

Thoughts on China's Water Resources Management System in the New Era

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Abstract

Water is an indispensable resource for the production and life of human society. The quality of water resources is suitable and the distribution of time and space is even. It will make great contributions to regional economic development, the virtuous cycle of the natural environment, and the progress of human society. Although my country has formulated many related laws on water resources management, these laws are not very complete in terms of specific water resources management content, and they lack a comprehensive and complete water resources management legal system and governance system. The research of water resources management system should analyze from multiple angles and conduct unified management of water resources in order to realize the optimization of water resources management mode. Based on the current situation and existing problems of my country's water resources system and mechanism under the background of the new era, this article proposes to establish a water resources management system based on river basins and regional management based on advanced foreign experience, aiming to deepen people's understanding of the current status of China's water resources management system. And provide a reference for the adjustment and innovation of my country's water resources management model.

Keywords

Water resources; Water resources management; Management system; Water governance model.

1. Introduction

As we all know, water is an indispensable resource for the production and life of human society. The quality of water resources is suitable and the distribution of time and space is even. It will make great contributions to regional economic development, the virtuous cycle of the natural environment, and the progress of human society. Improper development and utilization of water resources can restrict the development of the national economy and destroy the living environment of mankind. Such as improper design and poor management of water conservancy projects can cause dam collapse accidents and also cause secondary soil salinization. Seasons

and regions with too much or too little water often produce various natural disasters. Excessive water volume can easily cause flooding and waterlogging. Since the beginning of summer this year, a total of 433 rivers across the country have experienced over-alarm floods. The Yangtze River, the upper Yellow River, the Xijiang River, Beijiang River, and Taihu Lake in the Pearl River Basin all have the No. 1 flood this year. Flood prevention situation It is grim. At present, 38.73 million people have been affected by disasters nationwide, and 141 people have been killed or missing. Too little water is prone to natural disasters such as drought and salinization. In 2015, Dingxi City, Gansu Province, due to drought, reduced potato production, 2009-2013, severe droughts in Yunnan and Sichuan, the Yellow River dried up, and northern droughts, which made the whole society sober. Realize that the water crisis is not far away from us. Appropriate exploitation of groundwater can provide water sources for various sectors of the national economy and residents' lives to meet the needs of production and life. Uncontrolled and unreasonable extraction of groundwater often causes continuous decline in water level, deterioration of water quality, reduction in water volume, and land subsidence, which not only affects production Development and seriously threaten the survival of mankind. It is precisely because of the dual nature of the benefits of water resources that reasonable use and orderly development are particularly emphasized in the development and utilization of water resources in order to achieve the purpose of benefiting and eliminating harms.

In May 2017, General Secretary Xi Jinping pointed out when presiding over the 41st collective learning activity of the Political Bureau of the CPC Central Committee, "Promote green development, build ecological civilization, and focus on the establishment of rules and regulations". "Next, it is necessary to optimize and improve the water resources ecological environment management system and mechanism of the river basin, and build a large water ecological environment protection pattern of "unified coordination, clear rights and responsibilities, and diverse means". Although the country has also issued relevant policies and has done a lot of work, there are still frequent water resources issues. This article uses the water resources management system as a starting point to discuss China's water resources issues.

2. Problems Existing in Water Resources Management System in the New Era Text

2.1. The Relevant Legal System Is Imperfect

In terms of water resources management, although my country has formulated many related laws, such as the "Water Law", "Water Pollution Protection Law" and other basic laws and regulations, these laws are not very complete in terms of specific water resources management content, and they lack comprehensive improvement. The legal system of water resources management. There are many aspects in the water resources management system that need to be managed, and the imperfect legal system also makes it impossible to rely on laws and regulations when conducting water resources management. This situation hinders the development and improvement of the water resources management system. Although some systems formulated by the water resources management system are relatively complete and comprehensive on the whole, they are less effective in their application due to insufficient details.

2.2. Lack of People's Participation in Water Resources Management

At present, my country lacks a decision-making mechanism to negotiate with the public and enterprises in the water resources management system. Most of the water resources management system is self-management of water resources by this mechanism. This situation makes the water resources management mechanism relatively inefficient in water resources management. , It is not conducive to the implementation of the water resources management

system, and its impact on the effective management of water resources is also great. This is mainly because the people who use water resources are the most people, and the people's water use representatives participate in the water resources management mechanism and can to a certain extent, improving the efficiency of water resources management can also reduce water resource disputes. The establishment of a consultation mechanism for public supervision and participation can not only enhance the feasibility of water resources management, but also increase the effective utilization rate of water resources, and also reduce the pollution of water resources.

