

## Prospects of papermaking industry development in Poland – barrier of wood supply

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**Abstract:** Demand for paper products is constantly growing both in the world-scale and in Poland. Presently, the main factor limiting production of papermaking pulp and paper itself is insufficient supply of wood. This paper presents situation of raw materials supply for paper industry, and possible changes in this field in the near future.

*Keywords:* wood, papermaking industry, papermaking fibrous pulp, paper, production size, development.

### INTRODUCTION

Paper products due to a wide range of applications, relatively low price and easiness of utilization are commonly used in households and industry. Rapid and constant growth of paper production and consumption is kept from the beginning of the 20<sup>th</sup> century. Annual production of paper in the first decade of the 21<sup>st</sup> century is estimated to be over 400 million metric tons. This means that statistically paper consumption per one person is around 60 kg a year. Annual paper production in Poland is estimated to be around 3,3 million metric tons, and do not keep up with paper consumption, which is assessed to be 4,4 million metric tons. Currently, the most critical factor limiting development of paper industry in Poland and in the world is insufficient wood supply. This paper is dedicated to present evaluation of wood supply for paper industry in Poland.

### VALUE OF PAPER PRODUCTION AND CONSUMPTION IN POLAND

Paper is a typical mass-scale product, which is used in all aspects of our life. Increase in paper production and paper consumption in Poland in the last decade (1999÷2009) is presented in the figure 1.

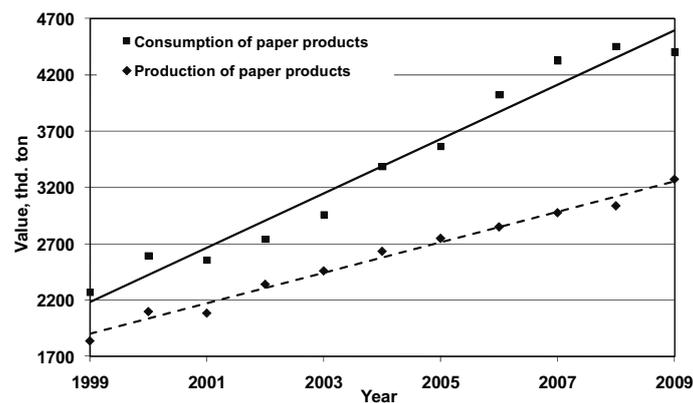


Figure 1. Increase in paper production and paper consumption in Poland in years 1999÷2009

Data presented in figure 1, show that growth of living standards in our country contributed to almost doubling of paper consumption, reaching level of 4,4 million metric tons in year 2009. It should be predicted, that existing tendency of increase in paper consumption will be kept also in the second decade of 21<sup>st</sup> century. This assumption is supported by the fact, that specific paper products consumption in Poland (117kg) is still much lower than in Western European countries (220kg).

Unfortunately, in the considered period, paper production has shown much lower value and dynamic of growth than paper consumption. Thus, paper production in Poland in year 2009 has reached level of only 3,3 million metric tons. The difference between consumption and production of paper products is covered by constantly increasing import of these goods, which was estimated to be over 1,1 million metric tons in year 2009. It may be assumed, that this tendency will be kept due to insufficient fibrous stock supply in Poland; wood and wastepaper.

#### PRODUCTION AND CONSUMPTION OF PAPERMAKING VIRGIN PULPS

The basic raw material for paper products is wood, which is used to obtain papermaking virgin pulps. In Poland there is around 9 million hectares of forest, from which around 32 million cubic meters of wood is gathered. Wood consumption of paper industry in Poland does not exceed 5 million cubic meters, which is 15,5% of total wood consumption. This amount covers only 70% of wood demand of paper industry. Constant wood deficit from domestic forests significantly limits development of installations converting wood into papermaking virgin pulps. Annual capacity of these installations is kept for many years at the level of 1 million metric tons.

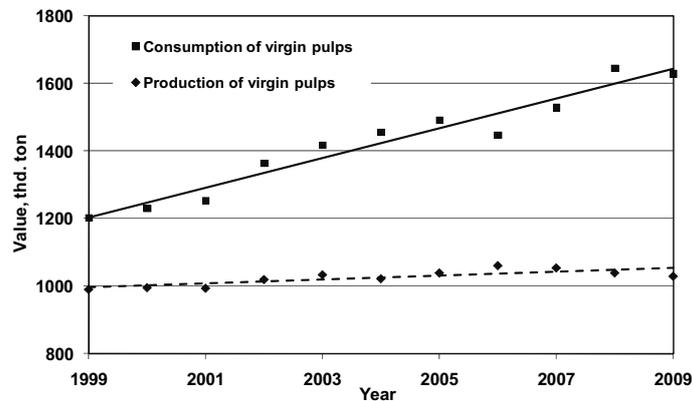


Figure 2. Increase in papermaking virgin pulps production and consumption in Poland in years 1999÷2009

#### PRODUCTION AND CONSUMPTION OF PAPERMAKING SECONDARY PULPS

High level and rapid pace of growth of paper consumption cause the following difficulties:

- sufficient supply of raw material for paper industry,
- utilization of growing amount of paper waste.

