State policy on digitalization of the forest industry

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Abstract. Currently, the state management of forest resources in our country needs to be improved. Therefore, in accordance with the decrees of the President of the Russian Federation, the state forestry policy aims at increasing the contribution of this industry to the socio-economic development of the country, the transition to intensive forest management, as well as the protection, safeguard and reproduction of forests. These aims can be effectively achieved through the active implementation of information and communication technologies in the management of the forest sector, which is gradually taking place in practice. However, at the moment, there are certain problems associated with the practical implementation of the forest digitalization strategy. This article presents possible solutions to these problems.

1 Introduction

The Russian Federation accounts for one fifth of the world forest resources. Forests are essential for our country: climate stability, development of the timber industry, the economy, and the preservation of life on the planet as a whole [1].

However, the efficiency of the use of forests in our country is still low at this stage. Forests occupy about 50% of the territory of the Russian Federation, while the contribution of this sector to the country's gross domestic product (hereinafter - GDP) is rather modest. For example, according to the Federal State Statistics Service for the first quarter of 2022, agriculture, forestry and fisheries together accounted for only 1.9% of Russia's GDP, yielding to many other sectors of the economy (Figure 1).

Therefore, the state faces several challenges in the field of forest complex management. Increasing the industry's contribution to the socio-economic development of the country and the safeguard, protection and reproduction of forests. Consequently, it is necessary to develop means and technologies of state management for the implementation of the above-mentioned tasks.

According to G.V. Atamanchuk, state policy is a concentrated expression of the essence of the state. At the same time, strategic guidelines form the basis of state policy. The meaning of state policy can be defined as the modernization of material and spiritual production and social living conditions on the basis of scientific and technological progress

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(new technologies), conversion opportunities and a mutually beneficial division of labor with other countries. Consistency and coherence are essential elements for management technologies: objectives - procedures - technical means - operations - motives [3].
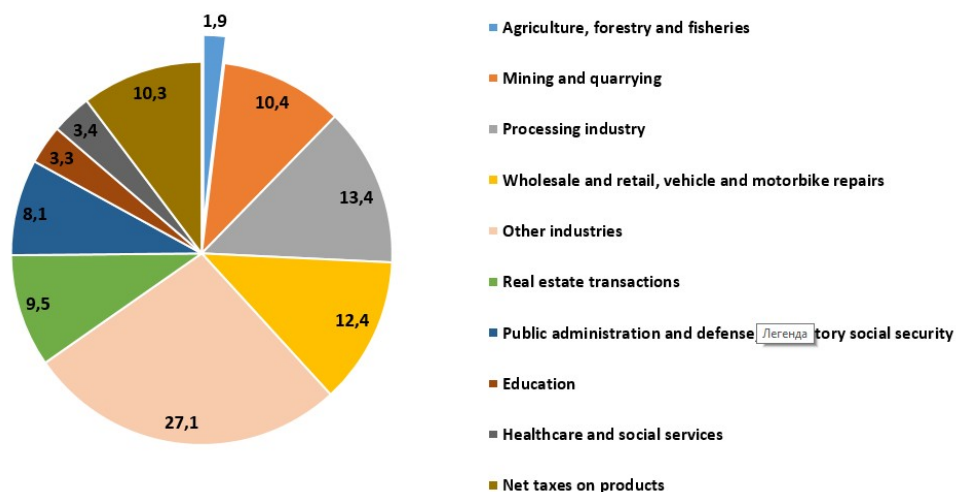

Fig. 1. Structure of Russia's GDP by type of economic activity, Q1 2022 [2].

Purpose and objectives. The purpose of the research is to identify the main trends, features, problems of state policy in the field of digitalization of the forest industry and to propose solutions. Research objectives:

- Formulate the concept of "state policy in the field of digitalization of the forest industry".
- Identify the main trends, problems of public policy in the digitalization of the forest industry.
- Suggest possible solutions to the problems identified.

2 Materials and methods

The research was based on the data from the Federal Forestry Agency, the Federal State Statistics Service, methods of analysis and synthesis, comparison, and an empirical research method such as the study of different information sources.

3 Results and Discussion

In order to enhance the effectiveness of the state policy in the field of digitalization of the forest industry, it is necessary to develop new mechanisms of state management under modern conditions. To improve selective logging, forest supervision, forest care, increase the transparency of timber turnover, counteract gray trade schemes, and centralize forest management, the system of state forest management should be modernized, including the use of digital technologies and information systems [4].

As part of the implementation of the "Digital Transformation" in accordance with the Decree of the President of the Russian Federation "On the national development goals of the Russian Federation until 2030", economic sectors must achieve "digital maturity". Digital transformation affects production, the system of relations between government and business, including life activities of the population. In fact, technical systems are being

replaced by digital ones with the large-scale use of digital technologies. [5]. The national program "Digital Economy" is also worth mentioning, since its activities are aimed at creating a new regulatory environment in the country's economy, improving the efficiency of public administration using digital technologies and systems [6].

