



The Construction and Management of Pearl River Delta Greenway to Anhui

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Abstract. The Pearl River Delta is the pioneer of Greenway movement in China. Only six years, the Pearl River Delta has completed the exploration, practice and theoretical research of greenway, realized the transformation from "imported products" to localization of greenway, and accumulated rich materials in greenway planning, management and academic research. After several years of development, Anhui greenway has made remarkable achievements, but there are many problems. Therefore, in order to improve the construction and management level of Greenway in Anhui Province, this paper compares and analyzes the Greenway Construction Practice and theoretical research with Pearl River Delta, then we should learn from the experience and lessons, find out the omissions and make up for the deficiencies, so as to point out the direction for the future development of Greenway in Anhui Province.

Keywords: Pearl River Delta, Anhui; greenway; enlightenment.

1 Introduction

The Pearl River Delta is not China's first introduced green area, but is the first green city card area, in the greenway planning, construction and management has rich practical experience, and Anhui greenway after years of development has a certain scale, but both in planning and construction management is still in the exploration stage. In the existing greenway research, comparative analysis method has become a very direct and effective research method, greenway comparative research at home and abroad mainly focused on the origin, definition, type, planning ideas and construction examples, domestic different regional greenway comparative research mainly focuses on line selection, density, type, scale, and in the implementation of the greenway planning^[1-3], management and operation and subsequent development of research is relatively weak. This paper uses induction and analogy method to compare and analyze the greenway between the Pearl River Delta region and Anhui Province, summarize the successful experience of the Pearl River Delta in the implementation, management and operation of greenways, and provide reference for Anhui to build a greenway network with distinct hierarchy, beautiful scenery, comfortable access, high utilization rate and efficient management in Anhui province in the future.

2 Comparative Analysis of the Understanding of the Greenway Concept Between the two Places

The Pearl River Delta region is the forefront of China's economic development, with the rapid economic growth and the rapid rise of the cities and towns, the accompanying social problems are increasing day by day, but now has become a typical of "green hills and blue waters" area, attracted other areas to follow, the main reason is that the pearl river delta region has introduced globally popular greenway and evolved to adapt to the local new era. And the formation of the Guangdong greenway thought, thanks to the pearl river delta region since the 1990s has been actively exploring space governance concept in the role of regional planning and practice, experienced four types of land model (area, town area, open area, ecological sensitive area) space governance to the regional green space for the space classification governance^[4], and livable urban and rural construction and regional green governance transformation of ideas, etc, for the formation of the pearl river delta greenway planning thought provides the theoretical basis and practical experience. The success of greenway in the Pearl River Delta is inseparable from the region's active exploration of model that are compatible with economic and social development. Compared with European and American greenways, the Pearl River Delta Greenway has been given more connotation, organically combines ecological protection and improvement of people's livelihood with economic development, and becomes a livelihood project integrating ecological protection, environmental governance, cultural display, sports and leisure, which has very important reference value and reference significance.

Table 1. Comparative analysis of the main elements of greenway planning in the Pearl River Delta (Source: Compiled from relevant documents)

comparison element	Pearl River Delta	Anhui
Construction type	Regional greenway, urban greenway and community greenway. According to the different areas and target functions, greenways are divided into three types: urban, rural and ecological.	The provincial greenway, municipal greenway and urban greenway; Based on the connected natural and artificial landscape resources, greenways divided into park greenway, waterfront greenway, forest greenway and protective green space greenway.
line selection factor	On the basis of respecting natural ecological resources, cultural ecological resources, regional transportation status and the distribution of urban and rural settlements, appropriate greenway routes should be determined by considering policy requirements and local wishes. For example, the six main lines, each with its own characteristics, include mountains, rivers, fields and seas, cultural leisure, and ecological and urban leisure.	Landscape resources, ecological location, land use type, ecological sensitivity and accessibility factors are selected to analyze and evaluate important ecological resource nodes, and then connected into lines.

