

JUSTIFICATION FOR CHANGING THE CRITERIA FOR PROVIDING SUPPORT MEASURES TO ENTERPRISES WITHIN THE FRAMEWORK OF PRIORITY INVESTMENT PROJECTS FOR THE DEVELOPMENT OF THE FORESTRY COMPLEX

Aleksander A. Tambi,

Doctor of Technical Sciences, Associate Professor, Professor of the Department of Economics, Accounting and Analysis of Economic Activity
St. Petersburg State Forestry University named after SM Kirov, Institutsky Lane,5, building U, St. Petersburg, 194021, Russian Federation
a_tambi@mail.ru

ORCID : 0000-0003-4099-3409, Researcher ID : J-9614-2017

Olga. A. Polyanskaya,

Candidate of Economics Sciences, Associate Professor, Head of the Department of Economics, Accounting and Analysis of Economic Activity
St. Petersburg State Forestry University named after SM Kirov, Institutsky Lane,5, building U, St. Petersburg, 194021, Russian Federation
polyanskaya_78@mail.ru

ORCID : 0000-0002-5377-1891, Researcher ID : AAH-3386-2021

Veronica V. Bespalova,

Candidate of Economics Sciences, Associate Professor, Associate Professor of the Department of Economics, Accounting and Analysis of Economic Activity
St. Petersburg State Forestry University named after SM Kirov, Institutsky Lane,5, building U, St. Petersburg, 194021, Russian Federation
weronika2002@yandex.ru

ORCID : 0000-0001-6139-0899, Researcher ID : AAN-3352-2021

Anna E. Mikhailova,

Candidate of Engineering, Associate Professor, Associate Professor of the Department of Economics, Accounting and Analysis of Economic Activity
St. Petersburg State Forestry University named after SM Kirov, Institutsky Lane,5, building U, St. Petersburg, 194021, Russian Federation
79119173494@yandex.ru

ORCID: 0000-0003-0280-7409, Researcher ID: ABC-1987-2020

Vitaly A. Lipsk,

general manager

LLC National Forest Agency for Development and Investment, 31 Panfilova St., apartment 41, St. Petersburg, 195027, Russian Federation
info@nlari.com

ORCID: 0009-0000-7479-4374, ResearcherID: OIT-4060-2025

Victoria F. Garkavaya,

Doctor of Economics Sciences, Professor, Professor of the Department of Economics, Accounting and Analysis of Economic Activity
St. Petersburg State Forestry University named after SM Kirov, Institutsky Lane,5, building U, St. Petersburg, 194021, Russian Federation
harkava@list.ru

Abstract

Background. This study analyzes the development of the Russian forestry complex, substantiates the need to diversify forestry enterprises, and changes the qualitative approach to selecting the volumes and types of products planned for production. Generally accepted statistical research methods, application software packages, and expert assessments were used to interpret the data. The forestry complex's output structure exhibits a significant surplus in key product groups, significantly increasing competition and reducing product profitability. The implementation of the Priority Investment Projects approved for 2022–2025 for forestry complex development will worsen the financial position of existing enterprises. The research revealed that, when implementing the Priority Investment Projects, a number of companies plan to meet their raw material needs either by drawing on previously acquired leases or by purchasing round timber on the open market.

Purpose. The purpose of this study is to substantiate the need for a qualitative change in the selection and volume of products planned for production to qualify for state support under priority investment projects for the development of the forestry sector.

Materials and methods. The study focuses on the production volumes of key products captured by official statistics of the Russian Federation. Despite advances in technology and engineering, changing consumer preferences, the emergence of new trends in design and architecture, and the development of a culture of sanitary and hygienic product use, the Russian forestry sector is generally focused on replicating existing technologies.

Results. The criteria for qualifying for state support by factories must be modified, excluding applications from enterprises planning to produce products for which the market is oversaturated, and prioritizing enterprises seeking not only to achieve a higher output in rubles per hectare of leased land, but also expand to include the investment volume related to the volume of raw materials involved in processing. An average ratio of the planned investment volume for processing a conventional 1,000 m³ of round timber (OI-1000) is proposed as such a criterion. This ratio can be used to assess the efficiency and depth of raw material processing at enterprises.

Keywords : forestry industry products, priority projects for forestry industry development, forestry industry investment activity, government support for the forestry industry, forestry industry enterprise performance criteria.

Introduction

The development of modern technologies and equipment for the production of new wood and wood-based composite materials makes it possible to produce a wide range of materials that are relatively new to the Russian forest industry. An analysis of the product range of forest industry enterprises planned for commissioning in the next 2-10 years indicates a protracted stagnation in the forestry industry [1, 6, 7, 16, 17], as a result of which, when creating projects to modernize enterprises or organize a "greenfield" project - the organization of an enterprise on a new site that has not previously been used for industrial purposes - investors replicate well-known products on the market, without recognizing the fact that the niches for these products are oversaturated, and even enterprises using the most efficient and modern production technologies are often unable to ensure full utilization of production capacities due to a lack of product demand [3].

