



# The Mechanism of Ecological and Cultural Collaborative Construction of the Beijing Hangzhou Grand Canal Cultural Belt

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**Abstract.** A prominent problem in the construction of the Beijing Hangzhou Grand Canal cultural belt is the weakness of the overall construction and coordination mechanism. Ecology and culture are two concomitant elements of the construction of the Grand Canal cultural belt. Promoting the coordinated construction of ecology and culture as a whole is an important aspect to solve the weak coordination mechanism of the overall construction of the Beijing Hangzhou Grand Canal cultural belt. Based on the definition of canal ecology, canal culture and the synergy of ecology and culture, this study discusses the current situation of the ecological and cultural collaborative construction of the Beijing Hangzhou Grand Canal cultural belt, and puts forward the collaborative construction mechanism and suggestions of the Beijing Hangzhou Grand Canal cultural belt based on the policy synergy mechanism, management synergy mechanism, division of labor synergy mechanism and innovation synergy mechanism.

**Keywords:** Grand Canal cultural belt · Ecology · Culture · coordination

## 1 Introduction

The Beijing Hangzhou Grand Canal lies on the land of China and stretches for thousands of miles. It is the golden waterway in ancient China. Since ancient times, the places where the Beijing Hangzhou Grand Canal flows have developed into the most economically developed areas at that time, which not only played a vital role in economic and social development, but also left valuable cultural heritage for future generations, and also improved the ecological environment in the basin. The Beijing Hangzhou Grand Canal connects the five natural water systems of Haihe River, Yellow River, Huaihe River, Yangtze River and Qiantang River, and is also one of the water pipelines of the east line of the South-to-North Water Transfer Project. The Fifth Plenary Session of the 18th CPC Central Committee put forward the new development concept of “green development”, which integrates ecological environment protection into the whole process of economic and social development [1]. To build modernization in an all-round way, we should “accelerate the reform of the ecological civilization system and build a beautiful China”,

which can not only meet the growing needs of the people for a better life, but also meet the inevitable requirements of the harmonious coexistence between man and nature [2].

With the development of China's industrialization, it has had a certain impact on the ecological environment of the Beijing Hangzhou Grand Canal basin, especially the discharge of industrial pollutants, which has caused varying degrees of damage to water quality and biodiversity. In particular, the Jiangnan canal section, which flows through Jiangsu Province, is still used for cargo transportation because of its good navigability, large ship traffic volume and prosperous land and water transportation. The problem of ship pollution is also prominent. At the same time, based on the protection of the living heritage of the Beijing Hangzhou Grand Canal, we should strengthen the utilization of its living heritage, such as the opening of cruise ships on the Beijing Hangzhou Grand Canal and the construction of the Grand Canal National Cultural Park, which is bound to have a certain impact on the ecological environment. The overall concept of national security emphasizes that "we should guard the boundary of natural ecological security and the bottom line of natural ecology to ensure ecological security". Therefore, how to achieve a balance between ecological construction and cultural construction, which is not only conducive to improving ecological environment protection, but also to speed up the construction of the Beijing Hangzhou Grand Canal cultural belt is an urgent problem to be solved. At present, the ecological construction and cultural construction of the Beijing Hangzhou Grand Canal cultural belt are in a state of separation. Although considering the mutual restriction and interaction between ecological construction and cultural construction, there is no good collaborative construction mechanism [3]. Therefore, under the guidance of the ecological development strategy of "green development", the establishment of a mechanism for the coordinated construction of ecology and culture in the Beijing Hangzhou Grand Canal cultural belt is an effective way to solve the coordinated development, harmonious and win-win between the protection of ecological environment and the protection, inheritance and utilization of culture in the construction of the Beijing Hangzhou Grand Canal cultural belt [4].