Planning principles and key points	Planning principles: ecological, localization, humanization, facilitation, feasibility principles; Planning points: connect important ecological nodes, cultural nodes and urban open space as much as possible; emphasize and demarcate green corridor or greenway control area of a certain width; connect urban and regional traffic according to local conditions; allocate service facilities at different levels; expand greenway functions by relying on resource characteristics and development nodes; realize the coordination of line selection, standard and time sequence.	Planning principles: conform to the natural texture, smooth the ecological corridor; connect the development nodes, reflect the characteristics; fit the urban and rural layout, guide the spatial development, use the traffic corridors, and use the land intensively. Planning points: regional greenway, suburban greenway, old city greenway, new city greenway.
Planning layout	6 main lines, 4 connecting lines, 22 branch lines, 18 intercity junctions, a total length of about 2254 kilometers, greenway control area of 4410 square kilometers.	The main line of "one vertical, three horizontal and one ring" provincial greenway plus the overall pattern of greenway branches in five areas.

The formation of the greenway thought in Anhui Province is a wise choice on the basis of in-depth interpretation of national policies. The greenway construction is an important starting point for the construction of green city and beautiful countryside, a new path to realize the integration of urban and rural areas, as well as the most important concrete action of the strategy of "ecological strong province" in Anhui Province^[5]. It can be seen that greenway has become the first choice for many regions to curb the deterioration of ecological environment and solve a series of social problems caused by excessive urban development. From this perspective, the original intention and purpose of introducing greenway in the two regions are similar.

3 Comparative Analysis of the Planning and Implementation of the two Places

3.1 Comparative Analysis of Greenway Network Planning

Greenway construction, planning first. Comparing the planning text of two places ,it can be seen that (see table 1), planning purpose is to expand regional leisure space, pay attention to protect the ecological environment and cultural security along the way, both build and regional unique natural and human resources characteristics, the main line combined with regional, goal and function of green network system, basic can achieve effective integration of tourism, leisure resources, effectively protect the provincial ecological environment, more become a new way to build a provincial culture display. The composition of the two greenways is similar, including the green corridor system and the artificial systems (development nodes, slow lanes, signage systems, infrastructure and service systems). The greenways in both places are divided into three scales (see Table 1). Regional greenways and provincial greenways are basically similar to each other. Urban greenway in Anhui Province is equivalent to the sum of urban greenways and community greenways in the Pearl River Delta, while

urban greenway in Anhui Province mainly refers to the five major intercity greenways. In line selection, planning principles and key points are different, but the Pearl River Delta greenway planning in the green and other roads, inter-city interface cohesion and service facilities configuration planning more detailed, has strong operability, and Anhui province greenway planning focus on urban greenway planning and construction, and specially formulated the “Anhui city green road planning and design guidelines”.

although two regional greenway planning has differences in type and scale division, but the planning concept, connotation is similar, also adjust measures to local conditions to build conform to the local green line and layout, in control green, traffic cohesion and service facilities are given their opinions, but the Pearl River Delta region planning abandoned by planning unit unilateral pure technical demonstration traditional planning mode, and adopted the provinces, open planning and negotiate the innovation of the work method, especially the green line process actively absorb the public opinion, has achieved good demonstration effect. At the same time, the layout of greenways in the Pearl River Delta should consider the long-term, plan the intersection of cross-border greenways between Guangdong and Hong Kong, Guangdong and Macao as a whole, and organically connect the isolated greenways, bicycle paths, hiking trails, etc. in the three places through flexible connections, so as to form an integrated cross-border greenway network around the the Pearl River estuary bay area, and organically connect with the original greenways at all levels and ecological and cultural systems in cities and cities^[6]. This series of practical experience has pointed out the direction for the long-term planning and construction of greenways in Anhui.

