

PAPER • OPEN ACCESS

## State support of forestry enterprises in the Russian Federation in times of crisis

To cite this article: E A Panyavina and M Sijacic-Nikolic 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **392** 012021

View the [article online](#) for updates and enhancements.

You may also like

- [Impact of voluntary environmental regulation on green innovation from the perspective of enterprise life cycle: evidence from China](#)  
Hedan Ma, Yuxin Dong, Mingming Zhou et al.
- [Government support for agriculture and evaluation of its effectiveness at the macro and micro level](#)  
N P Larionova
- [Challenges for state support of innovative developing regional machine-building enterprises](#)  
N T Avramchikova, D O Volkov, I P Rozhnov et al.



 The Electrochemical Society  
Advancing solid state & electrochemical science & technology

**247th ECS Meeting**  
Montréal, Canada  
May 18-22, 2025  
*Palais des Congrès de Montréal*

**Abstracts due December 6th**

**Showcase your science!**

**ECS UNITED**

# State support of forestry enterprises in the Russian Federation in times of crisis

E A Panyavina<sup>1</sup> and M Sijacic-Nikolic<sup>2</sup>

<sup>1</sup>Department of Management and Business Economics, *Voronezh State University of Forestry and Technologies named after G F Morozov*, 8 Timiryazeva Street, Voronezh 394087, Russian Federation

<sup>2</sup>Faculty of Forestry, *University of Belgrade*, 1 Kneza Visaslava, Belgrade, Serbia

<sup>1</sup>E-mail: panyavina-e-a@mail.ru

**Abstract.** Trends in the development of forestry enterprises indicate the presence of problems in their activities that contribute to the emergence of crises. The measures taken in a crisis have been identified with the help of a manager survey at the enterprises of the studied industry. It has been determined that optimization of the internal environment of enterprises directly depends on management decisions of management. The effective interaction with the external environment is impossible without support and regulation from the state. The analysis of the activities and development of forestry enterprises and the forest industry has made it possible to formulate a list of key problems hindering the development of the forestry complex in the Russian Federation. The enterprises are not able to solve the identified problems on their own. Government regulation and support are necessary, which is especially important during a crisis. It was determined that the existing regulatory and legal acts and measures for state support, including the promotion of the enterprise development in the industry, the development of exports and technologies, do not fully ensure the development of the forest complex and require substantial revision. The imperfection of the existing support mechanism, the presence of a number of problem points requiring a systematic approach has been proven. The directions for improving state support in times of crisis have been substantiated to ensure the sustainability of forestry enterprises, taking into account the peculiarities of their functioning. The obtained results open up new areas of research.

## 1. Introduction

State support of enterprises enables to suspend the negative trends observed in the forest complex of the Russian Federation, to chart the movement to the enterprise growth in this industry.

According to the forecast for the development of the forest sector of the Russian Federation until 2030, prepared by the food and agricultural organization of the United Nations, the country's forest sector is long and difficult to adapt to market relations and the requirements of world markets, while the potential of the Russian forest sector is far from exhausted [1].

Russia has over 20% of the world's forests, but its share in the world timber industry was only 5.6% in 2017. At the same time round wood and sawn timber take a half of the accounted exports. Forests occupy more than half of the country, but the share of the forest sector in gross domestic product is slightly more than 1% [2]. Thus, the forest potential of the country is essentially underutilized, and the forest complex of Russia has great development prospects.



The forest complex, due to its specificity, requires a long-term, temporary approach in achieving the priorities set, therefore the state is developing a specific list of measures to support and raise funds in order to ensure the development of forest enterprises.

The stability of the functioning and development of forest complex enterprises of the Russian Federation is a necessary basis for the economic efficiency of their activities in changing institutional and economic conditions [3].

A threat to the sustainable functioning of enterprises is represented by situations that create instability or serious changes. These situations are united by the concept of “crisis” in the literature. That is, an enterprise crisis is a process that can significantly interfere with the operation or development of an enterprise [4].

In connection with the foregoing, we agree with the definition of V Kukushkina: from a practical, business-oriented point of view, a crisis is any non-standard situation in which a risk arises [5].

The relevance of the research topic is due to the system of problems arising and existing in the forestry complex of the Russian Federation.

