

Chapter 8

Title **Multifunctionality of the Forestry Sector in Bulgaria**

Author

Ilka Yonovska

Scientific Researcher

*Experimental Station for Fast-growing Forest Tree Species
Svishtov, Bulgaria*

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Introduction Under the condition of transition to free market economy and especially after the accession of Bulgaria to the European Union the expectations related to the forestry sector have become markedly higher. New demands have been laid down for the management and utilization of the available forestry resources. The development of the forestry sector in Bulgaria is affected by many factors, the most important of which are forestry policy, changes in forestry legislation, the European Regulation on timber trade, to name a few.

The term “forest sector” gained popularity within the context of multifunctional management of forests and their role in climate change mitigation. The European Forest Sector Outlook Study (EFSOS II) defines the term “*forest sector*” as the forest resource (forestry), as well as the production, trade and consumption of forest products and services (forest industry). Forest products are the end products from processing wood (sawnwood, wood-based panels, paper and paperboard) as well as the by-products (wood raw material, pulp and sawdust). The term is quite complex and not clearly defined yet. This fact poses significant difficulties in analyzing the sector and the relationships among its components. The term does not cover secondary and added-value products such as doors and windows or furniture.

Forest The Bulgarian forests are part of Europe’s natural heritage.
recourses Bulgaria is among the European countries with greater

forests. The areas covered with forests amount to 4 089 762 ha, which is about 1/3 of the territory of the country. Most of these forests are natural. The forests preserve over 80 per cent of the protected flora species and over 60 per cent of endangered (with extinction) animals in the county; ensure 85 per cent of the fresh, drinkable water, as well the most significant non-timber forest resources – herbs, mushroom, forest fruits etc. They compose the main well-known area among European hunting activities in Bulgaria, and at the same time play a significant role in terms of soil erosion control, too. 10 per cent of the forests in Bulgaria are included in protected areas. Forestry in general has a positive effect on other sectors of the national economy.

Forest Functions (according to Bulgaria's Law on Forests) are economic, social and environmental. The main objective of forestry is to achieve a balance of the economic, social and environmental functions of the forests. In certain regions of the country some of these functions are considered more important than others. Bulgaria faces various problems related to the protection of its forests from diseases, parasites and fires, which are similar to the problems experienced in other European Union member states.

Although its contribution to the structure of industrial production is not significant, *forest industry* is a factor for the development of a balanced industrial production, especially in those regions of the country where wood cutting and wood processing are the main sources of income for the population.

Within the Industrial Policy of the European Union and its sustainable development strategy aimed at creating better conditions for the processing industry, forest industry is an example of a sector that is in line with the development of EU policies. At the same time “the sector faces a number of challenges, including access to raw materials, climate

change, innovation, trade and the provision of information on forest-based products.”¹

Systemic approach The key point to start the discussion of this study is to apply a systemic approach, i.e. to consider the two sectors of the forest sector as elements of a system. We chose this investigation because of the common opinion that it is “one of the tools for better insight into the essence of the economic phenomena, which reveals both their diversity and unity.” (Mircovich, 2006: 63-72) We believe that “the systemic approach examines the relationships and dependencies between processes and phenomena.” (Mircovich, 2008: 45) Donnelly et al. (1992: 12) define the systemic approach as “a unity of interrelated parts united by a common goal.”

In this contribution we shall consider forestry and wood-processing industry as elements of the system that includes the production and sales of forest products. The issue of sustainability is applicable to any of the components of forestry and the wood-processing industry as well as the relationships between them.

Forestry as a complex of activities related to planting, growing and the utilization of forests is a sector of the national economy with many functions economic, social, environmental, etc. Its main economic function is to generate income for forest owners. These incomes are generated mainly through the production and trade of its main product – wood. Being the main product of the forestry production process, wood can perform its main economic function (i.e. generate income) if it is sold on the free market, where, according to the provisions of the national and the international accounting standards, it should be traded at its fair price.

¹ See: Forest-based Industries at http://ec.europa.eu/enterprise/sectors/wood-paperprinting/index_en.htm

The wood-processing industry is part of the production sector of the national economy and, according to the Classification of Economic Activities 2008 (4), Section 16 talks about the “Production of wood and wood and cork products other than furniture”; Section 17 covers the “Production of paper, cardboard and paper and cardboard products” and Section 31 focuses on the “Production of furniture”. A distinctive feature of all these sections included in Sector C is that they refer to businesses engaged in chemical or mechanical processing of materials, substances or components into new products. One of the distinctive features of the wood-processing industry is the variety of wood-processing processes and technologies. Accordingly, the different processing companies have different requirements for the raw material they process both in terms of the volume of the raw material as well as its quality.