2.3. Lack of Awareness of Water Resources Management Departments

Under the background of the new era, the water resources management system has undergone major changes in the management system and institutional arrangements, which has gradually increased the institutional requirements of the water resources management system. A sound and reasonable water resources system, the coordination mechanism between the administrative department and the department in charge, and the market mechanism of ecological and environmental protection play a very important role in the rational development and utilization of water resources. At the same time, the establishment and capacity building of environmental protection agencies should be strengthened. It has a greater impact on the effective protection of water resources. Water resources management departments play a huge role in building a sound water resources management system. Only by increasing their attention can the water resources management system be effectively improved and developed. Therefore, water resources management departments must strengthen their awareness of water hazards.

2.4. The Watershed Aquatic Environment Is Not Optimistic

2.4.1 The Water Quality of the Basin Still Needs to Be Improved

According to the survey data of the Ministry of Ecology and Environment of the People's Republic of China, the proportion of water quality of Grade I to III in the Yangtze River Basin in 2018 accounted for 87.5%, an increase of 3 percentage points from 2017; water quality inferior to Grade V accounted for 1.8%, which was a decrease from 2017 by 0.4 percentage point. Taking the Hubei section of the Yangtze River as an example, the water quality of the main canal of the Four Lakes, Tongshun River, Fuhe, and Zhupi River, a tributary of the Yangtze River, has been rated as Grade V or worse than Grade V for many years. According to the water quality assessment of boundary sections, the water quality of some heavily polluted rivers is showing an improvement trend, but in general, the pollution of these river basins has not been fundamentally resolved, the water quality is still poor, and transboundary disputes are still prominent [1].

2.4.2 More Safety Hazards for Drinking Water Sources

The installation of various water intake and drainage outlets in different river basin economic zones is intricate, which has an impact on the environmental safety of drinking water sources. In addition, the construction of standby water sources is relatively lagging. For the designated standby water sources, a large part of them are not equipped with water intake and water supply related facilities. Once the original water intake is polluted or a safety risk event occurs, it will cause extreme damage to the urban water supply. Big impact. Ditches and ponds in rural areas are generally polluted by agricultural wastes, livestock, and garbage, and there are still some farmers who drink brackish water with excessive mineralization for a long time, causing physical impairments.

2.4.3 Serious Damage to the Water Ecosystem

The industrial parks along the river basins are densely distributed, and the main pollutant companies are concentrated in chemical raw materials and chemical products manufacturing,

paper and paper products, ferrous metal smelting and rolling processing industries. For example, more than half of the industrial parks along the mainstream of the Yangtze River and the Han River are dominated by chemical industry, forming a situation of "chemical industry surrounding the river" [2]. The unreasonable industrial layout makes the water resources of the river basin hide a greater environmental risk in the process of economic development.

2.4.4 The Weakening of Water Ecological Self-repair Function

Agricultural non-point source pollution is an important reason for the total phosphorus, the primary pollutant in the entire Yangtze River Basin, to exceed the standard. For example, a large amount of livestock and poultry manure, sewage and garbage are directly discharged into the water body without effective treatment, and the large-scale use of pesticides and fertilizers has formed a large area of agricultural non-point source pollution. "China Statistical Yearbook" data shows that in 2017, the total amount of fertilizer application in 9 provinces and 2 cities in the Yangtze River Basin Economic Belt was 20,772,600 tons, an increase of 16.96% from 2000 [3]. Second, in recent years, urbanization has developed rapidly, but the related network management and supporting facilities have not been matched in time, making the problem of rain and sewage confluence more prominent. Many urban sewage flows into the Yangtze River from its tributaries, seriously affecting the self-repair function of the Yangtze River's water bodies.

