

Coordination of Water Resources Planning and Allocation, Development and River Basin Management

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Abstract

In my country has a serious shortage of water resources. With the rapid development of the economy and society, the process of industrialization and urbanization has accelerated, and the shortage of water resources has more prominent constraints on the sustainable development of the economy and society. The implementation of the most stringent water resources management system is an important strategic measure to promote the transformation of economic development mode and accelerate the construction of a water-saving society. The development and utilization of water resources is a direct way for human beings to intervene in the temporal and spatial distribution of water resources. While the large-scale development of water conservancy has brought huge production and energy benefits, the negative effects of problems in river basin management have also become increasingly apparent. In-depth analysis of the important role of scientific understanding and correct handling of the relationship between the allocation, development and utilization of river basin water resources in river basin water resources management has important guiding significance for future river basin water resources management.

Keywords

Water Resources Management; River Basin Planning; System; Introduction.

1. Introduction

With the rapid economic and social development, water resources have become the most basic, most important strategic element resource with overall and long-term impact. Water shortages exist in many economically developed areas in Zhejiang Province [1], and water resources have become one of the restrictive factors that affect the economic development of some regions in Zhejiang and the improvement of people's living standards. How to use advanced scientific and technological methods at home and abroad to improve the efficiency of comprehensive utilization of water resources and ensure the requirements of the social economy on water resources has become one of the important tasks of the water conservancy department [2].

With the rapid development of the national economy and the improvement of people's living standards, the demand for water is increasing, and the requirements for water quality are getting higher and higher, and the serious pollution of water resources has sharpened the already tight contradiction between water supply and demand. The shortage of water resources in Chinese cities has severely restricted the development of regional economy and society.

2. Existing Problems in My Country's River Basin Management

2.1. Problems in the River Basin Management System

The purpose of water resources planning and allocation and water distribution in the basin is to lay the foundation for the construction of a water-saving society, the implementation of the most stringent water resources management system, the improvement of water resources utilization efficiency and efficiency, and the realization of sustainable use of water resources [3]. Our country implements a system that combines water resources basin management with administrative district management. This system makes the division of rights too vague and prone to various problems: each region formulates regional plans based on the actual conditions of the region, and it often matches the watershed management. The overall plan conflicts. At this time, local protectionism is often implemented, resulting in the widespread occurrence of river basin water pollution in all regions. When formulating comprehensive plans, local governments are based on local interests, which conflicts with the requirement for comprehensive planning of river basins to coordinate the overall situation. Due to the characteristics of the mobility of water resources in the basin, the upper, middle and lower reaches of the basin are also prone to disputes on water diversion and water use [4]. There are contradictions between upstream and downstream in various major river basins. For example, the Huai River Basin: In the absence of natural runoff in Henan, agricultural irrigation and storage are completed by gates and dams; however, the control method of gates and dams affects downstream water consumption has become the focus of controversy, especially It is more conspicuous to the pollution of downstream drinking water sources. In the market economy system, in order to play the fundamental role of the market in allocating water resources, the two have inseparable continuity.

2.2. Characteristics of Planning and Allocation of Water Resources

The planning and allocation of river basin water resources is of strategic significance, reflecting the macroscopic and overall effects of water resources allocation [5,6]. The planning and allocation of water resources must first scientifically determine the carrying capacity of river water resources and the carrying capacity of the water ecological environment, and formulate control indicators for the total amount of water resources available and the river's pollution holding capacity. Second, it is necessary to make a rational analysis of the regional macro water quota and industrial micro water quota in line with the level of economic and social development, and scientifically determine the water quota standards for different periods. Third, according to the regional economic and social development mid- and short-term planning and long-term development forecast, rational analysis and comprehensive balance should be carried out on it, and the water demand for life, production and ecology should be taken into consideration, and the total water demand for life and production should be predicted. Fourth, determine the pollutant holding capacity of different sections of the river in the planning configuration, and put forward a comprehensive analysis to limit the total amount of pollutant discharge indicators. Fifth, it is necessary to analyse the contradiction between water supply and demand in different periods with the basin as a unit, and propose comprehensive countermeasures.

2.3. Characteristics of Water Distribution in the Basin

Basin water distribution is micro-operable. The main point is to determine the total amount of water resources available and the allocation plan and the degree of water resources development and utilization determined according to the plan. The key sections of the river are used as control nodes to implement the relationship between water supply and demand to specific water sources. Land, water area and water industry [6]. According to the practical experience of water distribution in the Daling River, in water distribution, first, the principles of water resources planning and allocation are negotiated and refined into water distribution rules. Second, decompose the total available amount into the already developed part and the part to be developed, and analyse the utilization status of the already developed part and the utilization demand of the part to be developed. Third, comprehensively balance the two parts of water volume and the two utilization requirements, and further refine the control nodes to control water sources and key water intake sections. Fourth, decompose the total pollutant discharge control index determined in the plan into the control volume of return water pollutants into the river. Fifth, compile the implementation plan for the water quantity dispatching and monitoring of the basin to lay the technical foundation for the real-time dispatching of water quantity.