This is similar to strategic “forest problems” (the lack of clear and formalized target indications and guidelines for sustainable development of the forest complex); management problems (unclear understanding of goals and prospects [6], infrastructure problems, natural problems: exhaustion of available high-quality forest resources, their depletion), and the problems of individual enterprises of the forest complex.

In modern conditions, there is uncertainty and unpredictability of the development of the forest complex in crisis conditions, which can lead to a slowdown in economic development of production, a decrease in business efficiency, an increase in social tensions, a drop in real incomes, and greater differentiation in the level of well-being of people and regions. All this predetermines the need for state support of enterprises of the forest complex of the Russian Federation in a crisis.

It should be noted that a large number of research by modern scientists are devoted to the issues of state support of the industry, agricultural sector, and small business [7-10]. The issues of state support of forest enterprises of the Russian Federation do not receive due attention of scientists, which also makes the study relevant.

Abroad, attention is also paid to areas and measures of state support for forestry enterprises, including during the crisis period.

So, Nelu Mocanu (Tomis University, Constanta, Romania) proposes the use of a system of complex monitoring of the situation at the enterprise, which enables to distinguish the crisis at the initial level and start preparing the company to prevent the crisis at the right time [11].

The study of the scientists Xue Han, Gregory E Frey, Yude Geng, Frederick W Cabbage, Zhaohui Zhang “Reform and efficiency of state-owned forest enterprises in Northeast China as “social firms” is also interesting. State forest enterprises (SOFE) in northeastern China have experienced past economic losses and environmental degradation, forcing the government to look for reforms. They argue that the structure of a social firm is more appropriate for SOFE given their stated goals [12].

The purpose of the study is to identify the problems in the development of forest enterprises of the Russian Federation, review vectors of their state support and justify the directions for improving state support in a crisis.

## **2. Materials and methods**

As a part of the study, an analysis of the development of forest enterprises of the Russian Federation was carried out. Problems in their functioning and development that contribute to the occurrence of crises were identified.

When analyzing the data on the forest areas leased out, determining the main types of forest use, methods of observation and measurement were used.

The dynamics of the volumes of felling and reforestation, revenues and expenditures of the Federal budget in the field of forestry were applied by methods of comparison, financial and economic analysis.

To process the information received, the generalization method was used by summarizing and grouping the data.

When considering the theoretical foundations of state support for forestry enterprises, general logical methods were used (analysis, synthesis, induction, deduction, analogy).

When determining the measures taken by the enterprises of the forest complex in a crisis, the questionnaire method was used.

The development of proposals in the areas of state support for forestry enterprises in the crisis was based on expert methods.

The work of foreign scientists is devoted to the development of industry, the analysis of industrial policy, trends and problems in the forest sector. A study by Päivi Pelli [13] concludes that, instead of thinking about the increasing role of services as a trend in the external environment of the forest sector, it can also be assessed as a symptom of deeper changes in industrial production.

It should be noted that the main methodological method of the study is a systematic approach, which allows to most effectively approach the issue of state support for forestry enterprises in a crisis.

### 3. Results and discussion

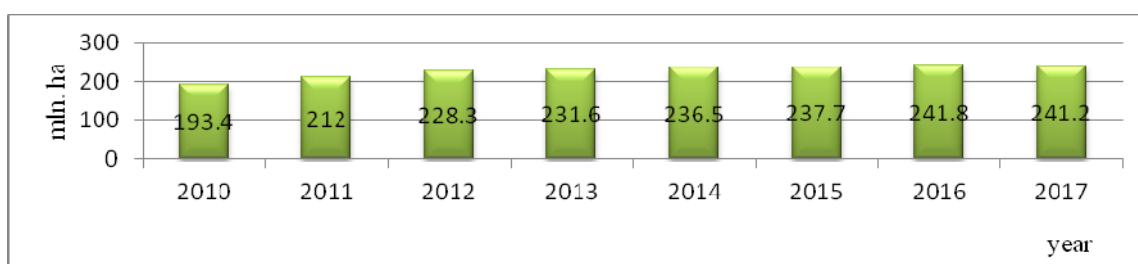
The enterprises in the forest complex are united by the technological chain. They use raw wood, but differ in the production technology and the purpose of the finished product (figure 1). It can be considered that the forest complex of Russia includes three main components realized as a set of processes for the forest cultivation (forestry), logging and primary processing (logging production), wood processing, added-value wood conversion and the use of forest resources [14].