Recovery and rational utilization of waste paper may significantly contribute to solve mentioned above problems. It is estimated, that 1 metric ton of waste paper may substitute for 3÷5 cubic meters of wood. Figure 3 presents increase in production and consumption of secondary pulps in Poland in years 1999÷2009.

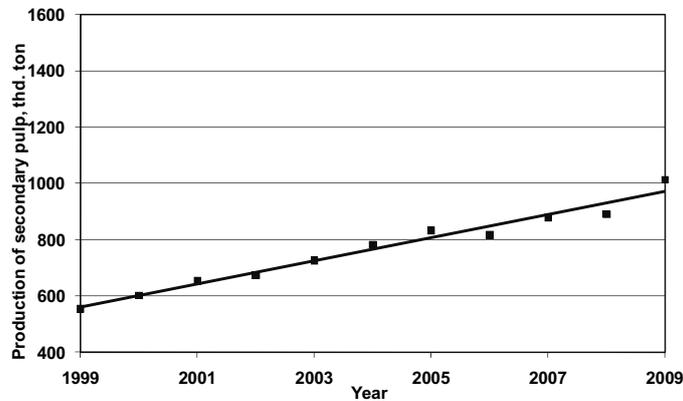


Figure 3. Increase in production and consumption of secondary papermaking pulps in Poland in years 1999-2009

Data from the figure above show that production of secondary pulps was doubled during the last decade, reaching level of 1,013 million metric tons in year 2009. It should be predicted that rapid pace of secondary pulps production growth will be kept, because there is a great reserve of unused wastepaper in our country. This can be confirmed by low level of wastepaper recovery rate, which is around 40%. The requirements of European Union is value of 66%, and within a few years many efforts will have to be made, so as to reach this level.

#### VALUE AND STRUCTURE OF PAPERMAKING FIBROUS PULPS CONSUMPTION IN POLAND

Presently, the main factor limiting increase in paper production is insufficient wood supply. Hence, production of virgin papermaking pulps is kept for many years at level of around 1 million metric tons (Figure 4), and only partially covers domestic demand.

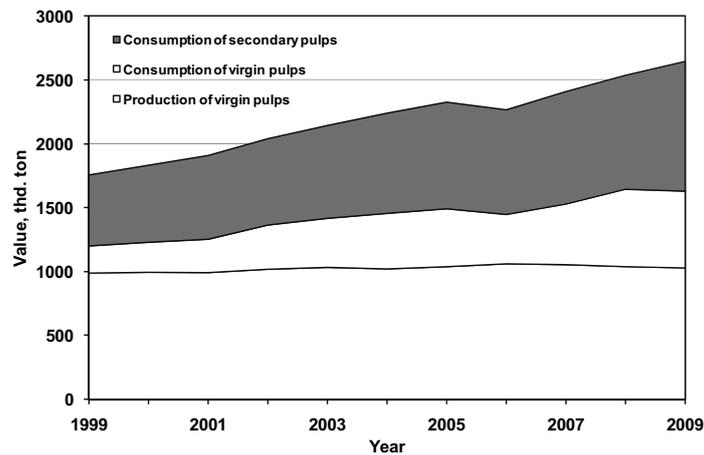


Figure 4. Production and consumption of papermaking pulps

Shortage of virgin papermaking pulps is covered by growing import of these pulps. In 2009, import was estimated to be 0,6 million metric tons. In comparison to virgin pulps domestic production this is 60%.

Considering difficulties related with shortage of wood supply, limiting growth of papermaking virgin pulps production, papermaking industry has focused on development of secondary pulps production. In 2009, production of secondary pulps was over 1 million metric tons and has caught up with the value of virgin pulps production.

#### SUMMARY

One of the main factors influencing development of paper industry in Poland in the following decade will be matters related with supply of sufficient amount of wood. Presently, paper industry consumer approximately 5 million cubic meters of domestic wood 1 million cubic meters of imported wood and produce 1 million metric tons of papermaking virgin pulps. Existing shortage of papermaking pulps is covered by import, which in year 2009 was 0,6 million metric tons.

Considering shortage of virgin pulps, paper industry aim to increase production and usage of secondary pulps. In 2009 consumption of virgin and secondary pulps was equal.

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