3. Comprehensive Management Experience of Foreign River Basins

Due to historical and political conditions, various countries have different water management systems. For example, the water resources management system in the United States can be roughly divided into three levels: federal, state, and local government agencies, with states as the main body; the United Kingdom does not have a national-level government agency specializing in water resources management, and more emphasis on water privatization; Canada It mainly includes federal and provincial institutions; Germany is divided into three levels: federal, local, and group. The group level is a large number of private water user associations; France is based on river basins, and the river basin committee is composed of government officials, elected representatives and users. [4]. The development trend of water resources management in most countries is to combine centralized management with decentralized management. Its management model is under the leadership of regional administrative agencies to strengthen water activities in improving water efficiency and saving water. These activities can be Coordinated by a water agency with decision-making functions within the country. The polycentric governance theory proposed by Eleanor Ostrom and others to solve the problem of public pond resources is the most famous, and she won the Nobel Prize in Economics for this reason. The classic multi-center governance cases of water resources management include Zangela irrigation in the Philippines, Turokuro irrigation in Nepal, and Huerta irrigation in Valencia, Spain. In these cases, the common feature is the comprehensive and sustainable development based on the autonomous governance capabilities of local communities and the multi-center and multi-level governance system framework, which adapts to the laws of nature to the greatest extent and makes full use of The ecological environment's own system functions can realize the maximization of the economic, social and environmental welfare of the river basin and the long-term sustainable development of the river basin. my country can learn from the advanced experience of foreign development in the environmental protection and utilization of water resources [4], including the following aspects:

3.1. Legislation and Establishment of Effective River Basin Management Institutions

Legislation can determine the goals and principles of river basin management, the authority of the management organization, and the management and operation mechanism of the river

basin organization. Many advanced countries abroad have formulated special laws and regulations, and set the integrated management of river basins as the basic mode of water resources environmental protection. The establishment of an effective river basin management organization is the institutional guarantee for the implementation of river basin management. With the continuous changes in the status quo of water resources protection, the functions of the river basin management organization should be constantly adjusted. In dealing with cross-border river issues, it should be through Negotiate the establishment of a special international joint committee.

3.2. River Basin Water Resources Planning and Improvement of Investment and Financing Mechanisms

River basin water resources planning is a guiding principle for tributary and local water resources management. Its objectives and indicators have legal effect. The core of the EU's water resources management activities is to compile comprehensive river basin management plans. Australia has introduced the federal government's economic subsidies into water resources management, and has obtained great benefits, which has further promoted the development of integrated river basin management.

3.3. Improve Watershed Monitoring and the Application of Modern Information Technology

Watershed management requires fast and effective information and technology as the foundation. Therefore, the watershed monitoring network and the application of modern information technology should be improved to provide basis and support for making correct and scientific decisions. Strengthen publicity and education. Government agencies should set up a department in charge of publicity, involve all relevant stakeholders in management activities, and be responsible for raising public awareness of water resources protection and rational use of water resources, and forming information among all stakeholders The situation of intercommunication and transparent decision-making promotes the smooth completion of management work.

4. Measures Conducive to the Development of Water Resources Management System under the Background of the New Era

Chinese scholars have conducted in-depth studies from multiple angles on the reform of water resources management system, especially the management of large-scale irrigation districts, and put forward corresponding countermeasures and suggestions. There are three main approaches: the first is the market-oriented approach, which believes that water resources and other economic resources are incompatible with other economic resources. There is no fundamental difference. You can use market forces or introduce a large number of market tools to configure, strengthen the concept that water is a commodity, reform the traditional water fee calculation method [5], advocate the nature of the water management unit, and change from the business type to the enterprise type. Transform, adjust and standardize the relationship between management, maintenance, operation and development of water management units [6]. The second is the administrative orientation. At this stage, water resources are still mainly allocated by unified management and administrative means. The water administrative distribution system should be further improved to gradually eliminate the current "reasonable but illegal" de facto water rights transactions. Phenomenon[7]. The third is the limited market orientation, claiming that due to the particularity of water resources and the actual national conditions during the transition period, the water market can only play a limited role. It is a quasi-market or an incomplete market and adopts a water option design based on functional division[8]. In addition, some scholars have established a cross-border river water allocation

negotiation model under the centralized allocation model in view of the regional differences in water stress across the country [9], but these countermeasures and suggestions often have obvious characteristics such as a single problem orientation or a government function orientation, except Individuals proposed water cooperation management from the perspective of international relations [10], but most of them ignored the overall coordinated governance.