A paradoxical situation is observed in the forest industry complex, where investors are faced with two paths for the development of wood processing enterprises [2, 4, 5, 19, 20, 22]. The first is the creation of modern production facilities for the production of LVL beams, wood-polymer composites, wood-based panels for the manufacture of furniture based on OSB boards with filling of the outer layers with small wood particles, PSL, LSL and OSB beams made of wood particles, building trusses, elements of load-bearing structures, new types of cellulose; tissue, etc. Such projects, for the most part, are new to our country, and their implementation requires a high level of engineering training for all contractors and a wide range of marketing research. The second is the replication of known technologies and the large-scale production of simple and long-known products, such as sawn timber, wood-based panels manufactured primarily using last-century technologies, pellets, briquettes, etc. Given government support measures for the creation of new enterprises individually, the second path is universal and guarantees a return on investment with minimal risk. However, for the industry as a whole, this path is detrimental, leading to a halt in innovation and engineering developments and widening the gap with other countries. In this regard, the drive to increase lumber production, for which the market is limited, is particularly concerning, as is the expectation that China, the main importer of domestic lumber, will reach operational maturity by the mid-21st century, at which point Russia's lumber exports to this destination will begin to rapidly decline.

The purpose of this study is to substantiate the need to change the qualitative approach to the selection and volume of types of products planned for production in order to be able to obtain government support measures within the framework of priority investment projects for the development of the forestry complex.

Research objectives:

- determination of production volumes of forest industry products in Russia;
- analysis of products planned for release by industrial enterprises in the near future;
- analysis of the economic activities of leading enterprises producing plywood and lumber;
- analysis of the compliance of current criteria for state support within the framework of priority investment projects for the development of the industry.

Materials and methods

The objects of the study are the production volumes of the main types of products taken into account by the official statistics of the Russian Federation.

Information on the implementation of Priority Investment Projects for the development of the forestry complex and the economic performance of enterprises – analysis of open data from Rosstat, the Federal Customs Service of Russia, open data on industry enterprises from the Lestech Association, and a survey of enterprises.

The research is based on statistical methods: data comparisons, statistical observations, calculations of average values, and data mining with the tool support of Microsoft Excel. For a qualitative assessment of the obtained data, the expert assessment method was used [18].

Research results and their analysis

According to the Federal State Statistics Service, the forestry industry accounts for the production of nine major closed product groups, including lumber, plywood, chipboard, windows, doors, wood pellets, pulp, paper, and cardboard. Despite the fact that products such as oriented strand board, fuel briquettes, and various specialized MDF boards have gained a significant share of overall production over the past two decades, government monitoring agencies still do not classify them as separate product groups. This significantly distorts the statistical data, but it also suggests that these products have relatively low added value, making their classification inappropriate for assessing the country's gross domestic product. Information on the production of the main types of commercial products in 2021–2025 according to Rosstat and the UN FAO [16, 21] is presented in Table 1.

Table 1

Volume of production of forestry products in 2021–2025

	Produced in 2021	Produced in 2022	Produced in 2024	Produced in 7 months. 2025	7 months 2025 in % of 7 months. 2024
Round timber harvesting	233 million m ³	195 million m ³	195 million m ³	n/a	n/a
Timber, sawn lengthwise or split	30.6 million m ³	29.0 million m ³	28.2 million m ³	17.1 million m ³	99.1%
Plywood	4.5 million m ³	3.241 million m ³	3.425 million m ³	1.991 million m ³	100.5%
Wood fiberboards made from wood	740 million conventional m ²	649 million conventional m ²	712 million conventional m ²	402 million conventional m ²	95.6%
Particle boards and similar wood boards	11.4 million conventional m ³	10.3 million conventional m ³	13.9 million conventional m ³	6.518 million conventional m ³	96.0%
The windows and their frames are wooden	475 thousand m ²	436 thousand m ²	284 thousand m ²	155 thousand m ²	111.0%
Doors, their frames and thresholds are wooden	19.6 million m ²	20.6 million m ²	22.3 million m ²	12.4 million m ²	91.9%
Fuel granules (pellets)	2.38 million tons	2.073 million tons	1.099 million tons	0.684 million tons	112.6%
Cellulose	8.8 million tons	8.8 million tons	8.538 million tons	4.854 million tons	97.2%
Paper and cardboard	10.4 million tons	10.0 million tons	10.658 million tons	6.198 million tons	100.2%
Industrial Production Index: Wood Processing					97.5%
Index of industrial production of paper and paper products					97.3%
Furniture Industrial Production Index					91.9%

After 2022, production volumes of key products, except for pulp, paper, and cardboard, declined significantly due to the exclusion of some export shipments. It should be noted that Rosstat's assessment methodology only takes into account "visible" production. For example, for sawn timber, data from enterprises processing more than 100,000 m³ of sawn logs per year is included which significantly distorts the statistics. According to Table 1, the reduction in sawn timber production in 2021–2024 amounted to only 2.4 million m³ while in reality, according to customs data, sawn timber export shipments for the same period decreased by 10.6 million m³ (Figure 1), and according to expert estimates (Table 2), domestic sawn timber production decreased over the same period from 41.8 to 32.8 million m³. The situation was somewhat improved by the fact that Russia's share of domestic lumber consumption increased from 25% to 49%, but the decline in exports led to an overall decline in lumber production in Russia. For example, the share of lumber exports to China fell from 44% to 33%, and the share of exports to Europe fell from 10% to zero.