## **2 The Current Situation of Ecological and Cultural Collaborative Construction of the Beijing Hangzhou Grand Canal Cultural Belt**

The coordinated construction of ecology and culture in the Beijing Hangzhou Grand Canal cultural belt is based on ecology and cultural resources, ecology + cultural industry, and takes green development as the concept to jointly build a guarantee mechanism for the long-term inheritance of living cultural heritage.

### **2.1 The Foundation of Ecological and Cultural Collaborative Construction**

#### **2.1.1 Ecological and Cultural Resources**

The Beijing Hangzhou Grand Canal cultural belt is rich in cultural and ecological resources, including 1 National Nature Reserve, 15 national forest parks, 9 National Wetland Parks, 4 national scenic spots, 25 historical and cultural towns, 8 historical and cultural monuments, 14 traditional Chinese villages, and 198 national intangible cultural heritage.

### **2.1.2 Ecology + cultural Industry**

The Beijing Hangzhou Grand Canal cultural belt is involved in many industries. The industries in the form of “culture + ecology” mainly include eco-tourism, leisure and health care, natural education, etc. Ecotourism is a comprehensive service industry supported by ecological elements and carried by tourism. There are six national ecotourism demonstration areas along the Beijing Hangzhou Grand Canal cultural belt, as shown in Table 2. The leisure and health care industry is a new business form supported by healthy agricultural products, agricultural scenery and other elements, with the health care industry as the carrier, and integrating agriculture, forestry, animal husbandry, fisheries and other integration. There is only one national forest health care base along the Beijing Hangzhou Grand Canal cultural belt, as shown in Table 2. The natural education industry is a modern service industry supported by natural ecological elements and supported by natural education institutions to provide services such as ecological conservation, natural observation, outdoor travel, farming and animal husbandry experience, and Museum venues. There are 6 national nature school pilot units along the Beijing Hangzhou Grand Canal cultural belt.

## **2.2 The Current Situation of Ecological and Cultural Synergy**

### **2.2.1 Riverside Ecological Space Planning and Industrial Heritage Protection**

There are many industrial cities on both sides of the Beijing Hangzhou Grand Canal. The industrial prosperity brought by the canal traffic has promoted the development of industries on both sides of the canal. However, with the changes of the times, canal transportation is not enough to provide the driving force for economic development. With economic development and industrial transformation, a large number of industrial relics have been produced on both sides of the canal. While industrialization promotes social progress, it also brings damage to the ecological environment, such as water resources pollution, soil pollution, air pollution, vegetation damage, etc. With the deepening of the understanding of ecological environment protection and the strengthening of the awareness of environmental protection, the protection and utilization of industrial heritage areas have been strengthened after the industrial take-off. On the one hand, industrial relics should be included in the riverside ecological space planning to repair the pollution and damage of the original industry to water resources, soil and vegetation, so as to protect the ecological environment; On the other hand, the industrial relics will be repaired and maintained to reproduce the industrial culture of the canal. Changzhou canal No. 5 creative block is a typical example of riverside ecological space planning and industrial heritage protection.

### **2.2.2 Renovation of Illegal Facilities Along the Canal and Protection of Historical and Cultural Relics**

Due to its good channel conditions, the Jiangsu section of the Beijing Hangzhou Grand Canal still plays an important shipping function of “connecting five rivers and connecting thousands of homes”. However, due to the existence of illegal wharves along the canal, the ecological environment on both sides of the canal has been damaged to a certain

extent. Domestic garbage, illegal buildings, navigation obstruction facilities, especially some inefficient simple sand and gravel wharves along the Grand Canal, have been exposed and stacked to block the river, which not only destroyed the growth of vegetation on both sides of the Grand Canal, but also polluted the water source of the river. Since 2014, Cangzhou, Xuzhou, Yangzhou, Zhenjiang, Wuxi and other places have begun to focus on illegal ships and illegal wharves, dismantle illegal buildings and facilities, repair embankments, and carry out ecological restoration of the original illegal land. It not only repaired and protected the ecological environment on both sides of the Beijing Hangzhou Grand Canal, but also restored and presented the historical original appearance of the embankment and facilities of the Grand Canal itself. The renovation of illegal facilities along the canal is not only the restoration of the ecological environment of the canal, but also the protection of the cultural relics of the canal.