**Figure 1.** Technological chain of production in the forest complex.

The activities of forestry complex enterprises in the Russian Federation are based on the use of a renewable natural resource: the forest. Then, we study all the components included in the forest complex, considering the measures of state support for these enterprises.

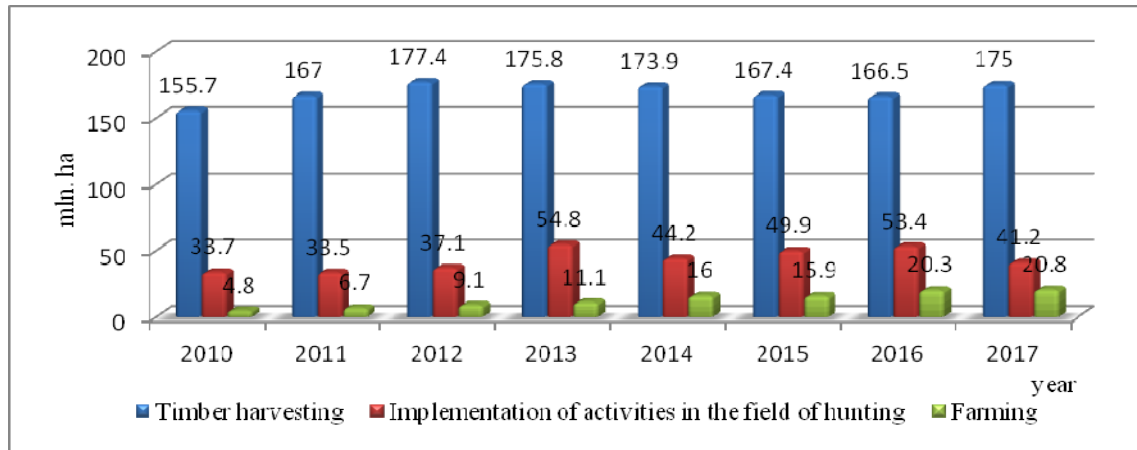
In a whole 82922 leases of forest areas were concluded in the Russian Federation in 2017, with 241.2 million ha (figure 2) [15].



**Figure 2.** Forest rental (mln. ha).

As it can be seen from figure 2, the area of forest which is leased out increases by 2016. There is a slight decrease in 2017.

The main type of forest use is wood harvesting (figure 3) [15].



**Figure 3.** Main types of use for rental forest (mln. ha).

The main share of harvested wood is sold under forest lease contracts.

There are high requirements to forest users in the Russian Federation. Forest users are obliged to use the logging sites transferred to the felling in a full and rational way, to provide favorable conditions for regeneration (natural or artificial), and to work in the way of soil erosion prevention, which lead to exclude some areas for logging. Therefore, the continuation of the study is to examine issues related to the effectiveness of the management of forest reproduction processes.

Note that, despite the growth of reforestation in the country as a whole, the percentage of specific area of artificial regeneration over the total reforestation area, is declining in comparison with the year of 2010 (Table 1).

**Table 1.** Dynamics of the volume of logging and reforestation, 2010-2016.

Indicators	Years							
	2010	2011	2012	2013	2014	2015	2016	2017
Clear cutting, thousand ha	923.4	1 017.4	1 012.9	1 070.6	1 074.1	1 065.0	1 135.4	1 140
Reforestation, thousand ha including artificial reforestation, thousand ha	813	856.7	839.5	870.3	863.8	802.8	839.2	962
Provision of clear felling reforestation,%	170.8	196.5	No data	186.9	187.4	182.2	177.5	177
The share of artificial reforestation,%	88	84	83	81	80	75	74	84
	21	23	No data	22	22	23	21	18