The dynamics of the reduction in lumber supplies is presented in Fig. 1.

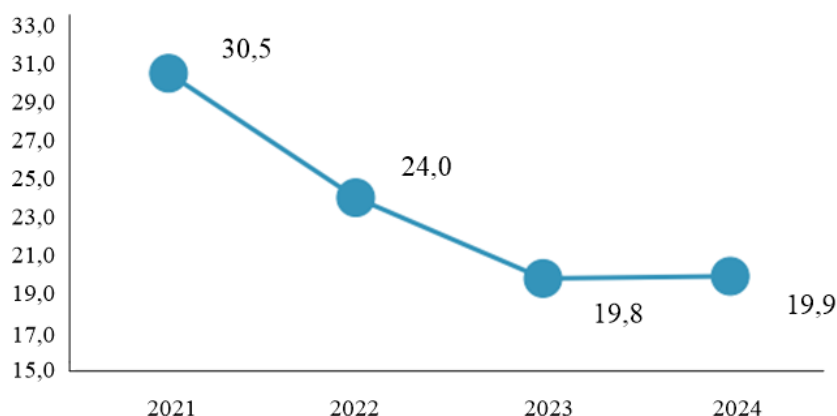


Fig. 1. Reduction in export supplies of sawn timber from Russia in 2021–2024 [6]

According to the expert community, the timber industry is experiencing a significant surplus of production capacity across key product groups (Table 2). Even if supplies to currently inaccessible export markets resume, it will be impossible to operate industrial enterprises established in Russia at their planned production capacity, as the country's current surplus capacity exceeds 10.6 million m³ of sawn timber and 1.075 million m³ of plywood—the volume of lost export volumes [12, 13, 15]. Furthermore, modernization and the creation of new enterprises will be completed in the period 2022–2025, further increasing competition for consumers.

Table 2

Forecast for the development of the forest industry complex for 2025–2026 [6]
 Forecast for the development of the timber industry in 2025-2026

Manufacturing segment	Units of measurement	2021	2024	2024 to 2021	Forecast for 2025-2026 in % of 2024
Removal of round timber	million m ³	185.5	180.8	-2.5%	+0...5%
Lumber production	million m ³	41.8	32.8	-21.5%	+0...5%
Plywood production	million m ³	4.48	3.53	-21.2%	+0...5%
Production of chipboard and OSB	million conventional m ³	11.4	14.0	+22.6%	-5...5%
Production of fiberboard	million conventional m ³	739.9	651.7	-11.9%	+0...5%
Production of cellulose and wood pulp	thousand tons	8 288	8,537	3.0%	+0...5%
Cardboard and paper production	thousand tons	10,369	10,660	2.8%	+0...5%

It is worth noting that the Priority Investment Projects for the Development of the Forestry Complex [7] approved by the Government in the period 2022–2025 imply the preferential production of wood materials specified in Table 1 and Fig. 2. The implementation of such projects will increase competition in the shrinking forestry market and may lead to the closure of long-standing city-forming enterprises, since new enterprises will be granted broad preferences, the main ones being the low cost of attracted credit funds and a reduction in the rate of payment for the use of forest resources, which disrupts the established balance of production and consumption by non-market means [8, 9, 10, 23, 24, 25]. In fact, the growth ceiling for industrial enterprises in the production of traditional wood products has been reached: product sales markets are limited, and significant investment in development has been halted, with the exception of a few large projects, Fig. 3.

