

# Cognition of Countryside Greenways Based on the Perspective of “Sansheng Integration”

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**Abstract:** As an important part of greenway network, countryside greenway is the organic expansion of urban green recreation space to suburban hinterland. At this stage, residents have more and higher demand for suburban greenway, but the current planning and design of suburban greenway can not meet the needs of residents. Therefore, this study summarizes the land characteristics of suburban greenways by analyzing the distribution and surrounding land use of suburban greenways in major cities in China. The concept of “sansheng integration” (the integration of production, life and ecology) is introduced into the planning and design of suburban greenway, and the internal correlation between “sansheng integration” and suburban greenway is clarified in the aspects of constituent elements, functions and products. The research results can provide reliable basis and effective guidance for the planning and design of the countryside greenway.

**Key words:** Countryside greenway, sansheng integration, greenway distribution, land use characteristics, planning management

## 1. Introduction

With the increase of residents' living and working pressure, residents' yearning for natural green environment and demand for leisure and entertainment increase. Moreover, residents' demand for “returning to nature” is very strong, and artificial green space can no longer meet the needs of residents with enhanced ecological consciousness. Suburban greenways, as a multi-win scheme, organically expand urban green recreation space to suburban natural space and rural field areas, provide residents with more opportunities to get close to nature and enjoy recreation. Therefore, the construction of suburban greenway needs to be closely linked with the actual needs of residents.

However, at present, the construction of rural greenway has not been popularized in major cities in China, and many designers do not have a deep understanding of the planning and design of rural greenway. In the report of the 18th National Congress of the Communist Party of China, the city should take “comfortable and pleasant living area, beautiful ecological area and efficient development of production area” as the development goal. The construction of suburban greenways should be able to meet residents' demands for production, living and ecological environment, and coordinate with the city's development goals. Therefore, “sansheng integration” (the integration of production, life and ecology) is an important means to promote the comprehensive function of suburban greenway.

To sum up, this study introduces the concept of “sansheng integration” in the construction of suburban greenway to ensure the sustainability and stability of the development of landscape ecosystem in suburban greenway, so as to organically combine ecology, life and production, and create a livable environment with good ecological environment, harmony and stability, and economic prosperity for residents. The research results can find more feasible ways and methods for reasonable construction and promotion of rural greenway development, and provide reliable basis and effective guidance for the planning and design of rural greenway.

## 2. Current situation and problems of countryside greenway construction in China

### 2.1 Development history of countryside greenway in China

With the construction of a large number of country parks, the meaning of greenways has been continuously enriched. Until the promulgation of the Pearl River Delta Greenway Network Planning Outline in 2010, the classification criteria of greenways have been clarified. At this point, the countryside greenway has come into people's vision and has been paid more attention.

Guangdong Province took the lead in the construction of the first greenway network in China, the Pearl River Delta Greenway Network. After Guangdong Province put forward the General Plan of Greenway in the Pearl River Delta Region in 2010, nine cities in the Pearl River Delta region (Guangzhou, Zhaoqing, Shenzhen, Dongguan, Huizhou, Zhuhai, Foshan, Zhongshan and Jiangmen) carried out the construction of suburban greenways. Since then, the Yangtze River Delta, represented by Jiangsu and Zhejiang provinces, has begun the construction of greenway network. In 2012, China's first cross-provincial scenic road built in the Yangtze River Delta passes through seven cities and counties of Huzhou, Changxing and Yixing in Zhejiang Province and Changzhou, Wuxi, Suzhou and Wujiang in Jiangsu Province. Relying on the scenery of Taihu Lake, it has formed rich leisure sites. After that, domestic cities set off a boom in the construction of suburban greenways, including Beijing, Shanghai, Hangzhou, Taizhou, Jiaxing, Ningbo, Xiamen, Nanjing, Huangyan, Wenzhou, Wuhan, Chengdu, Xinjiang Hohhot and many other cities have carried out the construction practice of suburban greenways. According to the results of the construction of suburban greenways in China, the construction area is mainly concentrated in the eastern region, and less in the central and western regions.

### 2.2 The distribution of suburban greenways in major cities and the characteristics of surrounding land use

As a regional greenway, suburban greenway inevitably involves the coordination and unity of regional space, economy and society. Therefore, the countryside greenway needs to consider the relationship between the greenway and the region. This part summarizes the distribution of suburban greenways and the surrounding land features in major Chinese cities Guangzhou, Shenzhen, Hangzhou, Beijing and Wuhan. Due to the lack of relevant statutory planning information, the land use around the countryside greenway is mainly realized in

accordance with satellite image recognition. The land use data adopts the 30m data of the Chinese Academy of Sciences in 2020, and the land use type is obtained by interpreting the satellite image. The land use classification is consistent with the “Urban Land Classification and Planning and Construction land Standard”.

It is found that the layout of the countryside greenway mainly includes linear and circular forms. The land use characteristics of the countryside greenway are divided into two types: (1) The natural countryside environment is the main environment along the route. The surrounding land is mainly cultivated land, water area, forest land and village construction land; □ The countryside greenway passes through the buffer zone of dense urban construction area. The surrounding land is mainly used for urban construction.

### 3. Countryside greenway planning and design “sansheng integration” new ideas

#### 3.1 Classification of “sansheng space” of countryside greenway

At present, the research methods to define and identify the connotation of “sansheng space” on the basis of land use type have been widely used. The areas along the countryside greenway involve different land types, and the space is relatively complex. By combing and summarizing the previous research results on the main functions of various types of land, the status quo of land use types involved in the countryside greenway are classified according to the leading functions of ecology, life and production, and corresponding adjustments are made according to the actual situation of the construction of countryside greenway. Try to ensure that their spatial classification is consistent with the actual function, and classify the “sansheng space” of the suburban greenway.