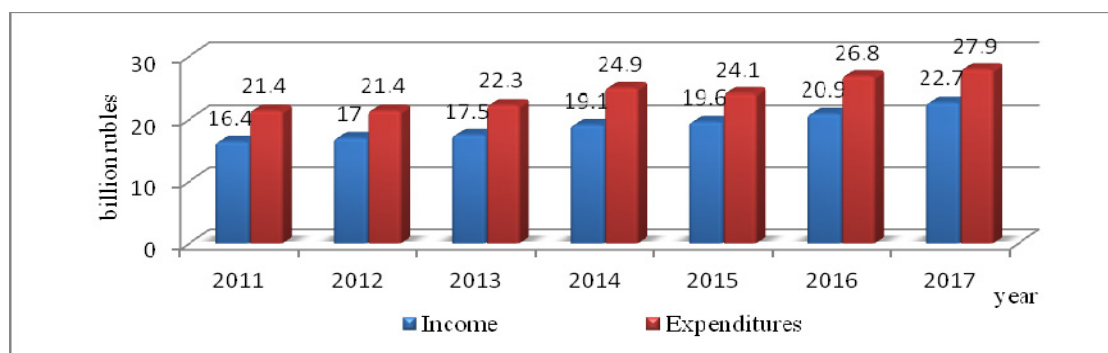
Analyzing the data in the Table 1, it becomes clear that the target setting for the sustainable use of biological natural resources is not being fulfilled, since there is an imbalance between disposal as a result of logging and reforestation.

Economic objectives in forest management are among the main ones. They are implemented through payment mechanisms for the use of forest resources in the forestry system. The goal of forestry is long-term and cost-effective forest management, which is achieved by:

- Non-exhaustive use;
- Conducting cost-effective logging, bringing the maximum possible rental income;

- The use of such systems for the reproduction of forests in clearings, in which the resource potential is preserved and, at the same time, expenditures do not exceed revenues.

The ratio between the revenues of the Federal budget and the cost of forest management from year to year is not in favor of the revenue side [16]. It is clearly shown in figure 4.



**Figure 4.** Revenues and expenditures of the Federal budget in the field of forestry, billion rubles.

According to figure 4, we note that the deficit in covering expenditures by income, which amounted to 5 billion rubles in 2011, increased by 0.2 billion rubles in 2016 and amounted to 27.9 billion rubles in 2017.

This disproportion is explained by the fact that the average minimum rates of payment for 1 m<sup>3</sup> of harvested wood have remained almost unchanged for many years. And the increase in revenues was a result of the increase in forest use. Also, the level of profitability is influenced not only by low rates on timber, but also by the presence of high amounts of arrears.

A special place in the unattractiveness of forestry for entrepreneurs is given to the established system of payments for forest use. Inefficient system of collecting forest payments leads to the fact that the forest income of the state is very small, while the number of unprofitable enterprises in the forest industry continues to grow.

Thus, the presence of disproportion in price and volume indicators of forest use indicates inefficient forest management from the point of view of the economy.

The next stage of the study is to consider the second component of the forest complex of the Russian Federation - the forest industry.

According to the latest data from Food and Agriculture Organization of the United Nations (FAOSTAT), the United States became the largest logging countries in the world in 2017 (the volume of recorded wood harvesting in the country, without import – 419.6 million cubic meters, 11.1% – of the world total), India (355.1 million cubic meters – 9.4%), China (333.7 million cubic meters - 8.8%), Brazil (256.8 million cubic meters – 6.8%), and Russia (212.4 million cubic meters) – 5.6%) [17].

An important indicator of assessing the state of forest industry enterprises is the financial results, the main one is the profit (table 2) [18].

**Table 2.** Profitability of branches of the timber industry complex in the Russia, thousand rubles.

Industry	Indicator	2014	2015	2016
Manufacture of fiberboard and chipboard		2 800 664	-1 206 177	-1 881 712
Lumber production	Profit (loss) before tax for the corresponding period of the previous year	-3 805 991	-714 427	777 075
Manufacture of pulp, wood pulp, paper, cardboard and products from them		4 813 702	-1 161 341	70 097 868
Production of veneer, plywood, plates, panels		8 662 428	5 386 149	7 688 909

