

## **ANALYSIS OF SECONDARY PROCESSING AS FURNITURE PRODUCTION AND WOODWORKING**

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Analysis and comparison of key indicators of the forest sector for five countries (Ukraine, Moldova, Georgia, Poland and Austria), which was carried out within the framework of the international project RERAM of the European program FP 7 allowed to ascertain, that in Ukraine such industries of secondary processing as furniture production and woodworking together make up 72%, if we are talking about the volume of sold products and only 54%, using such an indicator as the number of employees, which is significantly less than in Poland (86 and 89%, respectively) and Austria (90 and 96%, respectively). As you can see, forestry in Ukraine has a much larger share in the forest sector than in other countries [1]. Of course, the main drawback here can be considered to be the shift of emphasis towards the raw materials industry, and not towards the expansion of secondary processing capacities.

A significant reserve for ensuring prospects for the development of the woodworking and furniture industries, a significant improvement in product quality, based on world experience, can be considered: improvement of resource and personnel management methods, production automation and reduction of the share of manual low-skilled labor, development of original design ideas, improvement of logistics, improvement of marketing tools, the use of the latest technologies and the implementation of scientific developments.

Most woodworking enterprises do not realize that inefficient production requires significant costs of raw materials and energy, and ultimately leads to large losses of money. Waste and emissions into the atmosphere are raw materials that were purchased for money, but were not transformed into products sold for money.

The cost of raw materials and energy are the main components of costs in the woodworking industry, and the enterprise, with certain efforts, can influence the processes of their processing into products and make a profit from it.

World practice has proven the profitability of implementing special measures to improve production, which at the same time save costs and resources.

Increasing efficiency means incorporating clean production methods into the existing business model of the enterprise. Such measures make it possible to reduce the amount of raw material and energy for technological processes, increase the output of products, which will make the enterprise and the industry more efficient and competitive.

Waste is the main problem of any enterprise, and they try to dispose of it using the simplest solutions, that is, with a minimum of recycling. This approach may also be associated with a lack of time and resources to address the waste

problem. The main tasks of waste management are to prevent its occurrence and minimize its amount if waste is generated.

To prevent the generation of waste or to minimize its generation, actions aimed at:

- reduction of the number of objects and materials directed to final disposal or burial;
- rejection of excess packaging;
- procurement of only the necessary number of items and materials;
- using reusable or durable items instead of disposable items where possible.

The developed international hierarchy of waste management (in descending order of desirability) looks like this:

- prevention of waste generation or minimization of generation, that is, the greatest efforts should be directed to reducing the volume of waste generation and reducing the degree of its danger;
- reuse;
- recycling or recovery of waste;
- disposal with or without energy.

The level of utilization (waste utilization - use of waste as secondary material or energy resources in accordance with the Law of Ukraine dated 05.03.1998 No. 187/98-BP) of wood waste (forestry waste and waste from the woodworking industry) in Ukraine remains at an insufficient level. An extremely low amount of waste disposal was recorded in 2020 - only 37.3 thousand tons. In 2022, this indicator was equal to 58.3 thousand tons. And this despite the fact that in 2010 - 2016, the amount of wood waste generation ranged from 683.1 to 933.8 thousand tons.

In general, the management of wood waste is characterized by a low level of efficiency both in forestry and in the woodworking industry. Evidence of this is the upward trend for 2010–2016 in the dynamics of wood waste burning.

Most of the subjects of forestry and woodworking activities invest in projects for the formation of an industrial base for the utilization of wood raw materials, in particular, they purchase equipment for the production of technological chips and for the production of pellets and fuel briquettes.

From the point of view of ecology and economy, it is best to completely get rid of waste at the source, that is, to prevent its occurrence. However, the presence of wood and other waste in woodworking is inevitable (as in other industries), and this forces the development of waste management measures that cannot be minimized or eliminated.

## **References**

1. Довідник з ресурсоефективного та чистого виробництва. Меблева та деревообробна промисловість / О.А. Кійко, А.С. Кушпіт, Н.Ф. Чопенко, В.Д. Попович. – К.: Центр ресурсоефективного та чистого виробництва, 2019 – 132 с.