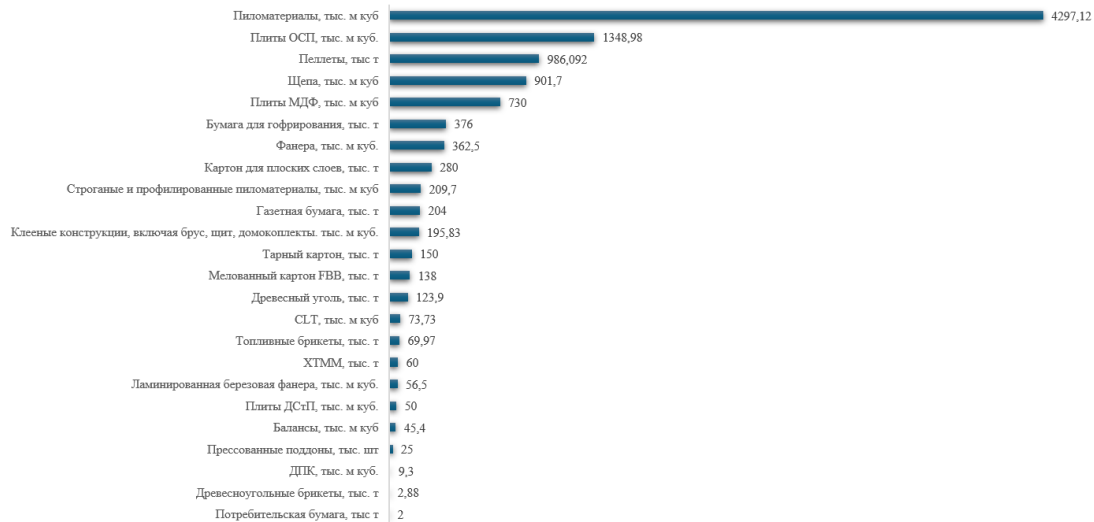


Fig. 2. Products planned for production within the framework of Priority Investment Projects for the Development of the Forestry Complex, approved from March 2022 to August 2025 [7]

In total, 32 timber industry companies plan to invest 129.95 billion rubles in the creation of new or modernization of existing enterprises under the Priority Investment Projects for Forestry Development program starting in 2022. The total estimated cut for implementing these plans is 24.6 million cubic meters of round timber. Industrial processing is planned for 20.5 million cubic meters of round timber.

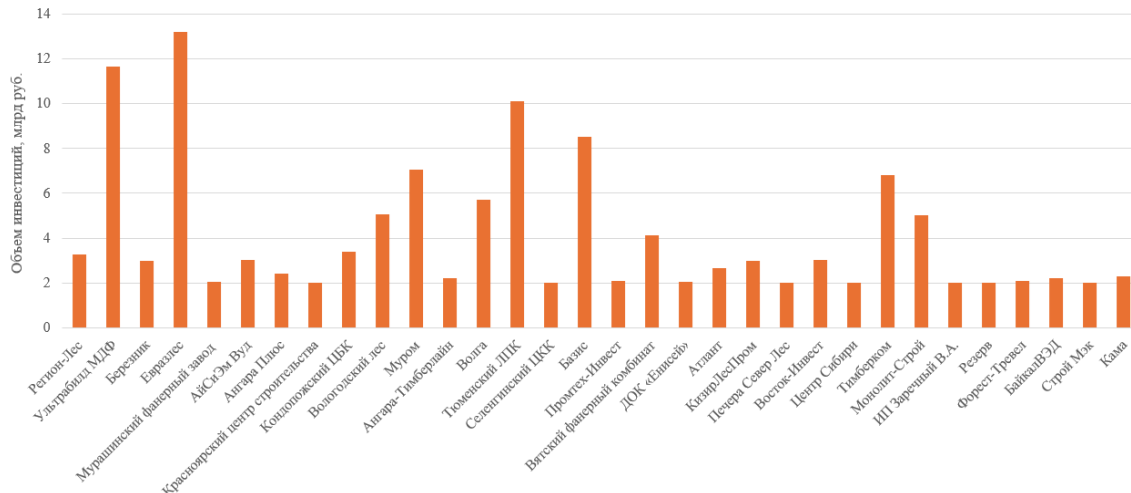


Fig. 3. The volume of investments planned within the framework of the implementation of Priority Investment Projects for the development of the forestry complex, approved from March 2022 to August 2025 [7]

It is impossible not to highlight the average planned indicator of the ratio of the planned volume of investments for processing a conventional 1 thousand m³ of round timber (OI-1000), which amounts to 8.95 million rubles for the projects under consideration.

In relation to the estimated cutting area, this indicator amounts to 9.45 million rubles per 1,000 standard units of harvested round timber, but this indicator is purely a reference value, since most enterprises involve additional volumes of round timber in processing, and the indicator does not take into account the entire volume of raw materials harvested and purchased on the open market.

The OI-1000 indicator can serve as a benchmark for assessing the efficiency and depth of a company's raw material processing. The minimum OI-1000 indicator level for companies to qualify for state support should be established by regional authorities, similar to how the minimum localization score is determined in the automotive industry.

In Table 3, enterprises are grouped according to the predominant type of product planned for release, and the values of the specified indicator are calculated for groups of enterprises.

Table 3

The ratio of the planned investment volume for processing a conventional 1,000 m³ of OI-1000 round timber by product group within the framework of the implementation of Priority Investment Projects for the Development of the Forestry Complex, approved from March 2022 to August 2025.

