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Legal Ecological Protection of the Lena River

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Abstract. The aim of the work is to study the legislative framework for the protection of the Lena River. The article discusses actual problems related to the ecology of the Lena River. A brief analysis of the current ecological state of the Lena River basin is made. Mining, industrial development of deposits, operation of oil storage facilities and settlements located in coastal areas lead to pollution of the river with various harmful impurities. The unique natural conditions and wealth of natural resources of the northern territories require the adoption of all possible methods of protecting the unique ecosystem. Legal protection should be a priority measure in preserving the ecology of the Lena River basin. An overview of federal regulatory and legislative documents on the protection of water bodies is provided. It is shown that the legislative framework for the protection of the Lena River has not been formed and is in the process of formation. The paper proposes the creation of comprehensive environmental legislation to preserve the nature of the Lena River basin. The basis for the legislative protection of the Lena River is the strategic provisions of federal laws on water bodies. The article outlines the main measures to preserve the ecological state of the river for future generations. The need to increase humanity's responsibility for preserving the environment is noted. The above circumstance makes it relevant to attract public attention to the development of programs to preserve the ecological state of the Lena River.
Keywords: *north, environment, environmental safety, Lena River, environmental legislation*

Introduction

The Lena River is one of the few rivers in the world that has preserved its pristine, unique ecosystem. Currently, the Lena River faces a serious threat from anthropogenic pollution and requires careful preservation of its natural beauty and wealth [1]. Technogenic factors that create environmental risks are associated with human industrial activities. The development of northern territories leads to an increase in anthropogenic impact on nature. Every technical system containing energy reserves and active chemical or biological substances is a potential source of danger. The main sources of river pollution are extractive industries, public utilities, oil product storage and transportation facilities, as well as wastewater generated in cities and towns [1; 2; 3; 4; 5, etc.]. Data on the ecological condition of the Lena River are presented in the State Report "On the State and Protection of the Environment of the Republic of Sakha (Yakutia) in 2022". According to this document, the Lena River is classified as a third-category polluted water body, and in some places — as highly polluted [2]. An analysis of pollution and water quality according to standard RD 52.24.643–

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20021 shows that most sections of the Lena River exceed the maximum permissible concentrations for iron, copper, organic substances and phenols by several times [3].

Let us provide several examples of man-made pollution of the Lena River. The location of nine large oil depots, fuel and lubricant storage facilities with a total capacity of over 900,000 m³ on the riverbank poses a significant environmental problem [4]. During springs, the oil storage facilities are sometimes flooded, which increases the risk of contamination of water bodies with petroleum products. In 1996, there was an emergency drainage of petroleum products in the area of the oil depot in the city of Lensk. An oil spill covering 3,150 m² was discovered on the river's icy surface. As a result of the accident, 49.3 tons of petroleum products were collected, and 96 m³ of contaminated snow and ice were removed. The incident was caused by defects in the bottom of the storage tank. In the spring of 2001, the city of Lensk was severely affected by a devastating flood in Yakutia, and the Lensk oil depot area was flooded. As a result, 89 out of 148 vertical storage tanks containing petroleum products were damaged by ice, which led to a leak of 9,390 tons of petroleum products into the river [5; 6]. In total, 12,814 tons of petroleum products spilled into the Lena River during the flood, and the damage to water resources amounted to approximately 2.5 billion rubles. On 12 June 2023, in the Irkutsk Oblast, the TR-900 tanker "Erofey Khabarov", carrying 832 tons of petrol, collided with the TR-901 vessel, resulting in up to 90 tons of oil spilling into the river. One of the main causes of pollution of the Lena River is domestic wastewater from populated areas. Currently, in Yakutia, contaminated wastewater accounts for 39% of the total volume of discharges into water bodies, while in Russia as a whole, this figure is 34%. Besides, 32 settlements located on the banks of the Lena River [1] have no sewage or wastewater treatment systems. For example, large settlements such as Tiksi and Mokhsogollokh have only mechanical treatment facilities. The quality of human life depends on the quality of drinking water. Currently, 59.8% of the population, primarily urban residents, is provided with high-quality drinking water from centralized systems. In the Republic of Sakha (Yakutia), 16.3% of settlements have water intake structures, while water treatment facilities are available in only 10% of municipalities. So, people are forced to drink water without prior purification and disinfection. The low level of clean water supply through centralized systems in Yakutia is explained by several factors, including low population density, remoteness of settlements, and complex transportation infrastructure. This increases the cost of constructing water supply and treatment facilities, and reduces the investment attractiveness of these projects. Pollution levels are higher in areas with large settlements. For example, in Yakutsk, total emissions into the atmosphere reach 35,100 tons per year [7]. The high incidence of acute intestinal infections (1,000 cases per 100,000 people) and diphyllobothriasis (900 cases per 100,000 people) [8] among the Yakutsk population indicates severe pollution of the river by municipal waste and insufficient treatment measures.