### **2.2.3 Ecological Management of Canal Waters and Construction of Canal Cultural Park**

The water of the canal is the foundation of the Beijing Hangzhou Grand Canal. The ecological management of the water area of the canal depends on the cooperation of multiple departments such as ecological environment, natural resources, transportation, water conservancy, agriculture and rural areas. Since 2014, major cities (regions) along the Beijing Hangzhou Grand Canal have carried out comprehensive management of the Beijing Hangzhou Grand Canal. Tongzhou District of Beijing has carried out the comprehensive treatment of the North Canal, Xiqing District of Tianjin has carried out the comprehensive treatment of the south canal, the treatment of the source of water pollution and the treatment of sewage interception outside the rural living water village, Cangzhou City of Hebei Province has carried out the treatment of dredging and dredging of the South Canal channel, Suqian City of Jiangsu Province has carried out the comprehensive treatment of the bridgehead zone across the canal bridge, and Yangzhou city of Jiangsu Province has carried out the treatment of the Li canal channel. At the same time, some relevant canal cultural parks have been built in the governance area to display the cultural heritage of the Beijing Hangzhou Grand Canal in various forms. For example, Tongzhou District of Beijing has built the Grand Canal Forest Park in the regulation section of the Beijing Hangzhou Grand Canal and opened the Grand Canal Cruise Ship in the urban section of Tongzhou; Tianjin has built canal cultural parks such as the North Canal Water Conservancy Scenic Spot, taoshiyuan, Tianzi Jindu ruins park; Cangzhou City of Hebei Province has built canal cultural parks such as Xingji qianning Canal Cultural Park and yubeiyuan scenic spot; Suqian City of Jiangsu Province has built Siyang Mazu Cultural Park The Grand Canal Qiaotou Park, etc., and the Grand Canal cultural parks such as the lookout Pavilion Grand Canal Park and the Grand Canal Cultural Park were built in Suzhou, Jiangsu Province. It has realized the treatment of canal water bodies and the construction of related River cultural parks.

### **2.2.4 Ecological Monitoring and Cultural Heritage Monitoring**

At present, the ecological environment monitoring platforms such as the water environment and soil environment monitoring of the Beijing Hangzhou Grand Canal are mainly

operated and maintained by the competent ecological environment department, and the relevant data are collected by the environmental monitoring department and uploaded to the detection platform. The platform for monitoring the cultural heritage of the Beijing Hangzhou Grand Canal is mainly the “China world cultural heritage monitoring and early warning general platform” operated by China World Cultural Heritage Center and China world cultural heritage monitoring center. At present, ecological monitoring and cultural heritage monitoring operate independently. The advantage of independent operation lies in that each department has its own responsibilities, and can comprehensively carry out systematic and professional monitoring of its areas of concern. However, from the perspective of ecological and cultural synergy to promote the construction of the Beijing Hangzhou Grand Canal cultural belt, building a detection platform that can observe ecological monitoring data and cultural heritage monitoring data at the same time will play a greater role in boosting the construction of the Beijing Hangzhou Grand Canal cultural belt.