The issue of sustainability is related to the social relations in the spheres of production and distribution, i.e. the implementation of forest products. From an economic point of view, the question of sustainability of production is extremely important. Any violation in the processes of production and reproduction of each element of the analyzed system affects the others, and the relationship between them. The symbiosis between the two sectors (the sector that provides the raw material and the sector that processes it) is very important. Companies whose main activity is processing of wood use the raw material provided by the forestry sector and are thus important factors for the development of forestry activities. Conversely, forestry as a combination of two key activities – growing of forests and logging – is a key factor for ensuring the basic raw material for the wood-processing industry.

Sustainability of turnover In today’s dynamic environment the provision of raw materials plays a crucial role for the normal operation of the produc-

tion process of all businesses. It depends both on the ability of the enterprise that sells its products to generate revenue and the ability of the company that buys the raw materials to ensure the timely, reliable and rhythmical supply of the necessary raw materials both in terms of quantity and quality. These functions of the process of supplying raw materials ensure the continuity and efficiency of the operation of the businesses in both sectors. The supply of raw materials is an important process that has an immediate impact on the overall reproduction of the wood-processing enterprises. It affects their overall performance, the quality of their products, level of efficiency of the utilization of their current assets as well as their competitive advantages. The lack of raw materials with the required quality and the irregular supply thereof regardless of their quality deteriorates product quality and results in worse production efficiency.

The efficient organization of raw materials supply is a prerequisite for the efficient use of the operating assets and especially of current assets. By correctly estimating the required resources and reducing the unnecessary stock of materials companies can reduce the volume of their current assets engaged in the delivery of raw materials and thus speed up their turnover. The provision of quality raw materials will inevitably make the companies more competitive and will enable them to penetrate new markets or gain larger market shares.

One of the main characteristics of the analyzed system is that it relies on planning. Forestry planning in the Republic of Bulgaria has three levels to the regulation of the Forestry Act and consists of:

1. National strategy for development of the forestry sector and National plan for development of the forestry sector;
2. Regional plan for development of the forestry territories;
3. Forestry plans and programs.

The National strategy for development of the forestry sector covers a period of 10 years, while the strategic plan covers a period of 5 years. The forestry plans at level 3 are long-term as well – they cover a period of 10 years while the wood-processing companies can hardly make such long-term plans. The production of certain products is contracted according to the existing market conventions and at market prices but the proper execution of the existing contractual obligations does not guarantee future commitments.

The wood market is the element that links forestry with the wood-processing industry. The most important questions are: to what extent can forestry enterprises meet the demand of the wood-processing industry in terms of quantity and quality, price levels of the various wood products, regular and timely deliveries, etc.

In times of crises stagnation affects most of those market segments that are most susceptible to changes in market conditions. Of all the companies processing wood in Bulgaria the crisis affected mainly the export-oriented ones because their performance was simultaneously impaired by a decline in the prices of finished goods and the increase in prices of raw materials, energy, labor and other production costs.

The importance of the forest sector enterprises for the forest industry and the environment Forest industry uses large volumes of wood and the access to raw materials on competitive prices is a key factor for its normal operation and competitiveness. The regular provision of raw materials is extremely important for the companies operating in the forest industry because it affects the quality of their products, the efficient use of their current assets and their overall performance.

ment Apart from wood, the output of the forest sector provides non-wood products and environmental benefits as well, but we only look at the problems related to supply of raw materials to the wood-processing companies operating in the forest industry.

The supply of raw materials to these companies has two significant effects:

1. on the forestry output;
2. on the environment.

First, the wood-processing companies consume large volumes of wood and thus have a significant effect on the process of natural and cultivated reproduction of forests. By purchasing the wood, these industrial enterprises provide the forest owners with the financial resource they need for forestation, cultivation and protection of new forest stands. The larger the volume of wood is sold on the market, the better the opportunities for the forest owners are to reproduce their forests. Note that forestry enterprises operate in terms of 10-year forest plans and programs that provide the quotas for extraction of wood resources. These plans and programs are based on the principles of regularity and sustainability, i.e. the same volume of wood can be harvested each year during the 10-year period and there can be no drastic changes in the set volumes.

Forest industry enterprises have a twofold effect on the state of the environment. On the one hand, the excessive use of wood by the industrial enterprises may have an adverse effect on the forest ecosystems. On the other hand, businesses in the forestry industry are responsible for a significant portion of the emissions of industrial pollutants. Their production processes emit harmful emissions, the most harmful ones being emitted by processes involving chemical processing of wood. When machining a bigger problem is air pollution by particulate matter. The biggest problem related to processes for mechanical processing of wood is the emission of dust particles in the air. In this respect, the “development in the forest industry is thus of crucial importance for the future state of the environment.” (Seppala et al. 1998: 88)

Another aspect of ecological interactions between forestry and forest industry is the effect of forest policies

on climate change. A sustainable and efficient forest policy would contribute to the reduction of greenhouse emissions. What is more, paper and wood products provide an additional opportunity for storing the carbon removed from the forests, while an increase in the volumes of recycled paper and wood (instead of landfilling) increases the capacity to store carbon in harvested wood products.