Research object

It is worth noting that the Lena River basin landscape is an important natural resource for the livelihood of the population of the Russian Federation. The importance of studying the legislative framework for the protection of the Lena River is justified by the fact that it is one of the ten greatest rivers in the world, the largest river in Russia with a basin located within its territory, and the only river entirely located in the permafrost zone [9]. Its basin area is 2.49 million km², and the average long-term runoff is 530.225 km³ per year. The river's surrounding area is rich in mineral deposits, including iron ore, coking coal, natural gas, and gold. Its banks are home to unique, pristine landscapes, such as the Lena Pillars, a UNESCO World Heritage Site, the Tukulan sandstone mountain, unique in the world for its size, the Diring Yuryakh ancient settlement, and layered ice masses that do not melt in summer.

Legislative protection of the Lena River

The Lena River is less polluted by industrial waste than other major rivers in the country, which makes its environmental protection an important task in Russia in the interests of future generations. Despite the measures taken to improve the safety of technical facilities, accidental pollution is not decreasing and poses a potential danger to the population and the surrounding natural environment. Pollution of the river will continue due to a variety of possible reasons, including environmental terrorism. Currently, the environmental safety of the Lena River is not adequately ensured. In this regard, work to protect the Lena River should be carried out under the constant supervision of the public and the entire population. Ensuring the environmental safety of the Lena River involves preventing the harmful impact of economic activity on the environment, preserving biodiversity for the long term, and providing clean drinking water to urban and rural communities. The solution to this problem largely depends on legislation regulating the protection of the Lena River.

Let us consider the laws of the Russian Federation that relate to environmental protection policy applicable to the Lena River. Article 72 of the Constitution of the Russian Federation states that "the joint jurisdiction of the Russian Federation and the constituent entities of the Russian Federation shall include: c) issues of ownership, use, and disposal of land, subsoil, water, and other natural resources; d) nature management; environmental protection and ensuring ecological safety..." [1]. It is worth noting that the distribution of powers between the center and the regions is not specified in the Constitution of the Russian Federation, although it should probably be reflected in subordinate legislation in accordance with the country's fundamental law.

[1] The Constitution of the Russian Federation (adopted by popular vote on December 12, 1993, with amendments approved during the all-Russian vote on July 1, 2020). URL: http://pravo.gov.ru/proxy/ips/?docbody=&nd=102027595 (accessed 12 November 2024).

One important document on this issue is the "Environmental Doctrine of the Russian Federation" [2], approved by Government Order No. 1225-r of August 31, 2002, which defines the strategic goal of state environmental policy as "preserving natural systems and ensuring the ecological security of the country". In 2017, the "Strategy for Environmental Security of Russia until 2025" was adopted by Decree of the President of the Russian Federation [3]. The basis of the strategy is that "high quality of life and health of the population, as well as national security, can only be ensured by preserving natural systems and maintaining adequate environmental quality". There is also a provision of importance for the republic's population regarding "the participation of civil society, local government bodies, and business community in the preparation, discussion, adoption, and implementation of decisions on environmental protection and sustainable natural resource management". The health of the population and life expectancy directly depend on the quality of the water consumed. Drinking water is the source of life, determining its quality and duration. Article 56.1 of the Water Code [4] of the Russian Federation stipulates that "the discharge into water bodies and the burial therein of production and consumption waste, including decommissioned ships and other floating vessels (their parts and mechanisms), is prohibited". In accordance with sanitary and epidemiological requirements (Federal Law "On Water Supply and Disposal") [5], drinking water must be safe in epidemiological and radiation terms and harmless in terms of its chemical composition. It is worth noting the practical significance of Federal Law No. 199 of 29.12.2005 "On the Transfer of Powers in the Sphere of Natural Resource Use and Environmental Protection to the Executive Authorities of the Constituent Entities of the Federation" [6] in terms of the opportunities for regions to introduce effective measures to improve the ecological state of water bodies. An extensive analysis of regulatory and legal documents relating to the Arctic zone is presented in the work of A.A. Solovyanov [10]. This work emphasizes that the provisions defining strategies for ensuring environmental safety are not reflected in specific regulatory acts in practice, and also notes the insufficient effectiveness of the environmental protection management system in the Arctic regions. In addition, the issue of "transferring maximum powers to the subjects of the Federation in all aspects of environmental protection" is considered, which is in line with Article 72 of the Constitution of the Russian Federation. The document "Fundamentals of the State Policy of the Russian Federation in