Main type of product	Number of projects, pcs.	Average investment volume, million rubles.	Average consumption of round timber, thousand m ³	Average calculated indicator (OI-1000)
Lumber	16	3054.0	777.7	5.2
Paper and cardboard	4	3338.0	589.9	5.7
Glued laminated timber structures	2	2211.2	379.2	5.8
MDF	2	8350.4	782.0	10.7
OSP	4	6833.4	561.8	12.2
Plywood	4	4820.4	348.2	13.8

Although the data in Table 3 do not reflect the exact volumes of additional timber required for industrial processing (only the additional timber volumes requested under the PIP for forestry development are provided), the calculated ratio of the planned investment volume for processing a conventional 1,000 cubic meters of round timber can serve as a key indicator for justifying enterprises' eligibility for government support. This indicator may take into account not only the funding volume but also the depth of timber processing. It can also serve as a verification indicator to determine whether the enterprise actually requires additional timber resources or plans to rely on tolling or the inclusion of previously leased forests in industrial processing.

Figure 4 shows a graphical representation of the total volume of the requested estimated cutting area for the implementation of plans for the creation and modernization of enterprises in the forest industry complex within the framework of the Priority Investment Projects program for the development of the forest complex from March 2022 to August 2025.

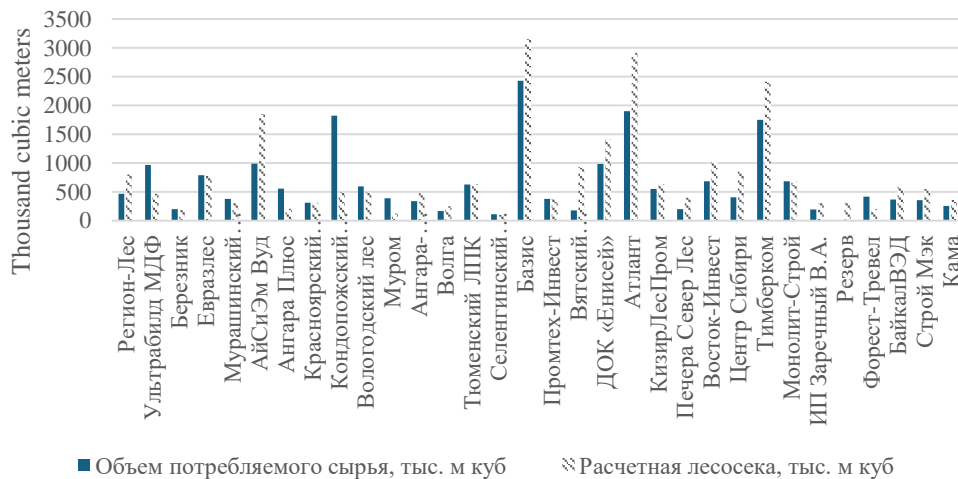


Fig. 4. The total volume of the estimated cutting area for the implementation of plans for the creation and modernization of enterprises in the forest industry complex within the framework of the program of Priority Investment Projects for the development of the forest complex from March 2022 to August 2025 [7]

A number of companies, apparently, plan to cover their raw material needs either by using their existing rental base or by purchasing round timber on the open market, since the volumes of the requested timber base will not be sufficient to supply enterprises with commercial timber, as can be seen in the example of the balance of timber during the procurement of softwood round timber for the production of sawn timber, Table 4.

Table 4

Wood balance in logging production during harvesting of softwood

Name	Unit of measurement	Meaning
Saw timber	%	35-45
Balances	%	40-45
Firewood	%	10-20

In such a case, government support measures may have the opposite effect, when new enterprises receive economic support, but at the same time they will reduce the efficiency of existing plants through non-market methods, since they will introduce additional batches of products to an oversaturated market and, possibly, at lower prices – thanks to the presence of government support measures.

Tables 5 and 6 show the ratings of sawmills and plywood factories based on revenue and information transparency criteria, compiled using data from Rosstat, the Federal Customs Service, and data from the Association of Manufacturers of Machinery and Equipment for the Forestry Complex "Lestech".

Table 5

Ranking of sawmills based on revenue and transparency

No.	Name	Production capacity for sawn timber, thousand m3 per year	Potential volume of sawlog processing, thousand m3 per year	Revenue, billion rubles in 2024	Profit, million rubles in 2024	Number of employees, people
1	OOO "Tairiku-Igirma Group"	619	1400	18.2	n/a	589
2	JSC Lesozavod 25	900	over 1800	16.4	1700	1682
3	JSC Lesosibirsk LDK No. 1	650	1500	15.8	n/a	1922
4	LLC "ULK Group of Companies"	1200	2500	10.1	-17800	4521
5	TimberTrans LLC	412	over 850	9.9	n/a	1313
6	LLC "Luzales"	550	over 1100	9.2	239.5	1917
7	LLC "Ilim Timber"	600	over 1200	7.8	-72.8	n/a
8	LLC "Priangarsky LPK"	460	1000	7.3	n/a	1004
9	JSC Novoyeniseysky Timber Chemical Complex	320	over 650	6.6	n/a	1181
10	LLC "MM-Efimovsky"	440	over 900	6.1	241.4	446
11	LLC "Kharovsklesprom"	250	over 500	6.0	475.6	284
12	Krasnoyarsk Construction Center LLC	372.6	over 650	6.0	341.8	406
13	JSC New Forest Pro	about 580	1200	5.8	-264.8	834
14	JSC S-Dok	about 240	500	5.5	104.4	887
15	Lesresurs LLC	182	more than 400	4.3	587.6	686
16	JSC Onega LDK	280	more than 580	4.2	n/a	736
17	JSC Kraslesinvest	about 380	800	4.1	-236.3	875
18	Ecolesprom LLC	350	750	4.0	356.1	n/a
19	LLC "LDK No. 2"	365	185	4.0	505.4	187
20	LLC "Red October"	144	more than 300	3.9	22.4	210
Total		9294.6	18765	155.2		19680