Moreover, the EU climate change policies have a significant effect on the production of mechanical pulp, paper and wood-based panels because these processes are highly energy-consuming. Fuel and electricity are between 13 and 18 percent of the production costs for pulp and paper production in the EU. Paper mills are large consumers of energy, while the enterprises that produce chemical pulp are net producers of energy. They produce about one half of the energy they need from wood biomass. Sawmills and wood-based panel producers also produce the heating energy they need themselves, but the electricity they consume often comes from external suppliers. Conversely, mechanical pulp and paper production is largely dependent on outside suppliers of electricity and gas. The recent increases in their prices had a significant negative impact on these industries.

There are a range of causes for higher price levels including higher primary fuel costs, the ongoing need for investment and the extension of environmental obligations, as well as the development of renewable energy sources. High production costs pose a challenge for the industry's competitiveness and require further market liberalization and energy efficiency policies to make the European forestry sector more attractive for investments.

Presently, markets and administrative bodies impose additional requirements on the companies operating in the forest industry. Regulation (EU) No. 995/2010 (enforced on March 3, 2013) laid down three key obligations:

1. It prohibits the placing on the EU market for the first time of illegally harvested timber and products derived from such timber;
2. It requires EU traders who place timber products on the EU market for the first time to exercise “due diligence”;
3. Because once on the market, the timber and timber products may be sold on and/or transformed before they reach the final consumer and to facilitate the traceability of timber products economic operators in this part of the supply chain (referred to as traders in the regulation) have an obligation to keep records of their suppliers and customers.

These requirements confirm Seppala et al's (1998: 92) conclusions that “reducing emissions is not enough anymore; there are growing demands from markets to improve the ecological sustainability of forestry practices in particular.”

- Economic aspects of sustainable raw materials supply and concluding recommendations** To identify the problems related to the supply of raw materials we should first define the main characteristics of wood as a raw material. According to Petkov (2007) its main characteristics are:
1. Wood is an *organic raw material* produced in nature with or without the aid of man. For most forest species the reproduction process lasts between 80 and 120 years while this period for the fast-growing species is between 15 and 40 years.
 2. Wood has *universal consumer characteristics*. This is why it is used in many sectors of the national economy. Wood is a scarce raw material due to its common use and the long period of its reproduction. It is used in the mining and extraction industry as beams and struts, in the pulp industry, in agriculture, civil construction, production of musical instruments, etc.

3. There are *various grades* of wood in terms of tree species, sizes (length, diameter, volume), shape (curvature) and especially in terms of its physical and mechanical characteristics. These characteristics are the key factors for selecting the technology and the organization of its processing and storage, the operation mode of the wood-processing machines as well as the quantities and qualities of wood to be used.
4. In most enterprises operating in the forest sector wood is not used *completely*. This is due, on the one hand, to the fact that its quality varies and on the other – to the specific characteristics of the technology for its mechanical processing. The wood-processing waste is underused as well because it is not recycled and there are certain problems connected with its transportation. The amount of wood-processing waste is about 25 to 40 per cent of the raw material, in the sector of plywood production it is about 55-60 per cent of the raw material and in the sector of veneer production it is over 60 per cent.

All wood-processing companies process the raw material according to a particular technology. Production output depends on the correlation between the characteristics of the raw material and the technological requirements.

The supply of raw materials is a crucial factor for the performance of the companies operating in the forest industry. Ensuring proper material is crucial for the competitiveness of these enterprises because it affects the quality of their output, the efficient use of their current assets, their overall performance, etc.

The regular supply of the raw material to the production process is crucial for the continuous operation of the enterprise. This continuous operation is essential for the organization of production and the economic performance in certain sectors.

Most non-specialists assume that wood-processing plants can process any type of wood. This assumption is only true for some products with low added value or for some special cases that require high costs. In most cases, the use of unsuitable materials has a negative impact on production – most often it impairs the quality of the output or leads to process downtimes. This is why the quality of the raw material must be controlled as a cost optimization measure.

The use of inappropriate raw materials usually results in lower output rates and higher production costs. If the raw material in stock is inappropriate, the company must decide whether to reject it and seek alternative supplies of suitable material, which is sometimes associated with additional investments.

The irregular supplies of quality raw materials or the supplies of materials with poor quality that are either substandard or do not meet the requirements of the process result in the deterioration of output quality and lower production efficiency.

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