3.2 Comparative Analysis of the Greenways in the two Places

The significance of the planning lies in the implementation, and the effective implementation mechanism is the key to ensure the success of greenway construction in the Pearl River Delta.

first, The pearl River Delta region greenway network concept, planning and implementation have been highly valued by the provincial government, Combining a unified deployment with a specific deployment, From this a top-down political general mobilization, Formed a huge driving force and cohesion of the greenway construction; at the same time, To promote the effective implementation of the greenway planning, It is clear that the municipal governments are the main body of the greenway construction, Using the platform of the provincial joint conference system for promoting livable urban and rural construction, establishing a dedicated leadership group for greenway work and a greenway construction office, and set up a reasonable and efficient organizational structure, Contact and supervise the greenway planning and construction of the nine PRD cities in the form of a working group, Ensure effective feedback and supervise the greenway construction. The responsibilities and tasks are decomposed layer by layer, forming a horizontal and vertical organic connection work mechanism, such as monthly publication of the construction progress of the Pearl River Delta greenway network. In addition, around the information sharing, such as in Guangdong

information online green column, the relevant policy documents, technical regulations, work information, media reports such as resource sharing, for the municipal green construction platform for learning and communication, build a drive, were the first to fight for their superior atmosphere, reversed transmission attaches great importance to and promote the green construction established regular supervision, supervision and year-end inspection acceptance of the working mechanism^[7]. At the same time, other provincial departments such as culture, tourism, land and resources, finance, environmental protection, water conservancy and other departments actively cooperate to promote the development of greenway. In the implementation process of greenway planning in Anhui Province, it is also clear that the municipal governments are the main body of construction, but the work connection, supervision and feedback mechanism is missing.

4 Comparative Analysis of Construction Management and Operation and Maintenance

The operation and management of greenways in the Pearl River Delta region also took a detour in the early stage. After realizing this problem, the operation and management of greenways in the Pearl River Delta were started to be increasingly perfect and mature from the aspects of equal emphasis on construction and management, legislation first, government leading and market participation.

First of all, the Pearl River Delta region was the first to start the pilot legislation of greenway construction and management. The "Greenway Management Measures of Zhuhai " is the first legislation of greenway construction in China, and then Guangzhou, Shenzhen, Zhaoqing and Huizhou have issued interim regulations successively. In August 2013, Guangdong Provincial People's Government officially promulgated the Regulations on The Management of Greenway Construction in Guangdong Province, which entered the development stage with laws to follow. It put forward specific management requirements for greenway construction from the aspects of greenway work organization, greenway planning, greenway construction, greenway management, greenway development, supervision and inspection, and legal responsibility. Secondly, on the basis of government leadership, each region should explore diversified greenway construction and operation and management modes, such as territorial construction management mode, segmented construction management mode, market-oriented operation and management mode, tourism company management mode and other market-oriented operation and management mode. Combined with the conditions of the greenway itself, Dapeng New Area of Shenzhen implements the greenway construction management and operation mode of "recognition, adoption and social investment" by means of government leadership, social or individual participation^[8]. At the same time, a coordinated monitoring mechanism of provinces and cities should be established, and a departmental linkage mechanism with clear responsibilities should be established for top-down and multi-department linkage to jointly improve the efficiency of greenway management. In addition, local cities take measures to local conditions to raise greenway construction funds in various ways, forming a

favorable situation of special funds to guarantee infrastructure construction and social funds to promote the diversification and quality of products. At the same time, the government takes the lead, attaches importance to the publicity and characteristic construction, and improves the public participation of the greenway, such as holding the greenway series sports activities such as the Pearl River Delta Bicycle Race, the Pan-Pearl River Delta Ten Thousand Greenway Marathon, and the provincial greenway orienteering, which effectively improves the regional visibility and reputation of the greenway.

5 The Enlightenment Effect of the Pearl River Delta Greenway Construction and Management to Anhui Province

A comprehensive and in-depth analysis of the origin, conceptual interpretation, planning implementation, and management operation of the Pearl River Delta Greenway has been conducted, summarizing the practical experience of the Pearl River Delta Greenway. This has strong reference value for the future management and operation of Anhui Greenway, The enlightenment is as follows:

5.1 Promoting Greenway Construction and Management Legislation is the Guarantee

Greenway as a key project of ecological engineering in Anhui province and the important gripper, since the implementation of the construction, the green management maintenance and use, promotion is very weak, long-term management mechanism is missing, and the green project to continue to explore to conform to the situation, cities management regulations is very important and urgent. Future can from the legislative power in Hefei in the green network construction management legislation pilot work, requires clear management subject, determine and set up the green management organization, clear its main responsibilities, such as greenway construction, daily maintenance and operation management, prepare budget and organize and coordinate the interests of the parties, especially how to encourage and launch social forces to participate in the green construction, management and operation. Finally, it will be promoted to the whole province as experience. When the time is ripe, the Anhui Province Greenway Construction Management Regulations will be officially promulgated to promote the construction, management and operation of greenways in the whole province to enter the development stage with laws to follow.

