



Research on the Reform of Public Welfare Water Conservancy Project Management System in Western China

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Abstract. This study focuses on the current situation and reform path of the management system for public welfare hydraulic projects in western China. It analyzes the mismatch between the characteristics of western water resources and the existing management system, revealing the urgency and potential impact of reform. Based on relevant theoretical frameworks for management system reform and combined with successful cases from both domestic and international perspectives, the study proposes reform requirements suitable for water conservancy in the western region. It examines the limitations of the current policy environment and legal regulations, providing legal support strategies for optimizing the management system. Ultimately, a scientific reform plan is constructed, clearly defining objectives and principles, exploring specific reform models and paths, and evaluating potential risks and proposing corresponding response strategies. The results of this study will help guide the effective reform of the water conservancy management system in western China and achieve sustainable utilization of water resources.

Keywords: Water resources engineering management, Institutional reform, Public welfare projects, Policy environment, Legal support, Risk assessment.

1 Introduction

Water conservancy projects have important public welfare and strategic significance in the western region of China, playing an important role in improving the production and living conditions of the people and ensuring ecological environment security. However, due to some problems in the management system of public welfare water conservancy projects, the efficiency of resource utilization is not high, the operational management effect is poor, and the ability to meet the sustainable development needs of the western region is limited. Therefore, conducting reform research on the management system of public welfare water conservancy projects has important practical and far-reaching historical significance. Therefore, it is necessary to systematically study the reform path and measures of the management system of public welfare water conservancy projects in the western region of China, in order to improve the management level of public

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welfare water conservancy projects, enhance the efficiency of water resource utilization in the western region, and make specific and feasible suggestions and measures to strengthen ecological environment protection.^[1-3]

2 Current Situation of Water Conservancy Engineering Management

2.1 Overview of Water Resources in Western China

The western region of China is a region with relatively scarce water resources, and most areas are in a state of drought and water scarcity. The distribution of water resources in the western region is uneven, with the majority of water resources distributed in the Qinghai Tibet Plateau and southwestern regions, while areas with concentrated populations face water scarcity. In addition, the hydrogeological conditions in the western region are complex, mostly in arid and semi-arid areas, and the utilization of water resources faces significant challenges. At the same time, the development and utilization of water resources in the western region is not high, and the scale of water conservancy infrastructure is relatively small. Basic water needs such as irrigation and water supply cannot be met. In addition, frequent floods and droughts in the western region pose a serious threat to local agricultural production and people's lives.^[4]

2.2 Analysis of the Current Water Management System

There are some problems with the current water management system in the western region of China. Firstly, due to uneven regional development and relatively backward economic levels, the construction and management of public water conservancy projects lack financial support and human resource investment. Secondly, there are situations in the existing management system where responsibilities and authority boundaries are unclear, resulting in low efficiency in the management and operation of water conservancy projects. Furthermore, insufficient consideration of environmental protection and ecological balance in the management system has resulted in some water conservancy projects having a certain degree of impact on the local ecological environment. Therefore, it is necessary to conduct in-depth research and reform on the current water conservancy management system to adapt to the actual needs of water conservancy engineering construction and management in the western region of China.^[5]

2.3 Characteristics of Public Welfare Water Conservancy Projects

Public welfare water conservancy projects refer to water conservancy projects constructed for the public interest, and their characteristics are mainly reflected in the following aspects:

Firstly, public welfare water conservancy projects have a wide range of service targets. These projects can not only provide irrigation water sources for agricultural production, but also provide domestic water for urban and rural residents. At the same

time, they can also be used for various purposes such as flood control, drought resistance, and power supply, so their service targets are very wide.

Secondly, public welfare water conservancy projects have long-term stable benefits. Due to its wide range of service targets, once completed and put into use, it can provide various water resource guarantees for society in a long-term and stable manner, and exert sustained economic and social benefits.

Once again, public welfare water conservancy projects have significant social benefits. The construction and operation of these projects can effectively improve rural production and living conditions, increase agricultural output and farmers' living standards, reduce disaster risks, promote regional economic development and social stability.