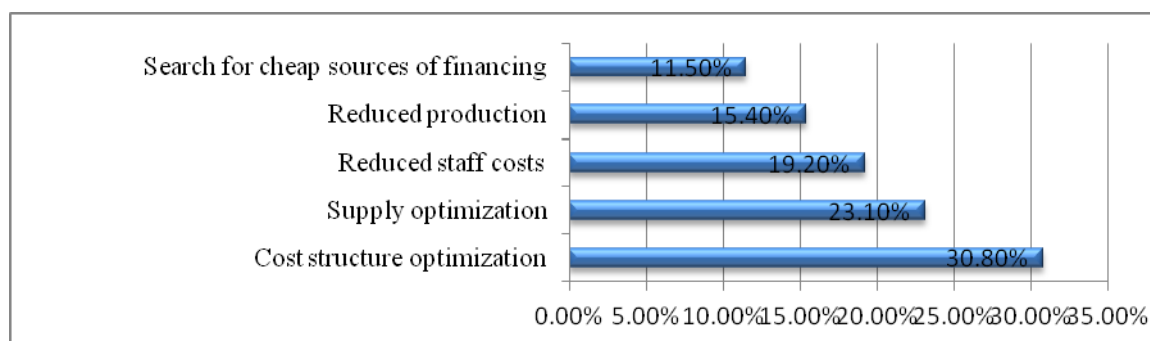
Thus, the timber industry complex of the Russian Federation demonstrates multidirectional trends in its development, which is also due to managerial problems.

Thus, many things happened in the Russian forest complex in 2008–2017: the management structure changed, management changed, and enterprises suffered from the crisis and market turmoil.

The federal Forestry Agency, in which four leaders changed in seven years, was under the jurisdiction of the Ministry of Agriculture (until August 2010), the government of the Russian Federation (2010–2012) and the Ministry of Natural Resources (since 2012). The Ministry of Industry and Trade, which in 2008 separated from the Ministry of Industry and Energy, also changed managers.

For ten years, timber merchants experienced a collapse of export markets during the global financial crisis of 2008–2009, joining the world trade organization, lower export rates for raw timber in 2012, collapse of the Russian ruble in 2014–2015 and entered the era of import substitution and export orientation.

In a crisis, forestry enterprises take steps to minimize risk components independently. So, these events look like that shown in figure 5 according to the results of manager survey of forty-five forest industry enterprises.



**Figure 5.** Measures taken by the forest complex enterprises in times of crisis.

If optimization of the internal environment of enterprises directly depends on the management decisions of management, then effective interaction with the external environment is impossible without the support and regulation of the state.

These factors have enables to identify the problems hindering the development of forestry enterprises [19]:

1. Low level of forestry development:

- Extensive nature of forest use: the need for raw wood is provided mainly by forests of natural origin.
- Insufficient reforestation efficiency which does not ensure the reproduction rate of economically valuable forests on the most productive and transport-accessible forest lands, high mortality of created forest crops during the period before being transferred to the forest covered area, due to non-compliance with agricultural cultivation. Tenants of forest areas are also not interested in forest reproduction, efficient use of cutting areas and the development of forest infrastructure.
- Poor effectiveness of the system for conservation and protection of forests, disconnection of forest fire forces.
- High complexity of obtaining wood resources, due to the low reliability of available information on forest resources and the lack of public available reliable information about forest; high complexity and length of administrative procedures related to forest management.
- Low utilization of forest raw materials, an insufficient number of consumers of low-quality wood contribute to the actual loss of a significant part of the harvested resources and increase of the final cost of harvested forest due to this.

2. The low level of development of the domestic market:

- High proportion of imports in the domestic market/
  - Low share of the Russian Federation in world trade in forest products.
3. Infrastructural and economic barriers:
- Low density of forest roads, related to the problems of forest legislation; forest legislation does not properly regulate their construction and maintenance; the rights of tenants of forest areas engaged in the construction and operation of forest roads are not defined; mechanisms for the construction of forest roads on the principles of public-private partnership have not been worked out).
  - High tariffs for timber transportation.
4. Low investment attractiveness of the industry:
- High dependence of the project payback on the availability of raw materials and the lack of infrastructure in densely forested areas.
  - High cost of financial resources due to country and macroeconomic risks.
  - Short-term nature of forest planning.
5. Territorial disunity of the technological chain: the concentration of forest raw materials in the Asian part of the Russian Federation, and processing capacities - in European one, which, with high railway tariffs for transportation, reduces the attractiveness and availability of domestic raw materials and the efficiency of the forestry complex as a whole.
6. Staff:
- Low attractiveness of the sector for specialists.
  - Lack of coordination between training programs and industry personnel needs.
7. Imperfection of the regulatory framework, which does not contain sufficient incentives for good forest management and accelerated reproduction of forests.