Table 6

Ranking of plywood factories by revenue and transparency criteria

No.	Name	Plywood production capacity, thousand m3 per year	Revenue, billion rubles in 2024	Profit, million rubles in 2024	Number of employees, people
Sveza Group plants*					
1	NJSC "Sveza Ust-Izhora"	120	n/a	n/a	n/a
2	NJSC "Sveza Kostroma"	240	n/a	n/a	n/a
3	NJSC "Sveza Novator"	200	n/a	n/a	n/a
4	LLC "Sveza Uralsky"	284	n/a	n/a	n/a
5	NJSC "Sveza Verkhnyaya Sinyachikha"	234.2	n/a	n/a	n/a
6	NJSC "Sveza Manturovo"	126	n/a	n/a	n/a
7	Sveza Tyumen LLC	100	n/a	n/a	n/a
	Total for Sveza Group plants	1304.2			
Plywood mills in Russia					
1	Syktvykar Plywood Plant LLC	230	15.9	2800	1550
2	JSC Murom	150	11.8	2200	1178
3	LLC "Vyatka Plywood Mill"	198	10.4	n/a	n/a
4	JSC Cherepovets FMK	170	9	2	1800
5	LLC "Ilim Timber"	230	7.8	-72.8	n/a
6	Zheshartsky LPK LLC	180	7.5	-1100	1711
7	JSC "Plyterra"	90	5.7	-232.1	808
8	Murashinsky Plywood Plant LLC	120	4.8	n/a	641
9	JSC "Red Anchor"	120	4.1	371	1009
10	Arkhangelsk Plywood Mill JSC	143	3.2	-250.1	988
11	LLC "Chudovo RVS"	155	3.2	-944.8	439
12	JSC Bereznik	44	3.2	183.3	277
13	Galich Plywood Mill LLC	125	3.1	-2400	140
14	Orion LLC	100	2.9	12.5	893
15	Parfinsky Plywood Mill LLC	120	2.7	-95.1	616
	Total for plywood factories in Russia	2175	95.3	473.9	12050
	The total production capacity of 22 major plywood enterprises in Russia	3479.2			

* The Sveza Group of Companies is placed in a separate block, since there is no data on financial statements for 2024.

As a result of the analysis of the data in Tables 5–6, it was established that when 20 sawmills reach full production capacity, their combined productivity will amount to 23.3% of the total volume of sawn timber production in Russia in 2024. Moreover, only one enterprise from the Top 20 list – Krasnoyarsk Construction Center LLC – is listed as a beneficiary of the Priority Investment Projects program for the development of the forestry complex from March 2022 to August 2025.

An analysis of the installed capacity of 22 major plywood mills in Russia shows that their capacity covers 98.6% of the total plywood production volume in Russia in 2024. However, since the OI-1000 indicator in plywood production is significantly higher: 13.8 versus 5.2 in sawn timber production, the list of beneficiaries under the Priority Investment Projects program for the development of the forestry complex from March 2022 to August 2025 includes four plywood mills: Murom CJSC, Vyatka Plywood Mill LLC, Murashinsky Plywood Plant LLC, and Bereznik JSC. It can be concluded that the support measures for forest industry enterprises through the Priority Investment Projects program are excessive, at least in the areas of sawn timber and plywood production, as this will lead to an oversaturation of the market with products and will place the work of independently and effectively operating enterprises outside the competitive market conditions.

The list of Priority Investment Projects also includes six greenfield projects announced by Evrazles LLC, Tyumen LPK LLC, Bazis LLC, KizirLesProm LLC, Vostok-Invest LLC, and Timberkom LLC. The list of their planned products is shown in Figure 5.