Finally, public welfare water conservancy projects have both public welfare and public attributes. They are often built with government funding and managed and operated by the government. During their construction and operation, they often involve multiple stakeholders and have the attributes of public management.^[6]

3 Reform Needs and Theoretical Foundations

3.1 The Necessity of Reform

The necessity of reform is mainly reflected in a profound understanding of the problems and deficiencies in the management system of public welfare water conservancy projects in the western region. Firstly, under the current management system, there are problems such as unclear government functions, unclear responsibilities, and inadequate management systems, resulting in low efficiency and quality assurance in the operation and management of water conservancy engineering construction. Secondly, due to the rigidity and bureaucratization of the management system, water conservancy engineering projects as a whole lack flexibility and innovation, making it difficult to effectively respond to complex and ever-changing local situations and meet the needs of economic and social development. In addition, the current management system lacks effective supervision and constraint mechanisms, resulting in unreasonable resource allocation, inadequate cost control, and inadequate risk management, seriously wasting social resources and financial investment. Therefore, it is necessary to reform the management system of public welfare water conservancy projects in the western region to meet the needs of current economic and social development, improve management efficiency and engineering quality, promote rational resource allocation and sustainable environmental development.^[7]

3.2 Theory of Management System Reform

The theory of management system reform refers to a theoretical system guided by theory to reform and innovate the management system in practical problems and practices. The theory of management system reform includes public management theory, organizational theory, decision-making theory, game theory, administrative theory, etc. In the actual process of management system reform, it is necessary to comprehensively apply these theories, conduct in-depth analysis and research on the management

system, in order to find reform plans that are suitable for the local actual situation. In the reform of the management system for public welfare water conservancy projects in the western region of China, it is necessary to apply the theory of management system reform, combine with the specific local situation, and formulate scientific and reasonable reform plans to improve the management efficiency and service level of public welfare water conservancy projects. [8]

3.3 Reference to Domestic and Foreign Reform Experience

The experience of domestic and foreign water conservancy project management system reform can provide useful reference for the western region of China. In China, some local governments establish professional institutions such as water conservancy bureaus to be responsible for the planning, design, construction, and management of water conservancy projects, making water conservancy project management more professional and standardized. At the same time, some developed countries abroad attach importance to international cooperation and exchange in water conservancy project management, introduce advanced technology and management concepts, and promote the improvement of the quality and efficiency of water conservancy projects. Therefore, the western region of China can learn from domestic and foreign experiences, establish specialized water conservancy management institutions, strengthen international cooperation, introduce advanced technology and management concepts, and promote the reform of water conservancy engineering management system. [9]

4 Policy Environment and Legal Support

4.1 Policy Environment Analysis

The policy environment has a significant impact on the reform of the management system for public welfare water conservancy projects in the western region. Firstly, in terms of policies, the country vigorously promotes the construction of water conservancy projects in the western region, providing policy support for the reform of public welfare water conservancy projects through the issuance of multiple policy documents and plans. Secondly, the government's emphasis on water resources and ecological environment protection in the western region has also provided policy guarantees for the reform of the management system of public welfare water conservancy projects. In addition, the country's poverty alleviation policies for poverty-stricken areas in the western region also involve water conservancy engineering construction, which provides policy impetus for reform. Therefore, the policy environment has a positive impact on the reform of the management system of public welfare water conservancy projects. [10]

4.2 Current Status and Defects of Laws and Regulations

According to current laws and regulations in China, there are some deficiencies in the management of public welfare water conservancy projects. Firstly, in terms of laws and

regulations, there are some articles with strong generalization and generalization, lacking specificity and operability, which can lead to interpretive and interpretive deviations in specific implementation. Secondly, the formulation and revision of some laws and regulations lack consideration for the special situation in the western region, which cannot well meet the needs of public welfare water conservancy project management in the western region. In addition, there are also shortcomings in the legal and regulatory arrangements for the relevant responsible parties and management institutions, lacking clear division of responsibilities and coordination mechanisms, which can easily lead to management confusion and shifting responsibilities. Therefore, in response to the shortcomings of these laws and regulations, it is necessary to strengthen the legislative work on the management of public welfare water conservancy projects in the western region, improve relevant laws and regulations, enhance their pertinence and operability, fully consider the special situation and needs of the western region, clarify the responsibilities and rights of relevant responsible parties and management institutions, and establish a sound management system.^[11]

4.3 Measures to Enhance Legal Support

In the reform of the management system for public welfare water conservancy projects in the western region of China, it is crucial to enhance legal support and countermeasures. Firstly, it is necessary to strengthen the formulation and improvement of relevant laws and regulations, such as revising the Water Law, Flood Control Law, etc., to meet the needs of water conservancy engineering construction in the western region. Secondly, it is necessary to strengthen the legal protection and management of water resources, strictly control the development and utilization of water resources, and protect the ecological environment. In addition, it is necessary to establish a sound legal evaluation and supervision system for water conservancy engineering construction projects, ensuring that project construction complies with legal regulations and environmental protection requirements. At the same time, it is necessary to strengthen the early warning and prevention of legal risks that may be involved in the construction process of water conservancy projects, formulate corresponding legal countermeasures and measures, and ensure the safety and stability of project construction. Finally, it is necessary to strengthen legal education and training for water conservancy project management personnel, improve their legal awareness and literacy, and ensure the legal and compliant management and operation of water conservancy projects.^[12]

