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Economic Aspects of Raw Material Inputs for SAQ Pulp Production at the Time of Crisis

Ekonomski aspekti ulaznih parametara sirovine za proizvodnju SAK celuloznih vlakana u vrijeme krize

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ABSTRACT • *Today at a time of global economic and financial crisis, timber industry in Slovakia, as well as other industry, is not just trying to look inside for company reserves in production processes, but also identifies new trends in production and its competitiveness in world markets. It is obvious that the pulp and paper industry needs to keep up the competitive pressure with new trends in efficient production, which is certainly linked to investments and their expected effects (capacitance, substitution, income effect). One of the key factors of economic efficiency of production of SAQ pulp is a complex issue of ensuring the required inputs.*

Key words: *pulp and paper industry, raw material inputs, economic efficiency, semi-chemical (SC) fluting, soda anthraquinone (SAQ) pulp production*

SAŽETAK • *Drvoprerađivačka industrija Slovačke, kao i druge industrijske grane, danas u vrijeme globalne ekonomske i financijske krize, ne pokušava tražiti pričuve samo unutar proizvodnog procesa kompanije, već ustanovljava nove trendove u proizvodnji i konkurentnosti na svjetskom tržištu. Razvidno je kako proizvodnja celuloznih vlakana i papira, u svezi s pritiskom konkurencije, treba držati korak s trendovima učinkovite proizvodnje, koja je svakako vezana za investicije i njihove očekivane učinke (osposobljenost, zamjenske materijale, učinak prihoda). Jedan od ključnih čimbenika ekonomske učinkovitosti u proizvodnji SAK celuloznih vlakana jest kompleksno pitanje osiguranja potrebnih ulaznih parametara sirovine.*

Ključne riječi: *industrija celuloznih vlakana i papira, ulazni parametri sirovine, ekonomska učinkovitost, polukemijski (PK) fluting, proizvodnja soda-antrakinonskih (SAK) celuloznih vlakana*

1 INTRODUCTION
1. UVOD

The impact of the global economic crisis gradually influences manufacturers of goods, semi finished products, al well as various service providers. Some manufacturers felt a decrease in demand with market depression in 2008 already. Manufacturers dealing with building industry, houses, feel the market push with a certain time response or they will feel the

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response in 2010. Based on the analyses of performance of several woodworking enterprises in the Slovak Republic during the first nine months of 2009 (Drábek, Merková, 2009) it can be concluded that the impact of the crisis closely corresponds to the following factors:

- production program structure and possibilities of its change
- level of horizontal, vertical and geographic diversification of enterprise
- current level of production – technology basis, as well as investments into fixed assets
- quality of company management
- exploitation of assistance programs for wood processing and advertising
- international corporations pressure on manufacturers as well as final consumers
- changes in purchasing power and demand of population

2 PRESENT CONDITIONS IN SAQ PULP AND SC FLUTING PRODUCTION
2. TRENUTAČNI UVJETI U PROIZVODNJI SAK CELULOZNIH VLAKANA I PK FLUTING PAPIRA

Semi chemical (SC) fluting is produced from SAQ pulp (SAQ – soda anthraquinone, cooking technology for pulp production). This type of paper is used for the corrugated layer in corrugated boards and boxes. Recent conditions in the paper market worry the fluting manufacturers as well. In spite of a favorable price trend in the major raw material input, the broadleaved pulpwood (Database of average buying prices of pulp wood in Smurfit Kappa Štúrovo, a. s. Jan.1 2007 to Aug. 31 2009), the fluting manufacturers are increasingly fighting with the price break of the commodity (Database of average selling prices of fluting Smurfit Kappa Štúrovo, a. s. Jan.1 2005 to Nov. 31 2009). The price break is caused by two dominant factors – by market glut at the paper market and more and more substitution of the semi chemical fluting by high performance fluting. This type of fluting is produced more from amounts of recycled fibers and less from amounts of primary fibers.

