

Research Progress of Ecological Quality in the Yellow River Basin under the Background of High-quality Development

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Abstract: The ecological and environmental problems of the Yellow River are becoming more and more serious. The research on the ecological and environmental problems of the Yellow River is of great significance to promote the high-quality development of the Yellow River. In this paper, the research status of the Yellow River ecological environment at home and abroad is reviewed, and the research status of the Yellow River ecological quality, restrictive factors, the relationship between economic development and ecological environment, ecological restoration and protection are discussed, and the future development trend is pointed out.

Keywords: Yellow River Basin; High Quality Development; Ecological Environment Quality.

1. Introduction

Ecological quality refers to the state or function of the ecosystem in a certain period of time, and is the response state of the natural ecosystem to human social and economic activities. It is manifested as a comprehensive evaluation of the harmonious development relationship between man and nature, man and society, and a comprehensive indicator of the coordination and unity of economic development and resources and environment. The ecological quality of the Yellow River Basin refers to the overall state in which natural, economic, social and other factors in the basin have an impact on human survival and development [2,3]. From the perspective of connotation, the ecological quality of the Yellow River Basin is the result of the interaction between the natural ecosystem and the economic and social system, and the result of the interaction between the natural ecosystem and the social and economic system. From the perspective of spatial and temporal distribution, the ecological quality of the Yellow River Basin has obvious spatial differentiation [4]. In terms of influencing factors, the ecological quality of the Yellow River Basin is jointly affected by natural, social, economic and other factors [5], which can be divided into direct and indirect types. The strategy of ecological protection and high-quality development in the Yellow River Basin plays an important leading and demonstration role in the construction of ecological civilization and sustainable development in China, and is of great significance in realizing harmonious coexistence between man and nature and promoting ecological protection and high-quality development in the Yellow River Basin. Under the background of high-quality development, the ecological quality of the Yellow River Basin has been widely concerned, and some achievements have been made. At present, researches on ecological quality in the Yellow River Basin mainly focus on the status quo of ecological quality in the Yellow River Basin, temporal and spatial evolution of ecological quality, influencing factors of ecological quality,

and high-quality development of the Yellow River Basin [6,7]. Based on literature review and analysis, this paper summarizes the existing research results on economic and ecological development of the Yellow River Basin through literature review on economic and ecological development of the Yellow River Basin and the coupling of urbanization and ecological environment, and finds out the existing problems in the research. On this basis, the existing definition, research methods, research contents and current situation of ecological quality in the Yellow River Basin were summarized, the existing research methods were briefly reviewed, and the future research direction was prospected.

2. Current Status and Constraints of Ecological Research in the Yellow River Basin

According to the relevant researches at home and abroad, the study on the ecological quality of the Yellow River Basin can be divided into three stages: First, from the 1950s to the early 1970s, the study in this stage mainly evaluated the Yellow River basin from the perspective of a single index. At this stage, the ecological quality evaluation of the Yellow River Basin mainly focused on water resource utilization efficiency and biodiversity protection, and a small number of literatures related to water environmental carrying capacity. Second, from the 1980s to the early 21st century, with the acceleration of global urbanization, domestic scholars began to study the ecological quality of the Yellow River Basin, mainly including water security, ecological protection and high-quality development of the Yellow River basin. This stage mainly focuses on water security, ecological protection and high-quality development of the Yellow River Basin, and the research content mainly focuses on water security, water environment and biodiversity. Third, since the 21st century, with the rapid economic and social development and the acceleration of large-scale urbanization, domestic scholars have begun to comprehensively evaluate the ecological quality of the Yellow River Basin. In the future, we should

strengthen the research on ecological quality evaluation methods and evaluation index system, high-quality development path and policy and management practice of the Yellow River Basin.