4.1. Improve the Water Resources Management System and Form An Integrated Management Mechanism for Departmental Coordination

The laws and regulations of water resources management are currently the most effective measures to speed up the improvement of the water resources management system, and they play a great role in the rational application and strict management of water resources. In response to this, the relevant departments need to analyze the water resources management system of the department to improve the existing shortcomings, and refer to the laws and regulations formulated by the country to improve the water resources management system so that it can Speed up the improvement of water resources management system. When improving relevant water resources management systems, it is necessary to clarify the responsibilities of each management department in order to implement laws and regulations in actual water resources management. To establish a multi-centered governance concept, whether it is a single-centered system with the government as the core, or a separate municipal mechanism and a separate autonomous governance space, all have their shortcomings and shortcomings. Therefore, a model of equal governance by multiple subjects must be formed. , Highlight public service responsibilities. From engineering construction as the center to system construction as the center. After the founding of the People's Republic of China, China's water governance model was centered on engineering construction. Under the engineering construction model, there was a clear tendency to attach importance to engineering construction, underestimate engineering management, and neglect resource management. As a result, over-investment in hardware was widespread across the country. Such phenomena have caused serious "government absence" in water resources management. With the global emphasis on saving water resources, preventing pollution, and sustaining the sustainable use of water resources to support the sustainable development of the economy and society today, it has become more urgent to shift from focusing on engineering construction to focusing on system construction. The core of system construction is to improve the distribution system of water resources and achieve institutionalization in the field of water resources management.

4.2. The Establishment of Effective People's Supervision Mechanism and Autonomous Governance Mechanism

In order to make a better construction of water resources management system, water resources management departments should establish effective people's supervision mechanism and independent governance mechanism, so that the people can participate in water resources management. In the process of building the water resources management system and in the management of water resources, the masses have certain supervision and autonomy rights. This is because some water resources management laws stipulate that the masses can supervise the management of water resources. In this regard, water resources management system departments need to increase the establishment of people's supervision mechanisms and autonomous governance mechanisms, and allow water representatives to participate in the decision-making of water resources management in order to improve the decision-making accuracy of the water resources management system. The Farmer Water Association is a very good one. example.

4.3. Market Supervision: Perfecting An Incomplete Market-style Water Market

After the public sector transferred the right to operate and manage irrigation facilities to the private sector, the government reduced the burden of operation and maintenance and reduced financial risks, and its function was shifted to oversight. On the contrary, although the private enterprise obtained the right to operate and manage irrigation facilities, increased the risk of its own economic benefits [11]. The current market model of water resources should be a limited market. The plan is a reform idea that combines problem control and quota management. It advocates the establishment of two sets of indicators for total and quota, and the implementation of the two sets of indicators at the same time, so that the total and quota will be implemented. Double control, implement water rights to every water use unit .

4.4. Improve the Management Awareness of Water Resources Management Departments

To build and improve the water resources management system, so that it can adapt to the requirements of the development of the new era, the most important measure is to strengthen the management awareness of water resources management departments. The water resources management department is the builder of the water resources management system and the executor of key water resources decision-making. Improving its awareness of water resources management is the key to improving water resources management. Therefore, relevant management departments must The working members under the management system will be trained intensively to improve their water resources management awareness while strengthening their management level, so that the water resources management system can be better improved and developed.

5. Conclusion

At present, there are many deep-seated problems and contradictions in China's water resources management system. The main manifestations are: who governs and governs the subject is not clear, the market demand for water use and water management, the planned economic system, and the management of river basins and administrative regions. Coordination, etc. This requires adjustment of policies, strengthening of system construction, and effective response to water crises. The fundamental solution lies in the effective governance of water resources. Under the current background, new and better water resources management systems must be sought.

Build a water resources management system suitable for my country's national conditions: to achieve policy coordination on the basis of multi-sectoral coordination and cooperation; to achieve equal and multi-subject common governance at different levels of governance entities; to give full play to the autonomous governance role of the people and coordinate well The relationship between major departments and the distribution of benefits; the introduction of market entities and the public in the supervision process to achieve effective supervision of water resources management. The establishment of an effective water resources management system requires not only a rational analysis of its existing problems, but also corresponding solutions to these problems in order to build a reasonable and complete water resources management system. Building a sound water resources management system under the background of the new era will not only help to effectively protect water resources, but also ensure that water resources are guaranteed by the system, which is conducive to the development and improvement of the water resources system to a large extent.

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