[2] Environmental Doctrine of the Russian Federation. Approved by Decree of the Government of the Russian Federation of August 31, 2002, No. 1225-r. URL: http://pravo.gov.ru/proxy/ips/?docbody=&prevDoc=102149626&backlink=1&&nd=102077597 (accessed 12 November 2024).
[3] Decree of the President of the Russian Federation of April 19, 2017 No. 176 "On the Strategy for Environmental Security of the Russian Federation until 2025". URL: http://pravo.gov.ru/proxy/ips/?docbody=&firstDoc=1&lastDoc=1&nd=102430636 (accessed 12 November 2024).
[4] Water Code of the Russian Federation of June 3, 2006 N 74-FZ. URL: http://pravo.gov.ru/proxy/ips/ (accessed 12 November 2024).
[5] Federal Law of 07.12.2011 N 416-FZ "On Water Supply and Disposal". http://pravo.gov. URL: ru/proxy/ips/?docbody=&nd=102152700 (accessed 12 November 2024).
[6] Federal Law No. 199 of December 29, 2005 "On the Transfer of Powers in the Sphere of Natural Resource Use and Environmental Protection to the Executive Authorities of the Constituent Entities of the Federation". URL: http://pravo.gov.ru/proxy/ips/?docbody=&vkart=card&link_id=0&nd=102104210&bpa=cd00000&bpas=cd00000&intelsearch=31.12.2005+%E3%EE%E4%E0+%B9+199-%D4%C7++&firstDoc=1 (accessed 12 November 2024).

the Arctic until 2020 and Beyond" [7] states that one of the key measures for implementing state policy in the field of environmental safety in the Arctic zone is the requirement that any industrial activity must provide for the elimination of accumulated environmental damage and the restoration of degraded ecosystems. However, these declared provisions are not being implemented by extractive companies, but the restoration of the damaged natural environment should become their urgent task, which needs to be under the strict control of environmental protection authorities. Summarizing this review, it should be noted that at the federal level, strategic environmental protection provisions are declaratively outlined in laws and can be referred to when developing regional documents; the only issue that remains is the desire and willingness to implement these provisions in practice.

Various federal legislative acts on the protection of water bodies have been adopted in relation to Lake Baikal and the Volga River. The paper [11], providing an overview of legislative documents on the protection of Lake Baikal, states that their basic principle is the balanced approach to socio-economic objectives and tasks related to the protection of the lake. As shown by the analysis of the regulatory legal acts of the Russian Federation [8] in the field of ensuring the preservation of the Volga, a legislative framework for the protection of the river has been created [12], and it is proposed to develop regulations on mechanisms for identifying and assessing accumulated damage to water bodies. The work notes that the Volga River restoration project was planned to reduce the volume of polluted wastewater discharged into the river by three times by the end of 2024. Approximately 128 billion rubles were allocated from the federal budget for the project's implementation.

At the regional level, the main strategic document for environmental protection is the "Concept of Environmental Safety of the Republic of Sakha (Yakutia)" [9], adopted in 2002. A review of this document reveals the following conceptual provisions relevant to the topic of this article:

- prioritizing the preservation of the biosphere over the direct use of its resources;
- identifying and minimizing environmental risks to the natural environment and public health;
- preventing the possibility of chemical pollution of the territory during the implementation of new industries and technologies.

As can be seen, the provisions of the concept are consistent with federal fundamental documents, reflect the entire range of possible actions to preserve the natural environment in the republic, and constitute the basic doctrine for ensuring the environmental safety of the Lena River.

[7] "The Fundamentals of the State Policy of the Russian Federation in the Arctic until 2020 and Beyond" were approved by the President of the Russian Federation on September 18, 2008 (Decree No. Pr-1969). URL: http://static.government.ru/media/files/A4qP6brLNJ175I40U0K46x4SsKRHGfUO.pdf (accessed 12 November 2024).