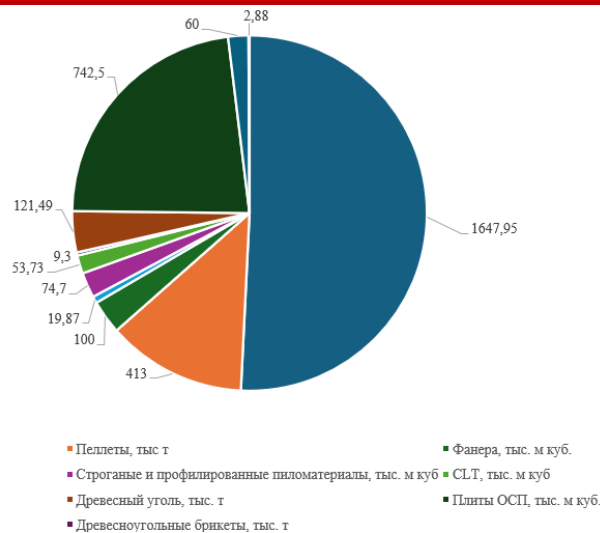


Fig. 5. Products planned for release within the framework of greenfield projects [7]

The commissioning of these enterprises will further aggravate the situation in the lumber and plywood markets, since it will allow additional volumes of products to be brought to the market at a lower cost [14], through the use of government support measures, which will further aggravate the difficult situation in the market and lead to the closure or reduction of production by existing enterprises.

Conclusions:

1. It is necessary to change the criteria for receiving government support measures, excluding applications from enterprises planning to produce products for which the market is not experiencing a supply shortage.
2. The commissioning of new enterprises producing traditional types of forestry products using government support measures will lead to a general decrease in the profitability of products on the market and the bankruptcy of less efficient enterprises through non-market methods, exacerbating the problems of the industry and transferring it to the category of subsidized ones.
3. Current industry support measures in the form of Priority Investment Projects for the development of the forestry complex are counterproductive. Support for individual enterprises leads to reduced profitability, indirectly leading to shutdowns and bankruptcies, and a decline in the industry's overall contribution to the country's GDP.
4. Increasing the production of traditional Russian products with low added value, such as sawn timber, which is the main product of the domestic forestry industry, will lead to stagnation of the forestry industry, since their market is saturated, and in many areas, in terms of their quality characteristics, they are inferior to other non-wood materials, as well as wood-based composite materials.
5. The combined capacity of Russia's 22 largest plywood factories covers 98.6% of the market demand for their products.
6. It has been established that, when implementing Priority Investment Projects for the development of the forestry complex, a number of companies plan to cover their raw material needs either by using previously obtained leases or by purchasing round timber on the open market, which distorts the data in applications for the implementation of current projects and general industry statistics.
7. A new evaluation indicator for the ratio of planned investment volume for processing a conventional 1,000 cubic meters of round timber (OI-1000) is proposed. This indicator can be used to assess the feasibility of government support requests for forestry enterprises and to evaluate the effectiveness of investment in establishing new enterprises. To accurately derive benchmark values for this indicator (OI-1000), it is necessary to conduct a survey of forestry enterprises and categorize the results by product range. This will be the subject of a separate study.

Acknowledgments: This article was prepared as part of the research work of the Institute of Forestry Business and Innovation of the St. Petersburg State Forest Engineering University named after S. M. Kirov in the research direction "Analysis of segments of the forest complex of the Russian Federation."

References

1. Aborkina EO *Causes and trends in the development of Russia's forestry sector* / EO Aborkina // V tsentre ekonomiki, 2022, t. 3, no. 2, s. 39–45.
2. Antonova NE *The forestry complex in resource region development programs: intentions and implementation* / Antonova NE // EKO. 2021. No. 10 (568). S. 38–64.
3. Erznkyan BA, Arutyunyan SM *Russia's timber industry: financing problems and prospects for modernization* // Ekonomicheskii analiz: teoriya i praktika. 2017. No. 4 (463). P. 667–691.
4. Komissarov AV *The Russian timber industry: characteristics of its formation, current state, development, and role* /Komissarova AV// Teoreticheskaya i prikladnaya ekonomika. 2024. No. 3. P. 39–58.
5. Korneev A.Yu. *The timber industry complex: theoretical and legal analysis* / Korneev A.Yu.// Law and state: theory and practice. 2023. No. 5 (221). P. 125–127.
6. Lipskii Vitalii . *Round timber market. Medium-term market forecast* . Materials of the presentation, presented at the Conference "Timber harvesting: analytics, economics, implementation of IT solutions". Access mode: <https://alestech.ru/library/seminar-material?id=382>. Date of publication: 5.09.2025.
7. Ministry of Industry and Trade of Russia. *List of priority investment projects for the development of the forestry sector* . Publication date: June 6, 2025, 3:00 AM. Circulation date: September 5, 2025. <https://clck.ru/3P3geT>
8. Polyanskaya, OA *General characteristics of the current economic situation in Russia's timber industry and prospects for development* / OA Polyanskaya, AE Mikhailova, AA Tambi // Modern machines, equipment and IT solutions for the forestry complex: theory and practice: Proceedings of the All-Russian scientific and practical conference, Voronezh, June 17, 2021. – Voronezh: Voronezh State Forestry University named after G. F. Morozov , 2021. – P. 101–106. – DOI 10.34220/ MMEITSIC 2021_101-106. – EDN GKVQGW .

