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**RESEARCH ARTICLE**

## Experience and Enlightenment of Russian Water Right System

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### ABSTRACT

This article provides a comprehensive overview of Russia's water resources, their development and utilization status, as well as the water rights system and related laws and regulations. It begins by detailing the abundant rivers, lakes, and groundwater resources in Russia. The analysis highlights that Russia has a high proportion of industrial water use, advanced water recycling technology, and significant water storage capacity in numerous reservoirs. The article also delves into the main contents of the Russian Federation Water Law, covering ownership and usage rights of water resources, and the legal responsibilities for water protection and management. Finally, it summarizes the experiences and insights from Russia's water rights system, emphasizing the importance of integrated basin management, clear water rights ownership, and the establishment of a comprehensive legal framework.

### KEYWORDS

Russia water resources, water rights system, water resource development and utilization, environmental protection.

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### 1. Introduction

The Russian Federation is the country with the largest territory in the world, with a population of 146 million. In 2021, Russia's GDP was 1.84 trillion US dollars, and its per capita GDP was 12,532.05 US dollars, ranking 79th in the world. In the later period, its economic growth was slow due to macroeconomic and sanctions. At present, there are about 2.5 million rivers in Russia, of which 120,000 are over 10km in length and 2.3 million km in total length, and the total river flow accounts for 10% of the total river flow in the world. The main water systems in Russia are shown in Fig1:

Firstly, the Yenisei River system, located in Siberia, flows into the Kara Sea from south to north, with a total length of about 3487km and a drainage area of 2.58 million km; Secondly, the Lina River in eastern Siberia flows into the Laptev Sea from south to north, with a total length of about 4400km and a drainage area of 2.49 million km. The third is the Ob River in western Siberia, which flows into the Kara Sea from south to north, with a total length of about 5410km and a drainage area of 2.99 million km; Fourthly, the Volga River in the European part of Russia flows into the Caspian Sea from north to south, with a length of about 3530km and a drainage area of 1.36 million km. The Volga River is the longest and most magnificent river in Russia. It originated in Tver region, and there are many tributaries on the way. The largest high-water river has not entered the world ocean, so it can only flow into the Caspian Sea. Fifthly, the Amur River in the Far East flows into the Sea of Okhotsk from west to east, with a total length of about 2824km and a drainage area of 1.85 million km.



Fig1. Russia Map with Rivers and Lakes

Source : <https://www.freeworldmaps.net/russia/rivers.html>

There are more than 2 million lakes in Russia, and Lake Baikal is the oldest and deepest lake on earth. There are abundant groundwater resources, with 1777 groundwater sediments. The Arctic glacier covers an area of 55,500 km, and there are about 2,000 glaciers in Caucasus Mountains and 1,500 glaciers in Altai. The famous bogdanovich glacier in kamchatka peninsula is the largest glacier in Russia, with a total area of 37.8km<sup>2</sup>. Another important water resource is soil water, which mainly comes from precipitation. The total soil moisture in Russia is about 350 billion km per year, and the soil filled with necessary moisture ensures a high crop yield.

According to Article 6 of Chapter 1 of the Water Law of the Russian Federation, water fund should be understood as the sum of water bodies in the Russian Federation, and water bodies are natural or artificial waters, waterways or other objects, and the concentration of water with permanent or temporary water forms or characteristics. The legal system of water bodies is regulated by water legislation. According to the nature, geography, hydrological system and other characteristics, water bodies can be divided into several types: (1) Surface water bodies, which are composed of surface water and land (bottom and coast) covered by it, and are surface waterways (rivers, streams and canals), surface water bodies (lakes, reservoirs, swamps and ponds) and glaciers and snowfields (natural and continuous accumulation of ice and snow) Internal seawater (ocean, bay, strait, etc.); (3) Russian territorial waters; (4) Groundwater bodies (groundwater basins, aquifers, groundwater sediments and natural groundwater outlets). The sum of all listed water bodies in Russia, including or to be included in the Water Book, constitutes the Russian water fund.

## **2. Russia's Water Resources and Utilization**

Russia ranks second in the world in terms of water resources with numerous rivers and lakes, second only to Brazil. Russia is also a big country in the development and utilization of water resources, with a per capita water possession of 30,600 cubic meters. Russia's total annual water consumption is about 267.3 billion cubic meters, with a per capita water consumption of 1,800 cubic meters, of which the urban per capita daily water consumption is 367 liters, and 81.6% comes from the centralized water supply system. The distribution map of Russian water consumption shows that the industrial water consumption in Russia is very large, accounting for 84.2% of the total water consumption in Russia. To this end, Russian industrial water uses recycling water and reuse water technology widely. Annual circulating water and repeated water consumption account for 75% of the total industrial water consumption, which is 168.5 billion cubic meters. The water consumption of agriculture and fishery in Russia is 30.5 billion cubic meters, accounting for 11.4% of the total water consumption; The urban water consumption is relatively small, accounting for only 4.4% of the total water consumption, which is 11.7 billion cubic meters. The construction of reservoirs and water conservancy projects in Russia is very developed: 100 large reservoirs with a storage capacity of over 100 million cubic meters nationwide have a total storage capacity of 773.8 billion cubic meters, of which the effective storage capacity is 338.6 billion cubic meters. Several of the largest reservoirs that have been built and are under construction are Bratsk Reservoir, Krasnoyarsk Reservoir, Jieya Reservoir, Huste Ilim Reservoir, Bo Gu Chang Reservoir and Sayan Shushensk Reservoir. Large-scale inter-basin water transfer projects have been completed, including 34 water transfer lines with a total length of 3,000 kilometers, and the annual water transfer capacity is more than 15 billion cubic meters.