### **3 Mechanism and Suggestions for the Construction of Ecological and Cultural Synergy in the Beijing Hangzhou Grand Canal Cultural Belt**

#### **3.1 Promote the Coordinated Construction of Ecology and Culture Under the Guidance of Policy Coordination**

Since the Grand Canal was selected into the world cultural heritage list in 2014, many departments have issued relevant policies on the protection, utilization and inheritance of the Grand Canal. At the same time, from the perspective of ecological environment, there are also a series of policies related to the environmental protection of the canal. For example, on October 25, 2021, the general office of the State Council issued the opinions on encouraging and supporting social capital to participate in ecological protection and restoration, which pointed out that “introduce social capital and give full play to the decisive role of the market in resource allocation. Unify the market access, continuous return and reasonable exit mechanism. Achieve social capital gain, gain and retreat.” As for the construction of the Beijing Hangzhou Grand Canal cultural belt, we can encourage social capital to participate in the construction of forest parks on both sides of the Grand Canal, and strengthen the coordination with the reform of the property right system of natural resources assets, the value realization mechanism of ecological products, and the compensation mechanism of ecological protection. Another example: on January 28, 2022, the Ministry of agriculture and rural areas issued the guiding opinions on promoting the construction of ecological farms, which pointed out that “building ecological farms and displaying modern agricultural culture.” Irrigation is one of the functions of the Beijing Hangzhou Grand Canal, which is inseparable from agricultural culture. By building an ecological farm culture exhibition park, the agricultural culture and eco-tourism projects of the grand canal can be combined to show agricultural green development, pollution prevention, emission reduction and carbon fixation. At the same time, it can also enhance the multiple values of rural areas and prevent the phenomenon of returning to poverty after getting rid of poverty. With the continuous promotion of

the construction of the Grand Canal cultural belt, the introduction of relevant collaborative construction opinions from the policy level will play a strategic guiding role in the construction of the Grand Canal cultural belt.

### **3.2 Taking Management Synergy as the Guarantee and Boost is the Collaborative Construction of Ecology and Culture**

Management synergy is the most fundamental guarantee for the construction of the Grand Canal cultural belt. The establishment of management synergy mechanism should include three aspects, namely regional management synergy, department management synergy and enterprise management synergy.

First, regional management coordination. The Beijing Hangzhou Grand Canal flows through four provincial administrative regions and two municipalities directly under the Central Government: Beijing, Tianjin, Hebei, Shandong, Jiangsu and Zhejiang. From a regional perspective, it spans six provincial administrative regions. The first thing to be solved is the cross regional management coordination within the two fields of ecology and culture. The Beijing Hangzhou Grand Canal cultural belt construction management office can be established, which can realize the collaborative management and monitoring of the whole basin of the Beijing Hangzhou Grand canal.

Second, department management coordination. The ecological and cultural synergy of the Beijing Hangzhou Grand Canal involves many departments, including ecological environment, natural resources, transportation, water conservancy, agriculture and rural areas. Departments related to the protection, inheritance and utilization of cultural heritage include: culture and tourism, cultural relics, etc. First of all, it is necessary to realize the management coordination of various functional departments within the province (city). A coordination office of the Beijing Hangzhou Grand Canal cultural belt in a province can be established, and on this basis, cross regional management coordination can be realized.

Third, enterprise management collaboration. Different from regional management collaboration and department management collaboration, enterprise management collaboration belongs to micro level management collaboration, which is detailed to the management collaboration between similar enterprises. Taking ancient town tourism as an example, each ancient town is operated and managed by different enterprises, and is relatively independent in ticket pricing, scenic spot transportation, service facilities, etc. in order to attract more tourists, especially individual tourists, collaboration can be achieved at the enterprise level, such as the implementation of unified pricing standards for scenic spot tickets, or the implementation of joint ticket concessions for similar scenic spots. Another example is the opening of shuttle buses between scenic spots. At present, the transportation between many scenic spots is very inconvenient, and most of them have to transfer through the tourism distribution center in the urban area. If the direct tourist bus between scenic spots is opened, tourists can spend less time in transportation and more time in scenic spots. An ancient town tourism industry alliance can be established to coordinate the management and planning among different enterprises.