The following wood species are used for SAQ pulp production: broadleaved softwood (poplar, willow, aspen and alder), birch and broadleaved hardwood, usually hornbeam (Raw material and energy consumption for SAQ pulp production, THN FL – 03: 2007. Internal standard of Smurfit Kappa Štúrovo, a. s) (however, elsewhere in the world the technology is based on other combinations of wood species).

3 ANALYSIS AND DEVELOPMENT OF RAW MATERIAL PRICES
3. ANALIZA I KRETANJE CIJENA SIROVINA

The focus of the analysis was on the development of prices of broadleaved pulpwood species required for SAQ pulp production. The prices were analyzed in 2007, 2008 and in the first nine months of 2009 (Approach to information system database OLTIS-ISDL of Smurfit Kappa Štúrovo, a. s. Jan. 1 2007 to Aug. 31 2009 about processes in pulp wood handling). The basic result of the analysis is shown in Figure 1. The prices of pulpwood species were analyzed in the Slovak market and in a foreign markets dominant in the species import to Slovakia. The following part of the work contains supplementation with the overall transport cost analysis.

In connection with the price analysis it is necessary to mention the conditions and circumstances of the analysis:

- softwood – the analysis was provided in the Slovak and Hungarian market
- birch – the analysis was provided in the Slovak, Ukrainian and partly in the Czech market
- hornbeam - the analysis was provided in the Slovak, Ukrainian and partly in the Hungarian market
- monthly average purchasing prices and costs of pulpwood in the Smurfit Kappa Štúrovo paper mill were used in the analysis
- data about pulpwood transport in the Smurfit Kappa Štúrovo paper mill were used in the analysis of transport costs (Taking over the pulpwood, 111/1 – C/10: 2007. Technological regulations of Smurfit Kappa Štúrovo, a. s., Approach to information system database OLTIS-ISDL of Smurfit Kappa Štúrovo, a. s. Jan. 1 2007 to Aug. 31 2009 about processes in pulp wood handling)
- measurement unit used in the analysis was /1 t a.s. – euro per 1 ton of oven dry pulpwood (Wood processing, 111/2 – C/3: 2007. Technological regulations of Smurfit Kappa Štúrovo, a. s.).

Figure 1 Semi chemical fluting reel at the end of a paper machine
Slika 1. Namotavač polukemijskog fluting papira na kraju papir-stroja