The resolution of these problems is promoted by regulatory legal acts that define the basic principles of the industry, as well as inter-sectoral regulatory documents.

A system of state support has been created (in addition to the regulatory framework of support) which includes key elements:

1. Stimulating the development of enterprises in the industry (subsidizing interest rates on loans; implementing priority investment projects; applying special contracts to localize production; implementing comprehensive investment projects; financing the pre-production stage of projects at a preferential rate of 5% through the Industry Development Fund).

2. Export development (implementation of the roadmap “Supporting access to the markets of foreign countries and export support”; support for the export of high-tech products; measures in support of export development institutions).

3. Development of forestry complex technologies (subsidizing research and development at the stage of developing new products; subsidizing interest rates on loans for the implementation of integrated investment projects; financing projects under the Industrial Development Fund).

Despite the fact that state support for forestry enterprises at the federal and regional levels is carried out with the implementation of numerous programs and activities, the existing support mechanism remains imperfect, there are a number of issues that require a systematic approach. First, it is introduction of standards for the costs of forestry activities contributing to the development of an effective economic model of state forest management. Secondly, it is return of the opportunity to conduct economic activity to local agencies. It will make the forest industry profitable. Thirdly, it is the change in approaches to the rates of payment for the use of forests. Fourthly, the transfer of authority for forest management and maintenance of the state forest register to the federal level, which will ensure further improvement of the system of forestry organization and management.

#### 4. Conclusion

Thus, taking into account the solution of these problems, the main areas of state support for forestry enterprises in a crisis should be:

1. Regulatory support:



- Development of legislative bases in terms of ensuring the preemptive right to conclude lease agreements for forest plots to bona fide forest users.
  - Development of new forestry standards, taking into account the specifics of the areas, the equipment and technology used.
  - Development of legislative bases in terms of transfer of the authority for forest management and maintenance from the state forest register to the federal level.
  - Improving the system of forest protection and conservation.
2. Organizational support:
- Timely registration of forest areas for cadastral registration.
  - Determination of the estimated cutting area, taking into account the economic accessibility of forests.
  - Change of approaches to rates of payment for forest resources.
  - Information accessibility of the types of forest resources available on the territory of a certain region.
3. Infrastructure support:
- Promoting the development of public-private partnership in the field of transport and production and energy infrastructure.
  - Stimulating the development of the cluster forest sector.
4. Support for small and medium-sized forest enterprises:
- Development of financial support mechanisms for forest business through the allocation of targeted subsidies from the regional budget.
  - Reimbursement of the tenant's costs for reforestation over certain standards.
  - Partial compensation of the cost for the purchase of tree planting material with improved hereditary properties.
  - Grants for budding entrepreneurs.
  - Subsidies for lease payments.
  - Systematic implementation of highly specialized free educational programs for entrepreneurs.
  - Creation of legal conditions for the use of the outsourcing mechanism.
  - Tax holidays for the entire period for enterprises that faithfully carry out forest reproduction and use tree planting material with improved hereditary properties.

The implementation of the proposed measures will contribute to the development of forest industry enterprises of the Russian Federation and their overcoming of crises in their activities.

## References

- [1] United Nations Food Organization (FAO) 2012 Forecast of development of the forest sector of the Russian Federation until 2030 Retrieved from: <http://www.fao.org/3/a-i3020r.pdf>
- [2] Company E Y 2018 Overview of the Russian timber industry complex. Retrieved from: [https://www.ey.com/Publication/vwLUAssets/ey-russia-wood-survey-rus/\\$FILE/ey-russia-wood-survey-rus.pdf](https://www.ey.com/Publication/vwLUAssets/ey-russia-wood-survey-rus/$FILE/ey-russia-wood-survey-rus.pdf)
- [3] Kazantsev S V, Karpov V V 2016 *Threats and security of the Russian economy: assessment experienced* (Novosibirsk: Publishing House of the IEPP SB RAS)
- [4] Panyavina E A, Chirkova M B, Cheglakova S G and Pankov V V 2017 The role and place of the crisis traps in the development of the small business of the forest sector in the Russian economy. *European Res. Studies J.* **20** 3B 480 DOI: 10.11214/thalassinos.20.05.044
- [5] Kukushkina V V 2018 *Crisis Management* (Moscow: SIC INFRA-M)
- [6] Rezanov V K, Rezanov K V 2015 *Mechanisms for managing sustainable development of the forest complex* (Vladivostok: Dalnauka)
- [7] Tolkachev S A, Brzhezinsky V G 2018 Instruments of state support of industry through the prism of an institutional approach. *Humanities Sciences. Bulletin of the Financial University*

