the first five years of the 1990's, and by the economic crisis in 2009. Similar development can be seen in emission of pure CO₂. Good, satisfactory emission development was adversely influenced by the salvage felling in 2007 and in the last two years: 2014 and 2015.

Over the past year, forestry and change in land use have caught 6 m t of CO₂ eq. per year. Hence, one can estimate that the total greenhouse emissions could incl. impacts of natural catastrophes range from 114.5 to 115.5 m t of CO₂ eq.

In spite of significant drop of emission since the beginning of the 1990's remain the greenhouse emissions per capita (i.e. the carbon footprint) 11.4 tons, i.e. by one fifth more

than EU-28 average. In the Czech Republic, is estimated that this average per capita could range from 11.2 to 11.3 tons currently.

Czech Republic has its own concept, called Strategic Framework for Sustainable Development of the Czech Republic, for assessing both carbon and ecological footprint. As for forestry, these issues and development tendencies are described under the National Forestry Programme. In parallel, the Charles University Environment Centre cooperates with National Footprint Accounts on the methodology and verification of national accounts of ecological footprint and bio capacity.