It can be seen that Russia has a solid foundation of water resources, and as a big country in water resources development and utilization, annual circulating water and repeated water consumption account for a large proportion of the total industrial water consumption. In addition, the development of reservoirs and water conservancy projects is also his advantage. The economic base determines the superstructure, and a good basic environment can promote the perfection of the legal document "Water Code of Russian Federation" on water resources protection.

### **3. Russian Laws, Regulations and Related Policies on Water Resources Protection**

The Water Law of the Russian Federation stipulates that all water bodies in the Federation, including single water bodies (reservoirs), are owned by the state, except those owned by local authorities, individuals or legal entities; Local authorities only use it for municipal independent water bodies, and individuals and legal entities can own independent water bodies without hydraulic connection with other surface water bodies. The code also mentions labor, administrative, criminal and civil laws and regulations, and stipulates appropriate responsibilities for violating water laws. At the same time, it is stipulated that the contents of water legislation related to laws and regulations such as land, forests, mountains and rivers, atmosphere and animal and plant protection should be consistent with the whole water legislation system.

These regulations are very important to ensure the integrity of the water law, including the protection of water bodies, the use of water bodies and legal responsibilities, and determine their specific content and scope of application. The Water Code of the Russian Federation regulates legal acts based on the following principles:

(1) The importance of water as the foundation of life and human activities, and the regulation of water relationship is based on the idea that water is the main component of the environment, the habitat of animal and plant species; (2) Give priority to protecting water bodies before use, and the use of water bodies should not have a negative impact on the environment; (3) To protect specially protected water bodies, and the use of these water bodies is restricted or prohibited by federal laws; (4) the intended use of the water body, which can be used for one or more purposes; (5) The use of drinking water and domestic water supply has priority over other water bodies, and they are only allowed to be used for other purposes if there are enough water resources; (6) Citizens and social organizations participate in solving problems related to water rights and their obligation to protect water bodies; (7) Equal opportunities for individuals and legal entities to obtain the right to use water bodies, except under the circumstances stipulated in the Water Law; (8) Individuals and legal entities are equal.

Obtain the ownership of water bodies that may be owned by individuals or legal entities according to this Code; (9) Adjustment of water resources relations within the boundaries of river basins (basin method); (10) Adjust the relationship between water bodies according to the particularity of water body system, physical geography, shape and other characteristics of water bodies; (11) Adjust the relationship of water resources according to the relationship between water bodies and water conservancy structures that constitute the water management system; (12) the transparency of water use, the decision on providing water use and water use agreement must be provided to anyone, except the information whose access is restricted by the legislation of the Russian Federation; (13) Comprehensive utilization of water, which can be carried out by one or more water users; (14) Payment for the use of water bodies is charged, except in cases stipulated by the legislation of the Russian Federation; (15) Economic incentives to protect water bodies, when determining the cost of using water bodies, take into account the cost of water users' measures to protect water bodies; (16) In the northern part of the Russian Federation, Siberia and the Far East, the traditional residences of indigenous minorities use water bodies and implement traditional natural management.

On April 20, 2020, the government revised the Water Code of the Russian Federation again, updated the power of the federal administrative authorities to exercise state supervision in the use and protection of water bodies, adopted normative legal acts on the transfer of power, including administrative regulations on the provision of public services, and published mandatory guidelines and guidance materials on the implementation of the transfer of power by the main administrative authorities of the Russian Federation. In a word, the amendment makes the Water Code of the Russian Federation more perfect.

### **4. Experience and Enlightenment of Russian Legal System of Water Resources Management**

Russia's experience in water rights and water management is worth learning: First, the Water Law of the Russian Federation has made detailed and clear provisions on water rights, including the ownership, use right and classification of water bodies, the conditions for acquisition, transfer and termination of water body use rights, and the implementation and protection of water body use rights. Its water right system is worth learning. Secondly, finding out the family background of water resources is the basis for establishing the water right system and managing water resources. In this regard, the Russian Water Book project has its own characteristics and is worth learning. Thirdly, water management should be integrated in river basins. Many rivers in many countries span many provinces and regions, and it will be more effective to manage water resources by integrating the whole basin as a whole.

## 5. Conclusion

To sum up, a series of policies and regulations formulated by the Russian government aimed at protecting, developing and utilizing water resources are based on the purpose of protecting the ecological environment and rationally utilizing water resources. Emphasize the relationship between ecological interests and economic interests, and pay attention to the living environment and conditions of human beings. It is stipulated that the protection of human survival and health should be given priority in the development and utilization of water resources. Ensure the safety of drinking water and domestic water, and prevent water pollution. Any personal losses caused by some violation of the above laws and regulations should be compensated. At the same time, local governments at all levels in Russia are also based on different uses of water resources and different stages of various economic activities. Corresponding legal requirements have been formulated for the development, utilization and protection of water resources to ensure the rational development and effective utilization of water resources.

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