Analysis of the forestry sector in the Republic of Karelia under current economic conditions

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Abstract. The Russian economy is faced with the challenge of effectively coping with the economic sanctions imposed over the past decade. The Russian timber industry is also experiencing problems due to market closures and difficulties in obtaining processing equipment and spare parts. This article considers the problems of the forestry sector by the example of one of the regions of the North-West of Russia - the Republic of Karelia. For the loggers of the Republic of Karelia has changed a lot. If earlier the forest industry was largely focused on supplying roundwood to neighbouring Finland, in the current environment, due to sanctions against the Russian Federation and the countersanctions, exports to Europe have completely ceased. Due to geographical remoteness from developing markets of East, Asia and Africa, supplies of timber from Karelia to these regions without deep processing are not economically profitable. In this article the results of analysis of current situation, evaluation of resource potential and production capabilities of the Republic are given. It is noted that one of the main problems is a significant surplus of industrial hardwood, which was previously exported and now accumulates at the logging sites, because of the lack of productive capacity for its processing on the territory of the Republic. One of the factors, hindering development of industrial enterprises, is high dependence on foreign equipment. The results of this analysis can be used when looking for solutions to improve timber processing in the Republic and ways out of crisis for timber industry enterprises.

1 Introduction

The problem of hardwood timber processing exists in many forest-abundant regions of the Russian Federation. In the Republic of Karelia, the urgency of this problem was indicated by the Minister of Nature Management and Ecology more than 10 years ago [1], as there are no production facilities for the processing of hardwoods in the Republic [2], but it has not been solved to date, as acknowledged in the Forest Complex Development Strategy of the Republic of Karelia [3].

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For a long time, hardwood from the territory of the Republic of Karelia has been exported to Finland, the territorial border country. The loggers had stable export logistical links and there were no problems with sales of hardwood.

In March 2020, the COVID-19 pandemic was declared, resulting in a number of restrictions and disruptions for many companies, including those involved in logging and wood processing, and disrupted the established rhythm of life for people using wood-based products.

The situation worsened dramatically in 2022, when the restrictive measures established by the state on the export of unprocessed and roughly processed coniferous and valuable hardwoods came into force for the first time [4]. Then, in March of the same year, the Russian Federation introduced retaliatory countersanctions and completely halted timber exports to the sanctioning European countries, which include Finland. Before then, there had been long-term, sustainable, and mutually beneficial partnerships with these countries [5].

This situation has led to the disruption of existing logistical links, the formation of a surplus of harvested hardwood, and as a consequence, loggers had to search for new markets for hardwood.

The problem of hardwood accumulation on the territory of the Republic of Karelia can be seen with the naked eye: there are stacks of hardwood at logging sites that have not been removed (Figure 1).

Fig. 1. Balance birch timber piled up at the loading sites in the forest (photo by the authors)

For the Republic of Karelia this situation is complicated by its geographical location - the termination of cooperation with neighbouring Finland and its great remoteness from the currently developing markets of Asia, Africa and the South-East. This situation makes it necessary to search for ways to use hardwood, including the balance wood of the birch to make higher value-added products in the country and its neighbouring regions. For this purpose, the government of the Republic of Karelia provides assistance to the enterprises developing the processing of larch wood in the framework of the Federal Target Programme [6].

In the Republic of Karelia the main forest-forming species are pine, spruce, birch, aspen. If, as shown above, the problem with deciduous wood, namely birch, is clearly marked, the situation with the harvesting, processing and consumption of coniferous wood requires more detailed study for taking effective measures to support the forestry complex of the Republic against the background of the general crisis, caused by geopolitical stagnation and disruption of long established logistical links. This is the reason for the choice of the topic of this article.

2 Literature review

E. Maevskaya, an analyst of forest markets at LLC "Uniservice Capital" in [7] notes that in 2018 there was a peak growth of timber production in the Russian Federation, which amounted to 12.3%. Since this year, the state's active fight against illegal timber trafficking
began. In order to increase the share of timber subject to deep processing in the country, the state began to increase customs duties on timber imports every year, and from 1 January 2022, a ban on the export of unprocessed and roughly processed softwood and valuable hardwood timber was imposed altogether. This led to a 50% reduction in timber exports from the territory of the Russian Federation in the first half of 2022 as compared to the first half of the previous year 2021 and, consequently, an increase in the volume of timber on the domestic market. Previously, the main importer of Russian timber was Finland (41% of total Russian Federation roundwood exports), which currently supports the sanctions policy against the Russian Federation.

In 2019, logging volumes fell by 8.1% due to an oversupply of timber left over from the previous year, as well as an abnormally warm winter, which made winter logging impossible. This decline in logging volume was characteristic of almost all forest regions of the country [8]. In the same work it is marked that the timber industry for the last 10 years has increased considerably and this growth is conditioned by the development of woodworking industry in the territory of the country.

A.A. Pokonov in work [9] notes that in 2020 there was a decline in the performance of the timber industry complex. The author singles out the following main problems: tightening of phytosanitary control during export deliveries of timber, abnormally warm winter of 2019-2020 which did not allow to harvest the planned volume of wood, forced interruptions in the work of enterprises due to covid restrictions, the need to find ways to sell products, for example, through distance selling methods.