9. Polyanskaya, OA *Development of the timber industry complex in the Russian Federation: problems and prospects* / OA Polyanskaya, AA Tambi, AE Mikhailova // *Peterburgskii ekonomicheskii zhurnal*. – 2020. – No. 4. – P. 65-74. – DOI 10.24411/2307-5368-2020-10039. – EDN ZUVTMK.
10. Polyanskaya , O. A. *Problems and prospects of the sawmill industry in Russia* / O. A. Polyanskaya , A. A. Tambi // *Pokolenie future : View young scientists -2019 : Sbornik scientific states 8- i International youth scientific conferences , in 6- x tomakh , Kursk , November 13–14 , 2019 / Responsibility editor Gorokhov A. A. . Tom 1. – Kursk : Yugo - Zapadnyi state universitet , 2019. – S. 337–340. – EDN BJDCBT*
11. Government Decree No. 190 dated February 23, 2018 (as amended on April 9, 2025) “On Priority Investment Projects for the Development of the Forestry Sector and on Amending and Repealing Certain Acts of the Government of the Russian Federation.” Date obrashcheniya: 5 September 2025 https://www.consultant.ru/document/cons_doc_LAW_291691/
12. Reznikov SV *The Russian timber industry under sanctions: the domestic market as a factor balancing export flows of timber and pulp and paper products* /Reznikov SN, Pavlyukova AV, Tishchenko IA // *Economics of sustainable development*. 2024. No. 3 (59). P. 235–239.
13. Senotrusova SV *The impact of Western sanctions on Russia's forestry sector* /Senotrusova SV, Tszya B.// *Innovatsii i investitsii*. 2023. No. 9. P. 447–451.
14. Tambi AA *Justification for the need to introduce processes for the comprehensive use of wood at sawmills* / AA Tambi, SA Ugryumov, AR Birman [i dr.] // *Sistemy. Methody . Technologii* . – 2020. – No. 2(46). – S. 47–54. – DOI 10.18324/2077-5415-2020-2-47-54. – EDN FCFXGJ .
15. Ushkalova, DI *Russia's Foreign Trade Under Sanctions Pressure* /DI Ushkalova. *Zhurnal New economic assotsiatsii* , 2022, 3(55), S . 218–226. <https://doi.org/10.31737/2221-2264-2022-55-3-14>.
16. Federal State Statistics Service. *On industrial production in January-July 2025*. Accessed: September 2, 2025. Available at: https://rosstat.gov.ru/storage/mediabank/127_27-08-2025.html
17. Chubinskii, AN *Analysis of problematic trends in the development of woodworking production and consumption of basic structural materials made from wood* / AN Chubinskii, DR Trostinskii, AA Tambi // *Ekonomika i upravlenie narodnym khozyaistvom (Sankt-Petersburg)*. – 2016. – No. 1(1). – S. 113–116. – EDN YPSIJV.
18. A. N. Chubinskii , A. A. Tambi , T. A. Shagalova . *Fundamentals of Enterprise Design. Technological Design of Woodworking Plants (Sankt-Petersburg)* – 2010 – 169 S.
19. Antonova NE *The relationship between forest management concepts and forest policy: theory and reality. Scientific notes: Collection of articles / Edited by OM Prokapalo. Volume Issue 15. Khabarovsk: Institute of Economic Research of the Far Eastern Branch of the Russian Academy of Sciences, 2019, pp. 6-17*
20. Birben Ü., Ünal HE, Karaca A. Examination of the perception of society related to forest resources (Case of Çankırı city center) // *Turkish J. For.* 2018. V. 19. Iss. 1. P. 76-82.
21. Food and Agriculture Organization of the United Nations (2020). *FAO Yearbook of Forest Products 2022*. Available at: <https://www.fao.org/documents/card/en/c/cb0513m> (accessed 20.09.2025).
22. Gregory P., Stuart, R. *Comparing Economic Systems in the Twenty-first Century*. 2004. Houghton Mifflin. Ch. 1–2, pp. 3–36.
23. Ivantsova ED *Is Timber Investment Actually the Driver of Logging Growth and Human Welfare?* / Ivantsova ED / *Journal of Siberian Federal University. Humanities and Social Sciences*. 2022. T. 15. No. 7. P. 955–964.
24. Lukina NV *Global challenges, forests and earth remote sensing. The Earth and the Universe, 2020, 6, pp. 18-26.* <https://doi.org/10.7868/S004439482006002X>
25. *Panytin A. Investment attractiveness of the Forest Sector in the Russian Federation* /Panytin A., Tereshchenko S., Polyanskaya O., Shaitarova O., Mushkarova O.// *V collection : IOP Conference Series: Earth and Environmental Science. 5, Policy, Industry, Science and Education. Ser . "V Pan-Russian Scientific - Technical Conference - Webinar "Forests of Russia: Policy, Industry, Science and Education", 2020. P. 012059.*