The space of the suburban greenway is divided into ecological space, living space and production space. The ecological space includes woodland, grassland and water area; The living space mainly includes the rural living space; Production space includes agricultural production space and other production space. Because of the cross-over and overlapping relationship between different Spaces, the space that does not produce economic value is transformed into ecological space in this study. Therefore, for example, the pits and ditches in the water space can generate economic benefits through fisheries and aquaculture and are divided into production Spaces, while the economic forests in the forest space, including orchards and tea gardens, can generate economic value and are production Spaces.

#### 3.2 The internal relationship between “sansheng integration” and the countryside greenway

As a linear corridor and space, the countryside greenway forms different systems in the process of integration with different land use types. Among them, the main components, including trails, greenery, service facilities and sign system, are built on the basis of different “sansheng Spaces”. For example, the construction of roads in the greenway trail system is built on the basis of the original life roads; The greening is built on the original forest land and grassland ecological space; Service facility system and signage system are built on the basis of living space. The construction of post station is based on the transformation of village buildings. Therefore, the elements of the countryside greenway are closely related to “sansheng space”.

The suburban greenway has multiple functions, including ecological function, leisure function, economic development function, social culture and aesthetic function. The fundamental of “sansheng integration” is people-oriented, which can eventually achieve a good ecological environment, livable living environment and good production development. The main function is to promote economic growth and drive regional development; In addition, it also has the functions of improving the implementation of the basis of life, improving the ecological environment, and developing agricultural resources. Therefore, in terms of function, the rural greenway has a strong correlation with the integration of three kinds of life.

The development of suburban greenways cannot be separated from the dynamic support provided by industrial innovation and upgrading. The realization of “sansheng integration” is also to develop and expand the traditional elements of food, housing, transportation, tourism, shopping and entertainment, and innovate and upgrade. The countryside greenway has developed a series of products that adapt to the economic and social development, including the farmhouse fun characterized by tourism and the growing culture of cycling. The products of “sansheng integration” cover the sum of goods and services produced in ecology, life and production, including tangible and physical products, as well as intangible and spiritual products. Therefore, in terms of products, there is a strong correlation between rural greenway and “sansheng integration”.

#### 3.3 The concept of “sansheng integration” provides new ideas for the sustainable development of rural greenways

“Sansheng integration” is the integration of ecology, life and production, the three complement each other, deep integration, coordinated development, the integration of ecology, life and production is the first condition for the common development of the three. The “sansheng integration” studied in this paper means that through the construction of suburban greenway, the ecological space, living space and production space in the region can play the mutual promoting role in the “sansheng” function, play multiple service functions, and promote the construction of regional pleasant ecological environment, livable living environment and suitable business production environment.

Ecological space is the foundation of the development of suburban greenway, which can lay an ecological foundation and provide material guarantee for the production space and living space. Production space is the driving force for the development of suburban greenway, which determines the ecological space and living space. The living space is the place where the suburban greenway provides services.

A good ecological base is the basis for the suburban greenway to achieve “sansheng integration”. The development and construction of suburban greenway provide services through the component elements including trail system, greening, service facilities and signage facilities to improve the quality of life of residents; On this basis, it responds to the needs of residents who pay attention to ecology and want to get close to the natural environment.

The coordination of production and ecological functions is a powerful reflection of the competitiveness of suburban greenways. As a linear corridor, the countryside greenway attaches importance to the play of ecological functions, restores the habitats such as forest land, grassland and water area, and lays a good ecological foundation. At the same time, the countryside greenway pays attention to the node characteristics mining to promote the development of agricultural industry.

The coordination and mutual promotion of production and living functions in the areas where the countryside greenway is located is an important link to realize the “sansheng integration”. Through the development and construction of suburban greenway, we should pay attention to the excavation of regional characteristics, promote the development of agricultural industry, directly provide jobs in large-scale planting and other aspects, and further promote the development of agricultural industry through talent support.

From the perspective of “sansheng integration”, the ecological, living and production needs of the area where the countryside greenway is located are comprehensively considered, and the resources of urban and rural areas are formed into an open and sharing system, so that more residents can enjoy different public resources. The goal is to build a countryside greenway with multi-element overall development, rather than just the arbitrary development of a single countryside greenway system. The ecological, living and production space in the area where the countryside greenway is located cannot be analyzed from a single space, because the functions of “sansheng” are interrelated and influence each other, and the change of any space will directly or indirectly affect the development of the other two Spaces. Therefore, the integration of ecology, life and production space can be regarded as the core concept and guidance of the development of suburban greenway, and the coordinated development of the three is an effective way for the sustainable development of suburban greenway construction.

#### 4. Conclusions

This study takes the countryside greenway as the research object, through summarizing the current situation and problems of the construction of our country’s countryside greenway, and from the perspective of “sansheng integration”, to recognize the countryside greenway. The main conclusions are as follows:

(1) The layout of suburban greenway mainly includes linear and circular forms. The land use characteristics of the countryside greenway are divided into two types: the natural countryside environment is the main environment along the route, and the surrounding land is mainly cultivated land, water area, forest land and village construction land; The countryside greenway passes through the buffer zone of dense urban construction area, and the surrounding land is mainly urban construction land.

(2) It makes clear that the internal relationship between “sansheng integration” and suburban greenway is mainly manifested in the components, functions and products. It is clear that the concept of “sansheng integration” can provide support for the sustainable development of rural greenway, which is mainly reflected in: the mutual promotion of “sansheng” functions provides more reasonable planning and layout ideas; Multi-element overall planning to guide the benign development trend of the region.

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