In [10] it is stated that the timber complex in 2022 is experiencing difficulties due to the fact that the domestic market cannot absorb the volumes of timber which were previously exported to Western markets. The author also notes that not all export-oriented companies in the western part of the country have been able to adapt to the new conditions and find new markets.

In 2022, the volume of furniture imports into our country decreased, which created favourable conditions for the development of the Russian segment of this market. As a result, furniture production in the Russian Federation increased by 15% in 2022 compared to 2021, and compared to 2019, there was a 58% increase [11].

Igor Novoselov, a consultant at WhatWood, an agency for forest industry analytics, notes in [12] that according to the Ministry of Industry and Trade, in early July 2022, logging decreased by 3% in 6 months in Russia, and according to Roslesinforg in the Northwestern Federal District, the logging rate decreased by 12%.

Ilya Smirnov in his work [13] notes: "According to the National Association of Timber Producers "Russian Timber", the export of Russian timber in 2022 decreased almost fourfold, to 3-3.5 million cubic metres, and the supply of sawn timber decreased by 22%, to 23.5 million cubic metres". In the same paper the author notes that the enterprises of the North-Western Federal District, which due to their geographical position were oriented towards export deliveries to Europe, suffered most from the termination of timber exports. One more problem that interfered with the development of timber processing complex became difficulties, connected with service and repair of foreign equipment, widely used in technological lines of timber processing. Ilya Smirnov cites Valentin Gavrilov, Strategy Partners Project Director, who says that "the state must urgently support timber companies in the hardest-hit regions, primarily in the North-West federal district. Here it is important to customize state support tools to fit the problems of particular companies, rather than a universal solution".

To find ways to support companies in the Republic of Karelia, which is part of the North-West Federal District of the Russian Federation, it was necessary to study statistics regarding the state of the forestry sector of the local economy.
3 Materials and methods

The aim of this paper is to analyse the current state of the forest sector of the economy of the Northwest region of the Russian Federation bordering Finland - the Republic of Karelia - and to find ways for its development.

The objectives of this study are:
- collection and analysis of statistical data regarding the main products of the forest industry in the region;
- analysis of normative and legal acts related to the subject in question;
- identification of potential ways of development of the forestry sector in the Republic of Karelia.

The methods used to achieve the set goal:
- method of information search;
- method of analysis;
- statistical data processing.

4 Results and discussion

In order to assess the state of the forest sector of the republic's economy and the possibilities of its development, some of its technical and economic indicators were studied according to the report "Socio-economic situation of the Republic of Karelia" from 2019 to 2023, prepared by the Territorial body of the Federal State Statistics Service in the Republic of Karelia (KareliaStat) [14].

Figure 2 shows the distribution of production volumes of certain types of products by type of activity "Logging" for 2019-2022.

![Figure 2: Production of selected products by type of activity "Logging" for 2019-2022 (according to KareliaStat)](image)

The graph in Figure 2 shows that there was an increase in production of the Logging business in 2019 to 2021, and a decrease in production in 2022. A more detailed chart in Figure 3 shows that production of raw timber and coniferous timber began to increase in autumn 2022 and early 2023. At the same time, fuelwood logging in early 2023 remained at about the same level as in 2019, while production in the form of hardwood timber began to decline from early 2022, i.e., the start of the export ban on untreated and roughly processed valuable hardwood, and production volumes in March 2022 were even lower than in February 2019. While the volume of hardwood logging in 2019 was 101.5% compared to 2018, 116.9% in 2020 compared to 2019 and 111% in 2021 compared to 2020, the volume in 2022 was 65.3% compared to the previous year 2021, a decrease of almost 34.7%. By comparison,
the volume of coniferous timber harvested in 2022 decreased much less, by 11.1%, than in 2021.

Fig. 3. Production of selected products by type of activity "Logging", detailed by months (according to KareliaStat)

This suggests that the logging industry has been able to adapt to current conditions in terms of coniferous timber production, but has stagnated in terms of hardwood use. This requires finding support measures for loggers in terms of finding ways to process hardwood in the country and neighbouring regions, taking into account the impact on the profitability of logistics transport costs.

An analysis of the production of individual products of industrial processing industries has yielded the following results. In the period from 2019 to 2021, despite all restrictions imposed due to the coronavirus pandemic, there was an increase in the output of manufacturing industries, such as: production of longitudinally sawn and split timber, technological chips, fuel chips. The pulpwood industry showed a slight decline in terms of output. In 2022 there was a noticeable decline in the volumes of all the mentioned manufacturing industries except for pulp production, which continued its downward trend at the same level, but which, nevertheless, lost significantly less volume than all other industries (Figure 4).