2.4. Continuity of Water Resources Planning and Allocation and Water Distribution

Water resources planning and allocation have a controlling and guiding role in water allocation, and water allocation is an indispensable and important content of planning implementation [7]. After the comprehensive water resources plan was approved by the State Council, the allocation principles determined in the plan became the will of the state, which is a code of conduct that must be followed by water resources management; in accordance with the current water law, the water resources planning and allocation plan also has legal effect. Only when the planned allocation plan is approved by the State Council or its authorized department can it be guaranteed that the specific operations in the water allocation have a basis for mutual compliance. Therefore, the planning and allocation of water resources is a prerequisite for water distribution.

After water resources planning and allocation determine the total usable amount, the supply and demand relationship can be refined by decomposing the total amount through water allocation. Only by refining the relationship between supply and demand can comprehensive measures be taken to promote and encourage water conservation and give full play to the fundamental role of the market in the allocation of water resources [8]. Through the allocation of water quantity, it is possible to further clarify the distribution of regions and industries with water saving potential, analyse the temporal and spatial relationship between water saving and future utilization demand, and provide management basis for the construction of the national water rights system and the conversion of water rights by market means. This is also the main management method to achieve the goals of water resources planning and allocation.

3. Spatio-temporal Linkages in the Development and Utilization of Water Resources in the River Basin

The development and utilization of water resources has changed the temporal and spatial characteristics of the natural distribution of water resources and is a manifestation of the relationship between supply and demand. Development is a means of satisfying utilization, and the two are closely related in time and space.

3.1. Temporal and Spatial Characteristics of Water Resources Development and Utilization

The natural circulation of water resources and the natural geographical conditions of the river determine that the development of river water resources is mostly located in the upper and middle reaches of the hilly area where precipitation is concentrated, and the economic and social development must be concentrated in the middle and lower reaches of the river plains, and it is inevitable to trace the source of the development of water resources. my country's population density is high and precipitation is seriously uneven in time and space. When the natural resource endowment and production factors in plain areas cannot support population growth, the development area will extend to the upper reaches of the river, and cross-regional development and cross-period utilization of water resources have become a trend.

The level of civilization of economic and social development determines the value concept, scientific and technological level, and material support capacity of water resources development. These three elements have a decisive impact on the form of water resources development and development efficiency. The spatial layout of economic and social development and its development needs determine the use of water resources and their benefits. With the gradual establishment of the concept of ecological civilization, the correct handling of the relationship between river natural function protection and river resource development has become a prerequisite for development. The natural function of a river is a process of natural evolution, and man-made forcible changes often lead to ecological disasters, while the development of river resources is a conscious behaviour of humans to transform and utilize natural resources. The coordination of the two must follow the basic principle of harmony between man and nature.

3.2. Spatio-temporal Connectivity of Water Resources Development and Utilization

With a large population and limited arable land in my country, maintaining food security must be a long-term national strategy. Among all kinds of water use, water for agricultural production has the most stringent requirements for water resources development. The monsoon climate in East Asia has the characteristics of simultaneous rain and heat, which is conducive to the growth of crops. However, the large inter-annual changes in rainfall are prone to extreme droughts and floods. The seasonal characteristics of water used for agricultural production in northern my country require temporal and spatial adjustment of natural precipitation, especially the development of flood resources. The continuity requirement of the water use process in agriculture and other industries is more important than the guarantee rate, and continuity is the main factor determining the priority of water use. The priority order of water use puts forward requirements on the temporal and spatial adjustment characteristics of the development form. The superimposed water use process is competitive, the continuous water use process is complementary, and the complementary water use can improve the efficiency of water resource utilization. With the improvement of industrial civilization, water outside river courses in water shortage areas has gradually become the main goal of water resources development. Water outside river courses is mostly of quality consumption type, and water inside river courses is mostly time-regulated and occupied. Compared with the two types of utilization, Type is even more important. When the contradiction between supply and demand is prominent, the consumption-oriented demand should be guaranteed first, and the water used for basic domestic water and agricultural irrigation should be put in the forefront.

4. Conclusion

The basin water environment and basin economy have the characteristics of mutual connection and mutual restriction. The serious basin water pollution in my country's rivers is directly related to the unreasonable industrial structure and layout of the river basin to a large extent. In addition, due to the lack of scientific demonstration and management, some water-scarce areas blindly develop water-consuming industries, resulting in a drop in the groundwater level; some resource-rich areas develop single resource-based industries instead of supporting processing industries, and the industrial structure Similarities have also caused serious structural pollution. These phenomena remind us that when formulating a comprehensive river basin plan, we must not forget to consider the development of industry, production and various industries along the river basin, and actively guide the coastal areas to evaluate and predict industrial development to prevent blind development that does not fit the characteristics of the region. Industry.

Acknowledgments

This work was supported by the Shaanxi Provincial Land Engineering Construction Group Project (DJNY2021-15).

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