[8] "The Fundamentals of the State Policy of the Russian Federation in the Arctic until 2020 and Beyond" were approved by the President of the Russian Federation on September 18, 2008 (Decree No. Pr-1969). URL: http://static.government.ru/media/files/A4qP6brLNJ175I40U0K46x4SsKRHGfUO.pdf (accessed 12 November 2024).

[9] Resolution of the Government of the Republic of Sakha (Yakutia) dated December 26, 2002 No. 651 "Concept of Environmental Security of the Republic of Sakha (Yakutia)". URL: https://docs.cntd.ru/document/815000367 (accessed 12 November 2024).

The protection of the Lena River is governed by the Law of the Republic of Sakha (Yakutia) dated 25 December 2003 No. 103-3 No. 209-III "On Drinking Water and Drinking Water Supply" [10], according to which "the right of citizens to an uninterrupted supply of drinking water that meets hygienic standards is guaranteed". Planned environmental measures to preserve the natural environment of northern ecosystems in the republic until 2024 are outlined in the Decree of the Head of the Republic of Sakha (Yakutia) "On the Environmental Well-Being of the Republic of Sakha (Yakutia)" [11]. The Decree includes provisions on the creation of an ecologically safe environment in the territories of populated areas of the Republic of Sakha (Yakutia) "with the share of the population provided with good-quality drinking water reaching 55%, an increase in the share of processed solid municipal waste to 60%, and the share of recycled solid municipal waste in the total volume of solid municipal waste generated reaching 36%; construction and reconstruction of water intake and water treatment facilities to provide high-quality drinking water to more than 520,000 people, construction and reconstruction of wastewater treatment facilities in at least 15 settlements, development of environmentally friendly production facilities, and implementation of environmentally friendly technologies".

The Lena River is federal property and flows through two regions, so its management is regulated by the Water Code of the Russian Federation. This circumstance deprives the republic of the ability to legislatively intervene in its development. The parliaments of the Irkutsk Oblast and the Republic of Sakha (Yakutia) have raised the issue of including the Lena River basin in the national "Ecology" project aimed at preserving unique water bodies, but a positive decision has not yet been reached. These regions are raising the pressing issue of protecting the ecology of the Lena River, and it is hoped that the measures taken will receive support from the public and the population of the republic, which will allow progress to be made in resolving this issue. As mentioned earlier, the legal protection of the environment of Lake Baikal and the Volga River has a well-developed legislative framework.

The next important aspect of protecting the Lena River is the practical application and compliance of the established norms enshrined in legislation. Any construction project should conduct an environmental impact assessment. The results of the assessment and information on the planned economic activity should be publicly available. Any intervention in the unique natural environment of the Lena River basin should be strictly regulated and undergo comprehensive state and public review. It is also necessary to develop more rigid provisions specific to the Lena River on mechanisms for identifying and assessing cumulative damage.

Latypova V.Z. [13] proposes measures for the improvement of the Volga River. Some of these proposals are interesting and applicable to the Lena River, which leads to additional

[10] Law of the Republic of Sakha (Yakutia) dated 25.12.2003 No. 103-Z No. 209-III "On drinking water and drinking water supply". URL: https://docs.cntd.ru/document/802007458 (accessed 12 November 2024).
[11] Decree of the Head of the Republic of Sakha (Yakutia) dated September 27, 2018 No. 2 "On the environmental well-being of the Republic of Sakha (Yakutia). URL: https://docs.cntd.ru/document/802007458 (accessed 12 November 2024).

opportunities for improving its condition. The work raises the issue of creating a comprehensive system of state environmental control and monitoring along the entire length of the river in a single system “natural environment — source of pollution”, an inventory of pollution sources, a system of environmental standards for water quality, the introduction of automated wastewater control systems, the modernization of storm water treatment facilities, which are also relevant for the Lena River. The given examples of legislative support for the ecology of large water bodies can serve as a basis for the creation of similar legislation for the Lena River: both in content and quantity. First of all, it is necessary to ensure 100% availability of drinking water for settlements at risk of oil pollution in case of accidents on the ESPO oil pipeline crossing the Lena River, as well as to organize wastewater treatment in all settlements along the river. This task is quite ambitious and should be addressed in the near future, given the global importance of preserving the natural environment of the Lena River basin. Researching the ecology of the Lena River, developing a strategy for its preservation, and preparing specialized regulations on acceptable pollution levels and the limits of its economic use are the most important tasks for the republic’s scientific community. It is also worth noting the importance of active public participation in matters of environmental protection of the river.