Fig. 4. Production of selected products of industrial (manufacturing) industries in 2019-2022 (according to KareliaStat)
Figure 5 shows a detailed analysis of the decline in the production of industrial forestry products such as industrial chips, fuelwood chips, sawn or split longitudinally, sawn into layers or peeled, more than 6 mm thick, and unsoiled timber sleepers in 2019 and early 2023. As a percentage of the production of longitudinally sawn and split timber in 2022 compared to 2021 decreased by 25.8%, process chips - 31.8%, fuel chips - 42.2%, wood pulp and pulp from other fibrous materials - 2%.

Analysis of the production of consumer goods using wood-framed seating furniture as an example showed that there was a noticeable decline in production at the beginning of 2021, from December 2021 there was a significant increase until May 2022, and then production declined to the level of the beginning of 2021. Table production from 2019 to early 2023 did not experience a significant change in volumes (Figures 6 and 7).
Fig. 7. Production of wood-framed seating furniture and coon tables from 2019 to March 2023, detailed by month (according to KareliaStat)

As for the production of wood-framed seating furniture and tables, we note the following. The production of tables increased by 3.8 times in 2019 compared to 2018, stayed at approximately the same level in 2020 and 2021, and increased another 1.5 times in 2022. Furniture production increased by 19.4% in 2019 compared to 2018, decreased by 48.4% in 2021 compared to 2020 and increased 3.8 times in 2022 compared to 2021.

Let us consider the dynamics of changes in the volume of shipped goods of own production in current prices in millions of roubles, as follows:
- Wood processing and production of wood and cork products, except furniture, production of straw products and weaving materials;
  - sawing and planing of wood
  - The manufacture of wood, cork, straw and plaiting materials;
  - furniture making;
  - Manufacture of paper and paper products, including manufacture of cellulose, wood pulp, paper and paperboard.

Graph 8 shows the development of these product categories by year, from 2019 to 2022, showing an increase in output in 2021 compared to 2019.

Fig. 8. Production volume in current prices by year (according to KareliaStat)

A more detailed monthly analysis (figure 9) shows that a noticeable drop in the production of the products in question took place in 2022, with a significant drop in production from March to July 2022, which continued up to January 2023, but at a slower rate. In the wood,
cork, straw and wicker industry, which accounts for a markedly lower volume than the other types of production under consideration, there was no significant change in volume during the period under review.

**Fig. 9.** Volume of own-produced goods shipped, works performed and services rendered in-house, at current prices, detailed by month (according to KareliaStat)

In March 2023 as compared to January 2023, there was a slight increase in the volume of the indicator "volume of shipped goods of own production". At the same time, in relation to January-March 2022 the volume of shipped goods was for: wood processing and manufacture of wood and cork products, except furniture, manufacture of straw products and weaving materials - 57.7%; sawing and planing of wood - 54.4%; manufacture of wood, corks, straw products and weaving materials - 66.2; furniture manufacture - 95.5%; manufacture of paper and paper products - 96.7%.

Figure 10 shows a diagram showing the value of the Industrial Production Index, an indicator characterizing changes in the scale of production in the periods compared and reflecting changes in the value created in the production process as a result of changes in the physical volume of production alone.

**Fig. 10.** Industrial production index (according to KareliaStat)

The chart in Figure 10 shows that in 2022 there was a decline in the industrial production index for most of the products of the wood processing industry, with the exception of the activity "production of wood, cork, straw and weaving materials".
5 Conclusion

The forest industry plays an important role in the economy of the Republic of Karelia. In the current economic situation, the forest industry needs to develop support measures from the authorities at both federal and regional levels. Especially it concerns logging and woodworking enterprises, which were orientated on export to Europe. An option for support could be measures aimed at increasing the consumption of wood chips supplied to the domestic market. This could be achieved by creating conditions to support the conversion of municipal boilers to wood chips and private households to pellets or briquettes. This requires not only one-off investments in upgrading existing boilers to wood fuel, but also the creation of conditions to create business confidence in their support and the availability of raw materials in the long term. This will enable the processing of some of the hardwood and fuelwood that used to be supplied to Finland in the form of balances and fuel chips.

Another direction is the development of timber construction, which makes it possible to use the entire variety of forest products, round and sawn timber, planed and processed into board products, window and door frames, furniture, etc. By applying modern technologies, many joinery and interior carpentry products can be produced from currently unclaimed hardwood.

An important direction is the search for investors and the arrangement of conditions for the creation in the territory of the Republic of Karelia of facilities for deep processing of hardwood, the setting-up of situation for reducing the costs of transportation of raw materials and finished products of the forest complex.

The sanction policy has had a negative impact not only on logging companies, but also on wood processing enterprises, which can be seen in the reduction of production volumes in 2022. Research is needed to study the needs of the Russian market and refine products previously exported to meet the requirements of the domestic consumer and domestic standards. Import substitution needs to be developed. If there are no domestic analogues of foreign products, it is necessary to conduct research and studies to create their domestic counterparts.

Among the problems of enterprises of the forest industry it is necessary to note a high dependence on the deliveries of foreign equipment and component parts, consumable materials, which led to the appearance of "grey import". This problem will become more and more acute with each year, as machines and equipment become obsolete. To reduce dependence, attention should be paid to the development of Russia's timber, processing machine tool, and instrument manufacturing industries.

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