5.2 Actively Explore Diversified Greenway Construction and Operation Management Models that are Government Led and Market-oriented"

Green road as a people's livelihood project, its public welfare, so the government leading must become the main way of greenway management, especially in the system imperfect, departments responsibilities between unclear early construction, to play the provincial, municipal government organization mobilization and overall ar-

management, focus on the planning and construction, actively explore the appropriate operation management mode, but with the mature construction management, explore "government-led, market-oriented" diversification of greenway construction and operation management mode has become an inevitable trend. Future in Anhui province in full play to the government-dominated territorial construction management mode, can also try to segment construction management mode or other institutions management mode, and actively explore market-oriented management mode, such as with tourism companies or real estate developers, bicycle rental companies, rv association cooperation, or with the greenway network relatively close to institutional management, let more social forces to participate in the greenway construction management, to meet the increasing needs of residents diversified leisure, also reduce the pressure of the government's policy^[9].

5.3 Implement the Policy of Special Funds, and Try to Raise Funds for Greenway Construction in Multiple Ways

In addition to policies and systems, funds are also an important factor to ensure the completion and improve the maintenance level of the greenway. As a public product, the special funds of provinces and cities will inevitably become the basic support for its planning, construction and management. Anhui province should be introduced as soon as possible in the Anhui province greenway special funds management regulations, set up the green government special funds, the municipal people's government should be the greenway planning, construction, management, promotion funds into the budget, belong to the basic investment, should be included in the government construction investment plan, and the economic underdeveloped areas (such as Dabie mountain area, northern region) green road construction support. The provincial finance department shall publish the specific distribution plan every year, and then allocate it to the local greenway administrative departments in the form of centralized payment management. At the same time, in order to avoid the situation of relying entirely on government financial support, market forces should be fully mobilized to share the operation and maintenance costs of the greenway with the help of various social forces, and drive more groups and individuals to participate in the operation and management of the greenway.

5.4 Collaborative Efforts Between Provinces and Cities, Departmental Coordination, and Dynamic Monitoring of Greenway Management

As a unified organic linear system, greenway spans different regions and connects different tourism and leisure attractions with different attribution. Therefore, from the beginning of planning, it is very necessary to conduct coordination between provinces and cities and departments. Only authoritative administrative instructions and the active cooperation of various departments can promote the orderly construction and development of greenway at all levels. In the process of greenway operation and management, a strict, strict and orderly dynamic monitoring mechanism should be

formed from top to bottom, find problems and solve them in time, and promote the sustainable development of greenway operation.

5.5 Emphasize Publicity, Create a Spark, and Increase Public Participation and Recognition of Greenways

The Pearl River Delta Greenway is half successful in the planning and construction, and half in the marketing and promotion. Anhui Greenway, planned and constructed earlier, presents a state of "the government is enthusiastic about the construction, and residents are ignorant to use it". In the final analysis, the result is caused by the government's weak marketing awareness, rigid marketing methods, and too small joint publicity. In the future, with the help of important festivals and celebrations, various types of activities suitable for the conditions and conditions of the province, to create a burning point to attract residents to come out from home, know, use and fall in love with the greenway, then the greenway can be regarded as a success.

6 Conclusion

The construction of greenways in the Pearl River Delta has promoted the improvement of ecology and urban-rural living environment, resulting in good economic and social benefits. The Pearl River Delta has achieved fruitful results in the implementation, construction, management and operation of greenway planning, as well as theoretical research. However, there are also some shortcomings and problems in the construction and management of greenways in the Pearl River Delta, such as some greenway constructions being too artificial and insufficient emphasis on ecological functions; Motor vehicles occupying greenways, causing safety hazards; The occurrence and discovery of problems such as the destruction of greenway facilities and signage systems require Anhui Province to take precautions and prevent similar situations from happening when constructing greenways in the future.

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