In today’s world, human impact on natural ecosystems has become more widespread and diverse, negatively impacting living organisms on the planet. The growing arms race and existing stockpiles of nuclear and biological weapons pose a serious threat to life on Earth. Environmental issues may take a backseat in these times of global conflict, but humanity's survival is entirely dependent on the ecological state of planet Earth. A number of studies discuss the relationship between the development of human society and the environment in the context of the ideas of V.I. Vernadskiy [14; 15; 16, etc.]. In his opinion, humanity should fundamentally transform its way of life and shift to a noosphere — a sphere of rational life. Noospheric development implies human coexistence in harmony with natural processes and a careful attitude toward the environment with the aim of preserving its structural diversity. The current environmental crisis is viewed as the result of humanity’s spiritual and moral degradation. The main reason for this is the loss of moral compass and traditional systems of economic management, as well as the prevalence of a consumerist approach in shaping people’s lives.

The foundation of noospheric development should be a physically, morally, and mentally healthy person. Our ancestors treated nature with great respect, not destroying it without serious need, taking only what was necessary for life, and treating natural objects as living beings. In the culture of the Sakha people, there was a deep respect for celestial phenomena, as the state of nature directly influenced human life in the harsh conditions of the North. The negative impact of changes in natural phenomena is vividly reflected in the epic work “Kudangsa the Great” by the writer Platon Alekseevich Oyunskiy, in which the main character decides to split the star Cholbon — the cause of the severe cold — for the prosperity of his people. A shaman, however, warns him of the cruel retaliation of natural forces. Even if the intentions seem noble, large-scale man-made

changes to the environment can lead to unforeseen consequences, even threatening the survival of humanity. The essence of the work is to warn people about this. Numerous examples confirm the Earth's response to large-scale changes, including the COVID-19 pandemic, which has affected all of humanity and resulted in numerous casualties. It is necessary to accept the idea that human existence is possible only with the adoption of a noospheric model of development, ensuring a balanced interaction between humans, the technosphere, and the biosphere. A striking example of progress in this direction is the Altai Republic, where the President of the Russian Federation approved the country's first project, "Altai — Territory of Noospheric Development" [16]. Similar projects, based on the idea of peaceful coexistence of peoples, with an emphasis on preserving the biosphere through rational use of its resources, could also be developed for the Lena River basin.

Conclusion

The analysis of the current ecological state of the Lena River basin reveals a lack of a systematic approach to solving its environmental problems. The primary measure for preserving the ecology of the Lena River basin should be its legal protection, which should be based on the key provisions discussed above that are relevant for the Lena River:

- the framework for the legislative protection of the Lena River, given its global significance and in the interests of future generations, should be based on the strategic provisions of federal laws on environmental protection, such as: "the joint jurisdiction of the Russian Federation and the constituent entities of the Russian Federation shall include issues of ownership, use, and disposal of land, subsoil, water, and other natural resources", "prioritizing the preservation of the biosphere over the direct use of its resources", "high quality of life and health of the population can only be ensured by preserving natural systems" [12], "the transfer of powers in the sphere of natural resource use and environmental protection to the executive authorities of the constituent entities of the Federation", "the participation of civil society, local government bodies, and business community in the preparation, discussion, adoption, and implementation of decisions on environmental protection and sustainable natural resource management" [13], "identifying and minimizing environmental risks to the natural environment and public health";
- the principle of balancing solutions to socio-economic and environmental protection challenges in the Lena River basin should be based on conducting a comprehensive state and public environmental assessment of the impact on the social and natural environment for all industrial and economic activity projects;

[12] Order of the Government of the Russian Federation of August 31, 2002 No. 1225-r "On Approval of the Environmental Doctrine of the Russian Federation". URL: https://ivo.garant.ru/#/document/2158906 (accessed 12 November 2024).
[13] Ibid.

- indicators and their permissible values of anthropogenic impact on the Lena River ecosystem, as well as provisions on mechanisms for identifying and assessing accumulated damage, should be developed and defined, which will allow for establishing justified requirements for the activities of economic entities and monitoring their implementation;
- any industrial activity should include the elimination of accumulated environmental damage and the restoration of degraded ecosystems; access for environmental authorities to their operating territories for environmental control should be ensured;
- "creating a comprehensive system of state environmental control and monitoring along the entire river within a single system "natural environment — source of pollution", determining pollution sources, establishing a system of water quality environmental standards, implementing automated wastewater control systems, and modernizing storm water treatment facilities" [13].

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