All management processes are nothing but search, fixation, analysis, evaluation, consolidation, dissemination of social information, i.e. the information associated with the reflection, cognition and transformation of various forms of human life. The basis of public administration is information as a set of any data, facts, characteristics of relevant objects, phenomena, processes, relationships, etc. [3]. Thus, the implementation of an effective state forest policy is not possible without reliable, high-quality information about forests.

Thus, the introduction of digital technologies should be seen as a significant component of improving the state management of the forest industry. Digitalization will ensure internal control of forest management issues, remote sensing of forests, reduce the turnover of illegally harvested timber, and increase data openness. The analysis of the essence and significance of the introduction of digital technologies in the country's economy made it possible to formulate the state policy of forest digitalization as a set of goals and objectives practically implemented by the state to achieve centralization of forest management through digital information systems, modernization of forest management and increased efficiency of forestry management as a whole.

Digital technologies are successfully applied in foreign countries. According to IT-World, Finland has developed MHG Systems. This platform provides real-time information on forest resources and connects loggers, buyers, and authorities into a single network. In addition, MELA, a system for planning and decision support in the field of forest stand analysis, data on forest resources, is widely used. [7].

The "Strategy for the Development of the Forest Sector in Russia until 2030" can be considered the basis for the implementation of the "Digital Forest" concept in the Russian Federation. The document envisages radical modernization of information systems in the industry. Mutual integration of government information systems with systems of business structures is necessary. An important element of the digital transformation of the forest complex is the creation of the Federal State Forestry System (hereinafter - FGIS LK). The system should replace separate information systems and become the basis for the provision of public services.

In recent years, a significant number of regulatory legal acts have been adopted, aimed at changing the current legislation in terms of the forestry complex digitalization, the creation of a system for controlling timber turnover, and the conclusion of contracts for the sale of forest plantations at electronic auctions [8]. The Federal Law No. 415 of December 28, 2013 is an important legislative initiative which introduced the Unified State Automated Information System for accounting timber and its transactions (hereinafter - LesEGAIS). The main task of the system is to monitor the flow of timber in Russia in the form of a new report on the use of forests with assortments. The main users of the system include legal entities, entrepreneurs, and controlling bodies (the Federal Customs Service, which lets timber across the border, the Russian Ministry of Internal Affairs, and the Federal Tax Service). It should be noted that all interested authorities have access to this system.

The number of system users grows each year. Thus, according to LesEGAIS, in 2020, more than 50 thousand persons, organizations and individual entrepreneurs, took part in timber transactions. In addition, LesEGAIS had information about over 300 thousand citizens who harvest timber under contracts for the sale of plantations for their own needs. In 2021, the total number of participants in timber transactions increased by 17% compared to 2020 and amounted to 435 thousand persons (legal entities, individual entrepreneurs, individuals) [9].

The positives of using LesEGAIS are already clearly visible. Despite the fact that the Irkutsk Region and the Krasnoyarsk Territory are outsiders in the field of illegal logging, there are positive aspects. For example, according to the Federal Forestry Agency, in 2020 illegal logging in the Irkutsk region and the Krasnoyarsk Territory amounted to 415.1 and 242 thousand cubic meters, respectively, then in 2021 this figure dropped to 165.1 and 147.1 thousand cubic meters respectively [10, 11].

Another positive development is the decline in timber smuggling to China. Changes in customs requirements have made it possible to strengthen control. Russian timber will leave the territory of the country only if there is a declaration of a deal available in LesEGAIS. The customs authorities check the data and verify the batch with the transaction number in the system. It should be noted that according to information from the logging and woodworking portal Forestcomplex.ru, by the end of March 2022 the system had registered about 2.5 million electronic supporting documents for more than 100 million cubic meters of timber [12].

The implementation of the information system resulted in the replacement of paper documents with electronic ones. Declarations and reports on the use of forests can be submitted via the "Gosuslugi" state service. From March 1, 2023, a significant document for forest users is going to be presented through the largest electronic platform as a forest restoration project.

Further development of digitalization in the forestry sector is necessary. A program of full digitalization of the industry is required. Information about every cubic meter harvested from a logging site must be automatically entered into the relevant databases, which will make the forest complex transparent. Thus, FGIS LK should become a unified digital platform containing data on forests, timber accounting, and transactions. It is essential to use remote sensing data, thanks to which forest fires and their direction can be tracked. By combining the capabilities of remote sensing and artificial intelligence, illegal logging can be monitored. The "Digital Forest" concept also takes into account technological procedures, according to which the document is completed without the Internet. The encrypted file is automatically sent to a server when the connection is established. Information in this system will be updated in real time. According to the Federal Forestry Agency, the FGIS LK is planned to be introduced in 2025.

A number of problems arise from the step-by-step implementation of digital technologies in the forestry sector. Accompanying documents and entering information into the system is an additional burden for business structures. At the same time, the documentation must be filled in on time. Otherwise, there will be penalty sanctions. In addition, funds are required to purchase smartphones to work with LesEGAIS.

An urgent problem in the management of digitalization of the forest industry is major system failures and paralysis of the industry, including delays in transactions and increased losses.