- [Gumanitarnye nauki. Vestnik finansovogo universiteta – in Russian] **8** (1) 97  
<https://doi.org/10.26794/2226-7867-2018-7-1-97-106>
- [8] Uvarov A V 2016 Improving state support measures for agriculture based on the use of value added indicators. *News of the Ural State Economic University* [Izvestiya Ural'skogo gosudarstvennogo ekonomicheskogo universiteta – in Russian] **1** (63) 107
- [9] Rykova I N, Korablev D V and Gubanov R S 2016 Assessment of the influence of factors on the financial performance of industrial companies in Russia, taking into account state support for the sectoral economy. *J. of Corporate Finance Research* [Korporativnyye finansy – in Russian] **10** (2) 51-69 <https://doi.org/10.17323/j.jcfr.2073-0438.10.2.2016.51-69>
- [10] Zabolotskaya V V, Khut N A 2015 Comparative analysis of state support measures for small and medium-sized businesses in Russia and abroad. *Theory and Practice of Social Development* [Teoriya i praktika obshchestvennogo razvitiya – in Russian] **10** 46
- [11] Nelu Mocanu 2018 Implementation of Anti-Crisis Management Technologies. *Int. J. of Innovation in the Digital Economy*. **9**(4) 11 DOI: 10.4018/IJIDE.2018100102
- [12] Han X, Frey G E, Geng Yu, Cabbage F W and Zhang Z 2018 Reform and efficiency of state-owned forest enterprises in Northeast China as “social firms”. *J. of Forest Economics* **32** 18 <https://doi.org/10.1016/j.jfe.2018.02.002>
- [13] Pelli P 2018 Services and industrial development: analysis of industrial policy, trends and issues for the forest-based sector. *J. of Forest Econ.* **31** 17 <https://doi.org/10.1016/j.jfe.2017.11.003>
- [14] Morkovina S S, Torzhkov I O 2017 Diversification mechanisms in the forestry complex. *Forestry Engineering J.* [Lesotekhnicheskiiy zhurnal – in Russian] **3** (27) 253 DOI: 10.12737/article\_59c21ba6be03a9.24492898
- [15] Portal Protrevo 2017 Development of rental relations in the forestry of the Russian Federation Retrieved from: <https://proderevo.net/industries/forestry/razvitie-arendnykh-otnoshenij-v-lesnom-khozyajstve-rossijskoj-federatsii.html>
- [16] Gosnovosti.rf Portal 2016 The results of the round table "Development of new approaches to the determination of rates of payment per unit volume of forest resources and unit area of the forest plot, which is in federal ownership" Retrieved from: <https://gov-news.ru/news/569936>
- [17] Transles 2018 In 2017, Russia accounted for 5.6% of the global timber harvest Retrieved from: <https://www.transles.ru/press/novosti-otrasli/na-dolyu-rossii-v-2017-godu-prishlos-5-6-ot-mirovoy-zagotovki-drevesiny/>
- [18] LesPromInform 2017 Preliminary results of the work of the Russian timber industry complex in 2016 Retrieved from: <http://www.lesprominform.ru/jarchive/articles/itemshow/4564>
- [19] Panyavina E A 2018 Directions of state support of economic entities of the forest sector of the economy *Structural Transformations of Territorial Economics: In Search of Social and Economic Equilibrium* [Strukturnyye preobrazovaniya ekonomiki territoriy: v poiske sotsial'nogo i ekonomicheskogo ravnovesiya – in Russian] (vol 1) ed. A A Gorokhov (Kursk: Closed Joint Stock Company "University Book") pp. 175–187