5 Management System Reform Plan

5.1 Reform Objectives and Principles

The reform goals and principles refer to the reform goals and principles established in the process of reforming the management system of public welfare water conservancy projects. The main goals of reform include improving efficiency, optimizing resource allocation, enhancing management capabilities, and promoting scientific decision-making. On the basis of clarifying the reform objectives, the principles of reform should

include scientific decision-making, lawful management, fairness and justice, scientific planning, openness and transparency, etc. Therefore, a sound evaluation and assessment mechanism for reform should be established to ensure the achievement of reform goals and the implementation of principles. At the same time, communication and coordination with relevant departments should be strengthened to form a joint force for reform and maximize the benefits of public welfare water conservancy projects.

Targeting the goals of management system reform. Through deepening reforms, we strive to establish a preliminary water conservancy project management system and operating mechanism that meets the requirements of China's national conditions, water conditions, and socialist market economy within 3 to 5 years: establish a water conservancy project management system with clear functions and clear rights and responsibilities; Establish a scientific management and standardized operation mechanism for water management units; Establish a market-oriented, specialized, and socialized water conservancy engineering maintenance system; Establish a reasonable water pricing mechanism and an effective water fee collection method; Establish a standardized mechanism for fund investment, utilization, management, and supervision; Establish a relatively complete policy and legal support system.^[13]

Principles for management system reform. Properly handling the relationship between social and economic benefits of water conservancy projects. We need to ensure the full utilization of social benefits in water conservancy projects, as well as introduce market competition mechanisms to reduce the operating and management costs of water conservancy projects and improve management level and economic benefits. Properly handling the relationship between water conservancy engineering construction and management. We should not only attach importance to water conservancy engineering construction, but also to water conservancy engineering management. While increasing investment in engineering construction, we should also increase investment in engineering management to fundamentally solve the problem of "rebuilding light management". Properly handle the relationship between responsibility, power, and benefit. It is necessary to clarify the rights and responsibilities of relevant government departments and water management units, and to establish effective constraint and incentive mechanisms within the water management units, so that management responsibilities, work performance, and the immediate interests of employees are closely linked. Properly handling the relationship between reform, development, and stability. We should start from the actual situation of the water conservancy industry, boldly explore and innovate, while actively and prudently considering the bearing capacity of all aspects, grasping the timing and steps of reform, and ensuring the smooth progress of reform. Properly handle the relationship between short-term goals and long-term development. We must strive to achieve the short-term goals of water pipe system reform while ensuring that the new management system is conducive to the sustainable use of water resources and the coordinated development of the ecological environment.^[14]

5.2 Reform Model and Path

In the western region of China, there are various ways to reform the management system of public welfare water conservancy projects. Firstly, a sound water resource

monitoring and evaluation system can be established to provide scientific basis and data support for reform. Secondly, we can draw on the management experience of advanced regions and countries, combined with the actual situation in the western region, to explore management models suitable for the local area. In addition, cooperation between the government and various sectors of society can be strengthened to jointly participate in water conservancy project management decision-making and implementation, making the reform more sustainable and participatory. Finally, it is necessary to strengthen the monitoring and evaluation of the effectiveness of reform implementation, timely summarize experience, and continuously improve the reform path and model. The implementation of the above channels can provide strong support and guidance for the reform of the management system of public welfare water conservancy projects in the western region of China. [15]

5.3 Risk Assessment and Response Strategies

In the process of reforming the management system of public welfare water conservancy projects, it is necessary to evaluate potential risks and develop corresponding response strategies. Firstly, comprehensive risk identification and assessment are required, including policy risk, technical risk, market risk, natural disaster risk, and other risk factors. Secondly, corresponding response strategies should be formulated for different types of risks, such as establishing a sound policy and regulatory system, strengthening technological research and innovation, expanding market channels, and strengthening the disaster prevention and reduction capabilities of water conservancy projects. In addition, sound risk management and emergency plans should be established to ensure timely and effective response to various risks, ensuring the safe and stable operation of water conservancy projects. At the same time, attention should be paid to dynamic monitoring and evaluation of risks, timely adjustment of response strategies, and ensuring the smooth implementation of management system reform.

6 Conclusion

Through in-depth analysis of the reform of the management system for public welfare water conservancy projects in western China, the following conclusions can be drawn: In response to some problems in the management of public welfare water conservancy projects in western China, we have proposed a series of reform measures and achieved certain results, which provide feasible references for our proposed reform plan. The results of this article provide certain theoretical support and practical guidance for relevant departments. I hope that relevant departments can give sufficient attention and take relevant measures as soon as possible to promote substantial progress in the reform work.

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