The human factor in digital forestry reform also matters. Many elderly timber truck drivers quit their jobs because they cannot work with the new technology. Filling out supporting documents offline has also proved problematic. In many parts of the country, there is no satellite connection, making it difficult to pinpoint the exact loading coordinates of a timber truck.

Businesses in the Arkhangelsk region have perceived the problems with export documentation procedures via web applications as an obstacle to business activities. Many entrepreneurs of the region, according to the "Echo of the North" portal, appealed to the Prosecutor's Office.

There are some problems with the QR code. The code contains information about the timber, but many fields are filled out incorrectly and the coordinates of the electronic document are not encrypted. According to the Federal Forestry Agency, the QR code

should not be regarded as an electronic accompanying document, it is required to confirm the generation of the document in accordance with the LesEGAIS program. However, according to the Code of Administrative Offences of the Russian Federation, it is impossible to transport timber without an electronic document, i.e. a QR code must be presented.

Another problematic point is mentioned in the Order of the Federal Forestry Agency of February 25, 2022 No. 82 "On approval of the report on the generalization of law enforcement practice for the implementation of federal state supervision over timber transportation, storage, product manufacture, timber processing and timber transactions in 2021". Another problem with synchronization of law enforcement and digitalization of the forestry complex is violation of the requirements by controlling persons to enter information about timber storage locations and timber processing infrastructure facilities into LesEGAIS system. A similar requirement is fixed in the Russian Federation Forest Code, however, at present, the Code of Administrative Offences of the Russian Federation does not provide any administrative liability for such offences. [9].

Such imperfections in legislation and management issues involve a fairly high risk of imposing penalties.

There are difficulties in processing documents via a digital system in the field of timber transportation by sea vessels, as well as by rail. A document should be issued for each wagon, which complicates the transportation process.

4 Conclusion

The introduction of digital technologies in the system of state management of the forest industry is necessary for the forest ecosystem regulation and biodiversity conservation.

Registration of all participants in transactions in the information system will ensure transparency and decriminalization of the industry. The authorities will have information about the owner of the timber, its origin, volumes. If unreliable information on the transaction or timber transportation is revealed, all operations are blocked. Digitalization of the forest complex should take into account all the nuances of timber harvesting and transportation.

It is necessary to solve technical problems in connection with the transition from paper documentation to electronic.

There is an objective need to amend the legislation, namely the Code of the Russian Federation on Administrative Offences in terms of timber transportation regulations. It is necessary to legalize the QR code for confirmation of the electronic accompanying document. Penalties should be imposed for the lack of confirmation of this document. It is also necessary to provide for administrative liability for violation of the requirements to enter data on the locations of timber storage and timber processing infrastructure facilities into LesEGAIS.

References

1. N.A. Moiseev, The role of forests in creating ecologically comfortable habitat and measures for its implementation. Proceedings of higher education institutions, Forest Journal, **5**, **371**, 203-207 (2019)

2. Socio-economic Situation of Russia (Rosstat, Moscow, 2022)

3. G.V. Atamanchuk, Theory of Public Administration. Course of lectures (Omega-L, Moscow, 2014)

4. G.V. Davydova, M.I. Tagiyev, I.S. Korodyuk, I.O. Kravchenko, G.N. Makarova, Improvement of the legal regulation of sanitary logging as a factor of neutralizing the shadow sector of the timber industry, Russian Journal of Criminology, **6**, 909-920 (2019)

5. I.L. Bachilo, Digitalization of management and economy is a national task, State and Law, **2**, 59-69 (2018)

6. M.T. Lukyanova, V.A. Kovshov, Z.A. Galin, Z.A. Zalilova, E.V. Stovba, Scenario Method of Strategic Planning and Forecasting the Development of the Rural Economy in Agricultural Complex, Scientifica**,** 9124641 (2020)

7. E.M. Gordeeva, Evolution of the International Forest Regulation, Kutafin Law Review, **2**, **16**, 155-198 (2021)

8. L. Stonozhenko, I. Vukolova, O. Martynenko, V. Karminov, A. Bogov, Planning and implementation of FSC complient forest management under conditions of Russian forestry legislation. Materials of the 4th scientific-technical conference "Forests of Russia: Policy, Industry, Science and Education" St. Petersburg, 012070 (2019)

9. Order of the Federal Forestry Agency of 25.02.2022 No. 82 "On approval of the report on the generalization of law enforcement practice for the implementation of federal state supervision over timber transportation, storage, product manufacture, timber processing and timber transactions in 2021", https://rosleshoz.gov.ru

10. A.G. Anisimov, D.M. Nikerov, Crime in the field of the timber industry complex (on the example of the Irkutsk region), Vestnik of Saint Petersburg University, **3**, 643-659 (2021)

11. Forestry ratings of the Russian Federation, https://rosleshoz.gov.ru/rates/illegal_felling

12. LesEGAIS and FGIS LK: Why the digitalization of the industry should not be rushed, https://forestcomplex.ru