### **3.3 Based on Division of Labor and Coordination, Give Play to the Function of Ecological and Cultural Coordination**

The mechanism of division of labour and coordination is essentially an endogenous self-organization and coordination mechanism formed on the basis of specialized division of labour. The vertical division of labour between different regions of the same department and the horizontal division of labour within the same region of different departments will bring about the improvement of ecological and cultural synergy efficiency. On the one hand, from the perspective of vertical division of labour, there are many water conservancy facilities distributed in the basin of the Beijing Hangzhou Grand Canal, including water conservancy facilities with river control and flood control functions, water conservancy facilities for farmland drainage and irrigation, and water conservancy facilities for water transportation. The vertical division of labour of the water conservancy department forms a systematic coordination mechanism for the repair, transformation and maintenance of water conservancy facilities located in different regions, which is due to geographical location Collaborative mechanism formed spontaneously due to different functions of facilities. On the other hand, from the perspective of horizontal division of labour, ecology and culture belong to two different dimensions of geographical space and cultural space. Ecological construction and cultural construction are also carried out in different spatial ranges, which is a natural division of labour. Taking the construction of ecological and cultural parks as an example, based on Ecological Construction in geographical space, environmental construction is formed, and cultural elements are given to form the inheritance of local folk customs, intangible cultural heritage, history and humanities.

### **3.4 Accelerate the Process of Ecological and Cultural Synergy Driven by Innovation Synergy**

Innovative collaboration is the driving force for the collaborative construction of the Beijing Hangzhou Grand Canal cultural belt. Digital means, VR/AR simulation technology, intelligent robots, etc. can be used in the ecological and cultural construction. For example, the revised regulations of the people's Republic of China on the protection and administration of underwater cultural relics was promulgated by order No. 751 of the State Council on January 23, 2022, which strengthened the protection of underwater cultural relics. The construction of the Beijing Hangzhou Grand Canal cultural belt can use intelligent robots and other means to survey underwater cultural relics. At the same time, it can also cooperate with the ecological environment department to sample and monitor the underwater environment, and with the water conservancy department to monitor and investigate underwater dams and facilities, So as to realize the collaborative mode of environmental survey, cultural relics exploration and water conservancy survey. The mechanism of the coordinated use of such innovative technologies and innovative ways in ecology and culture has a great role in promoting the collaborative construction of the Grand Canal cultural belt.

## 4 Conclusions

The ecological and cultural collaborative construction of the Beijing Hangzhou Grand Canal cultural belt has problems in the planning of riverside ecological space and the protection of Industrial Relics, the renovation of illegal facilities along the canal and the protection of historical and cultural relics, the ecological governance of the canal waters and the construction of the Canal Cultural Park, ecological monitoring and cultural heritage monitoring. In this regard, four suggestions are put forward: to promote the collaborative construction of ecology and culture under the guidance of policy synergy, to promote the collaborative construction of ecology and culture under the guarantee of management synergy, to give play to the function of ecological and cultural synergy based on division of labor synergy, and to speed up the process of ecological and cultural synergy driven by innovation synergy.

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## References

1. Q.H. Luo, B. Peng, Values of Co-evolution in the Research of the Relationship Between Culture and Ecology, *Journal of Ethnic Culture*, vol. 14, 2022, pp. 59-68.
2. H. Kong, Promote the Coordinated Development of Huaihe River Culture and Ecological Civilization: A Review of the 2<sup>nd</sup> Huaihe River Culture Forum, *Journal of Fuyang Normal University (Social Science)*, vol. 201, 2021, pp. 7-11.
3. M. Xu, C.L. Liu, Research on the Coordinated Development Model of Regional Culture Ecology: Taking Xiangi Prefecture as an example, *Journal of Central South University of Forestry & Technology (Social Sciences)*, vol. 1, 2021, pp. 93-101.
4. Z.G. Liu, C.X. Wang, Research on the Integrated Protection and Utilization of Cultural Resources at Huaihe River Ecological-Economic Belt, *Journal of Huaiyin Teachers College (Social Science)*, vol.43, 2021, pp. 92-96.



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