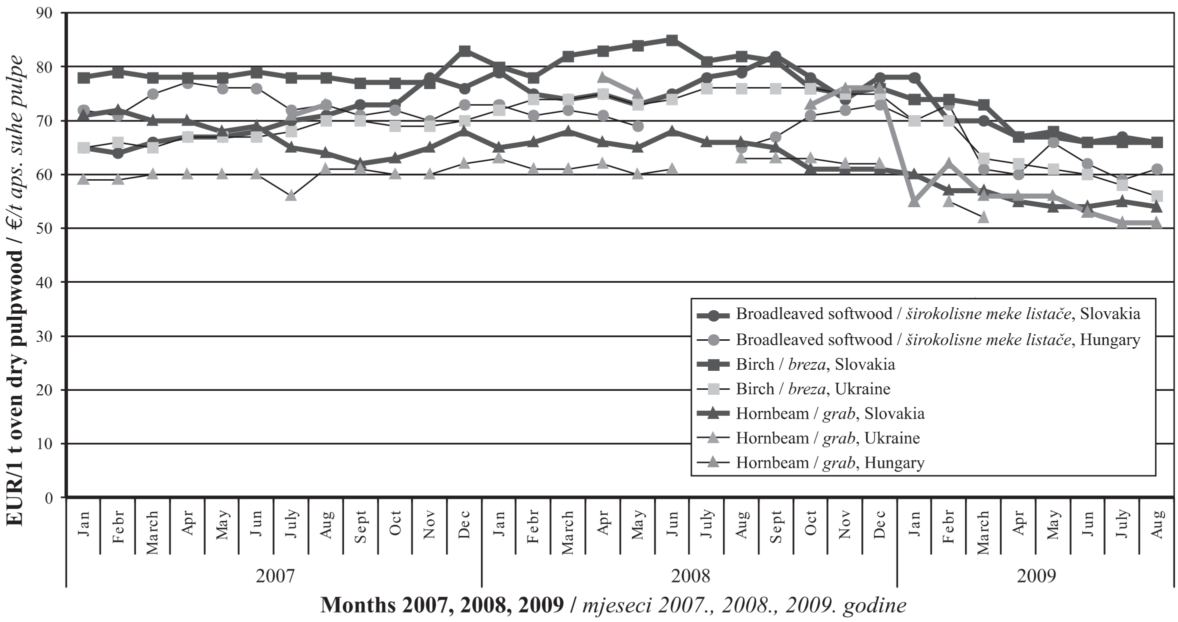

Figure 2 Development of pulpwood prices in Slovakia, Hungary and Ukraine
Slika 2. Kretanje cijena celuloznog drva u Slovačkoj, Mađarskoj i Ukrajini

Concerning the broadleaved softwood it can be concluded that the prices in Hungary are seasonally lower than in Slovakia. In case of the birch prices there are very low swings in the analyzed time period, especially in the Ukrainian market. The Slovak market with the hornbeam pulpwood is an exception from other developments in the analysis, and shows a continuing slowly decrease in the price.

4 TRANSPORT COST OF PULPWOOD AND ITS IMPACT ON PRODUCTION
4. TROŠKOVI TRANSPORTA CELULOZNOG DRVA I NJIHOV UTJECAJ NA PROIZVODNJU

For a comprehensive evaluation of pulpwood purchasing, transport to the place of consumption should also be taken into consideration. The following figures show the yearly average prices and the average transport costs of the analyzed markets and for the analyzed pulpwood species. In the spring of 2009 there was a huge devaluation of the local currencies in the surrounding countries of Slovakia, especially in Hungary. Thanks to this fact there was a strong fall in the transport cost due to the Euro and local currencies exchange rates. In many cases the transport from comparable distances from abroad was cheaper than from domestic forests. In the case of birch and hornbeam purchased from Ukraine, the transport is increasingly expensive every year.

When evaluating transport costs in terms of transported pulpwood species and destinations, the following important factors should also be taken into consideration:

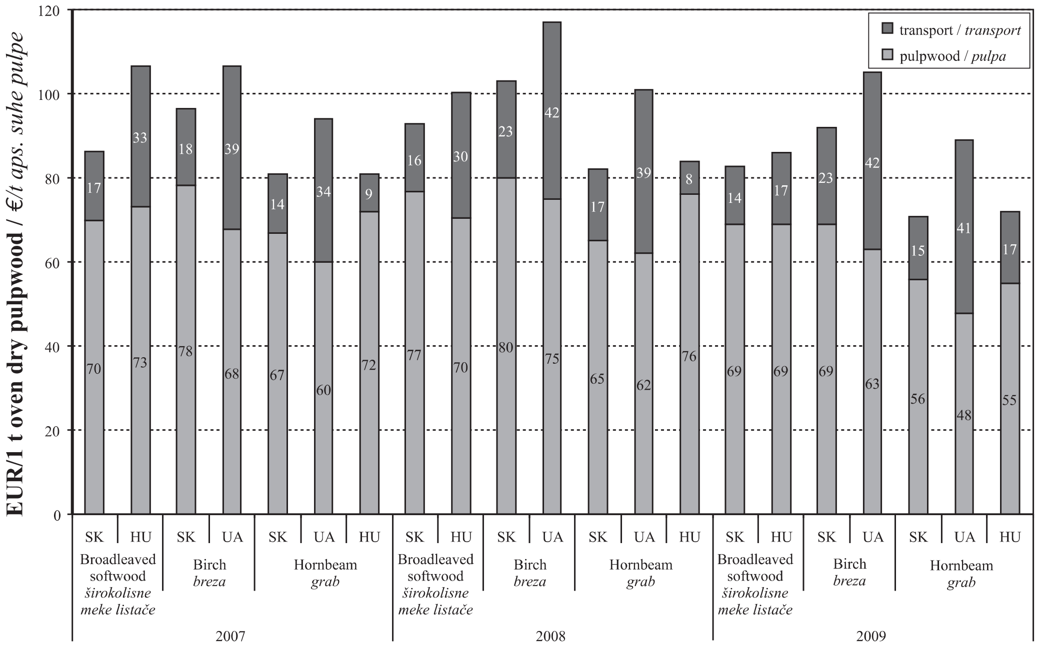

Figure 3 Average pulpwood prices and transport cost in Slovakia, Hungary and Ukraine
Slika 3. Prosječne cijene celuloznog drva i troškovi transporta u Slovačkoj, Mađarskoj i Ukrajini

- distance between exploitation and consumption;
- combination of types of transport and number of manipulations and reloading;
- transport-related fees;
- moisture content of harvested pulpwood;
- current economic situation.

When considering the listed factors, it can be concluded that the crisis in the pulpwood transport is present (Approach to information system database OLTIS-ISDL of Smurfit Kappa Štúrovo, a. s. Jan. 1 2007 to Aug. 31 2009 about processes in pulp wood handling), as well as in case of pulpwood prices. Regarding the effectiveness of transport, it should also be mentioned that it is the most effective to transport hornbeam due to the lowest moisture content. When transporting wood with high moisture content, the cost accounting for oven dry wood will be higher. The highest moisture content after exploitation can be found in broadleaved softwoods.

5 PROBABLE DEVELOPMENTS OF RAW MATERIALS AND TRANSPORT PRICES, OPTIMUM FOR COMPETITIVE PRODUCTION
5. PREDVIĐANJE KRETANJA CIJENA SIROVINA I TRANSPORTA, OPTIMALNIH ZA KONKURENTNU PROIZVODNJU

An increase is expected in the forecasts for the European paper and corrugated board market in 2010 (Timber committee forecasts production and trade data for 2008-2010, Foex Indexes). However, the revival of trade should not reach the level of demand in 2008. In case of fluting, the price level of 2007 and 2008 (Foex Indexes) is not expected to be reached. As regards the pulpwood market in 2010 there will be a renewal as well, which should not achieve the demand in 2008 (UNECE Region Forest Products Markets Forecast to turn up in 2010). However, the pulpwood market is becoming increasingly attractive for biomass energy industry, which represents a potential for additional demand of pulpwood. Therefore, a stronger stabilization is probable compared to paper market, which naturally brings along a higher tendency of price increase. Current prices of the fluting (350 €/1 t) are barely on the level of 2006. At the present time, paper manufacturers announce a rise in price and namely 30-50 €/1 t of fluting, and still the prices of 2008 will not be reached as in 2008 the fluting was sold at an average of 461 €/ 1 t. Recently achieved prices of pulpwood would be optimal for the production competitiveness in 2010, when the price of 400 €/ 1 t is expected for the fluting, and however this situation is hardly to be expected in the future. The reason is the mentioned growing demand for pulpwood of the energy sector (UNECE Region Forest Products Markets Forecast to turn up in 2010). Development of the fluting prices is currently affected by the trend of replacing the product with High Performance Fluting and according to the expectations it will be more and more crowded out.