According to the current situation of ecological quality development in the Yellow River Basin, it is found that the problems of ecological quality in the Yellow River Basin are mainly caused by the following aspects: First, the contradiction between supply and demand of water resources in the Yellow River Basin is prominent. Second, soil and water loss are serious in the Yellow River basin, which leads to the degradation of the basin ecosystem, the decline of ecosystem functions in some areas, and the ecological environment problems are serious. Third, the water pollution problem is more serious, the water environment in the basin is generally poor, mainly for the surface water quality is generally poor and the proportion of poor class V water bodies is higher; Fourth, the biodiversity of the Yellow River Basin has been destroyed, and biological species in some areas have been reduced, endangered and extinct. Fifth, the climate change in the Yellow River Basin is great, with the increase of extreme climate events and the frequent occurrence of extreme drought events.

3. Research Progress of Economic Development and Ecological Environment in the Yellow River Basin

Under the background of high-quality development, the construction of ecological environment in the Yellow River Basin has become the key to promote the economic development of the Yellow River basin. Some scholars have studied the ecological environment of the Yellow River Basin from the aspects of industrial structure, scientific and technological innovation, environmental governance, etc. For example, some scholars have studied the economic structure of the Yellow River Basin and pointed out that there is a shortage of water resources in the Yellow River Basin, and agricultural irrigation water accounts for more than 70%, but industrial water accounts for a large proportion, and there are many high-water-consuming industries. Through the analysis of the industrial structure of the Yellow River Basin, it is pointed out that under the background of high-quality development, the transformation and upgrading of industrial structure is the key to promote the sustainable and healthy development of the ecological environment and economy of the Yellow River Basin [9]. In terms of scientific and technological innovation, through the study of scientific and technological innovation in the Yellow River Basin, it is pointed out that the scientific and technological innovation capacity of the Yellow River basin is low, and the scientific and technological innovation capacity is insufficient, and the lack of major original achievements [10]. In terms of environmental governance, Liu Hui et al. studied the environmental pollution in the Yellow River Basin and pointed out that there were serious environmental pollution problems in the Yellow River Basin, and the water environmental pollution problems in the Yellow River basin were relatively serious [11]. Zhang Min et al. studied the water ecology of the Yellow River Basin and pointed out that the water ecological quality of the Yellow River Basin was poor, and the problems of water pollution, soil erosion and farmland degradation were more prominent [12]. In addition,

some scholars have studied the ecological environment in the Yellow River Basin from the perspective of ecological compensation mechanism [13,14]. According to the literature analysis, there are some deficiencies in the ecological and environmental protection of the Yellow River Basin: first, the coordinated development between regions is insufficient; Second, the regional differences are obvious; Third, the industrial structure in each region is unreasonable. Therefore, in the context of high-quality development, in order to solve the ecological environment problems of the Yellow River Basin, promote the sustainable economic and social development of the Yellow River basin and realize the high-quality economic development of the Yellow River Basin, the following measures should be taken: first, promote the adjustment of industrial structure; Second, promote coordinated development among regions.

4. Conclusion

There are many problems and constraints in promoting ecological protection and high-quality development in the Yellow River Basin, and so far, a complete system has not been formed. In terms of governance, there is no clear explanation of the system and mechanism of ecological civilization construction in the river basin. In order to promote ecological protection and high-quality development of the Yellow River basin, it is necessary to strengthen regional coordinated development and improve the modern basin management system. Under the guidance of the new development concept, the construction of ecological civilization in the Yellow River Basin needs to establish corresponding systems and institutions to realize the optimal allocation of water resources; Adhere to the "green", "low-carbon", "energy saving", "green", "green" development; To promote the rapid development of high-tech industries and promote the rapid development of high-tech industries in our country. Strengthen the ecological protection and management of the Yellow River basin, and actively introduce private funds to participate in the protection and management of the Yellow River. Based on the review of ecological quality research in the Yellow River Basin, this paper summarizes the current situation and shortcomings of the research, and puts forward the direction of future research. The study of ecological protection and high-quality development in the Yellow River Basin should be carried out according to the reality of the basin. Adhering to the idea of focusing on protection and controlling the Yellow River, efforts should be made to improve the ecological environment of the Yellow River Basin, and promote the sustainable utilization of water resources in the basin, improve the overall development level of the Yellow River Basin, and promote the overall high-quality development of the Yellow River Basin.

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