Pulpwood is mainly transported by lorry and railway transport. In the last three years the trend in the pulpwood transport changed. In 2007 70 % of pulpwood was transported by railway, while in 2009 only 30 % was transported by railway (Approach to information system database OLTIS-ISDL of Smurfit Kappa Štúrovo, a. s. Ja. 1 2007 to Aug. 31 2009 about processes in pulp wood handling). This development is caused by high flexibility of the lorry transport and by the fact that for short distances (up to 200 km) the lorry transport is budget priced, faster and more effective from the viewpoint of manipulation. It means that it is favorable for the broadleaved softwood and hornbeam transport to the paper mill in Štúrovo from the south and west Slovakia and from the north Hungary. However in 2010, after launching the road toll system for highways and primary roads in Slovakia (Introduction of electronic toll collection system has started in Slovakia), according to analyses, transport prices will rise by 8-10 % on average (Transporters threat with strike because of toll prices). It can be concluded from several analyses dealing with specific road lines that the price of lorry transport will increase considerably in 2010 (Transporters threat with strike because of toll prices). This issue is making space for revaluating the effectiveness of pulpwood transport by railway on short distances. According to the experience in Štúrovo paper mill, under certain circumstances – effective organization of pulpwood unloading from wagons (minimizing demurrage charges) and ignoring higher time losses during railway transport, it is possible to transport pulpwood by railway on short distances as well.

6 MAIN PROBLEMS OF PRODUCTION COMPETITIVENESS
6. OSNOVNI PROBLEMI KONKURENTNOSTI PROIZVODNJE

Favorable development in raw material input prices for SAQ pulp consequently brings together a decrease in production costs for semi chemical fluting. In the recent years also in case of recycled paper market there is a trend of decreasing in prices for recycled paper (Foex Indexes). As a result of price trend of these raw materials, it is possible to cut the price of the fluting production. However, market conditions of semi chemical fluting, high stock inventories in West Europe and increasingly shrinking market for the product, due to the substitution, resulted in higher fall in prices in 2009 than expected based on compensation and decrease of raw material prices. Therefore in the recent times it is very important to prefer supplies with the lowest possible total costs for pulpwood and transport. In 2008 when there was a shortage of paper and packaging materials in the market, the fluting production was highly profitable (Database of average selling prices of fluting Smurfit Kappa Štúrovo, a. s. Jan.1 2005 to Nov. 31 2009). In 2009 it was clear that the trend in the fluting market is and probably will be the substitution of semi chemical fluting with cheaper and more available high performance fluting. It means that for an effective and sustainable production of SAQ pulp it is required to invest into paper produced from this type of pulp. It is required to invest into the production of a fluting that contains a less amount of primary fibers and a higher amount of recycled fibers and filling. This way the production will be cheaper and a lot more competitive due to primary fiber savings. A possible way is, perhaps, the installation of a glue press into the paper machine for clogging the filling additives. This is obviously a considerable investment that requires large capital expenditures. This investment could be made under the assumption that the product will be required by the market (Drábek, Merková, 2009). It is necessary to consider the recent situation in the crisis, the force of stakeholders, their economic power, as well as a whole scale of other factors deriving from the development in the global economic crisis (Drábek, Merková, 2009).

7 CONCLUSION
7. ZAKLJUČAK

Based upon insight into pulpwood prices, together with transport costs, it can be concluded that in the recent year compared with the previous two years there has been a favorable development and that the prices have been influenced by the crisis. In 2007 an increasing trend of prices was recorded, 2008 was the year of stagnation and changes and 2009 was the year of the slump. In 2009 seasonal prices were lower than prices in 2007. Concerning the transport, it should be mentioned that transport costs from Ukraine are increasing from year to year.

As shown by our analysis of the price development of SAQ pulp raw material inputs, it is necessary to make a comprehensive evaluation. In total purchase prices, the slump is positively transformed into production costs, and however the effect for further development of the enterprise is substantially low. Key factors of the present situation can be clearly seen from our analyses, and they are presented as direct and indirect environment of the enterprise. However, the politics of the enterprise stakeholders and their interests may be considered as a key factor of SAQ pulp production development in the recent era, and not only the situation in the EU market.

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