

## Problems and Countermeasures in Urban Greenway Construction

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### Abstract

In terms of landscape design, urban greenway refers to the green landscape roads built for the pedestrians and the cyclists in cities. In recent years, many regions and cities in China have begun to enter the urban greenway construction boom and some urban greenway constructions have achieved periodical goals. However, many problems have emerged in the process of urban greenway construction in China, for example, lack of legal basis, biased understanding of the urban greenway of the public and weak scientific research, etc. In order to promote the development of urban greenway construction in China, the article discussed the existing problems of urban greenway construction in China and proposed corresponding solutions, based on the research of the urban greenway construction and the analysis of the characteristics of different urban developments.

**Key words:** Urban greenway; Construction; Problem; Countermeasure

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### INTRODUCTION

The concept of greenway is first proposed by Western researchers in the late 19th and the early 20th centuries and its concept is changing and developing overtime. However, the basic connotation is constant - the greenway is a green, linear and open space with ecological, recreational, economic, historical and cultural heritage resources, designed and built for the usage of

pedestrians and cyclists only, connected to various open spaces, usually built along natural corridors or artificial corridors. The urban greenway not only bears the urban functions such as transportation and recreation, but also plays an important role in maintaining the ecological environment. Therefore, the urban greenway will become an indispensable and significant part of the future urban construction. In urban greenway construction, planning of greenway is the most significant stage. In recent years, many regions and cities in China have begun to enter the urban greenway construction boom, and some urban greenway constructions have achieved periodical goals. However, there are still problems such as lack of legal basis, citizens' biased understanding of the urban greenway and weak scientific research, which impede the construction of urban greenways. In order to promote the development of urban greenway construction in China, the article analyzed the existing problems of urban greenway construction in this country based on the research of the previous urban greenway construction and the characteristics of different urban developments and finally proposed corresponding solutions.

### 1. THE RELEVANT CONTENT OF THE URBAN GREENWAY

Urban greenway refers to the greenway in the city, which is built based on various natural ecological resources and humanistic and historical resources. Urban greenway is usually built alongside the linear elements such as riverside corridors, municipal corridors and urban roads. According to the main location and type of usage, urban greenways are mainly classified as the commercial zone greenways, residential zone greenways, work zone greenways, sightseeing zone greenways, natural greenways and protective greenways. The urban greenway is with the main functions as follow: (1) The urban greenways shape the ecological corridors by

connecting the individual natural patch, with the function of ecological environment protection. (2) The urban greenways provide the landscape corridors by connecting the specific nodes with natural resources of the city, with the function of improving the living environment. (3) The urban greenways create the recreational corridors by connecting the public facilities and tourist areas, with the function of urban recreation and entertainments. (4) The urban greenways attract people from the suburban areas, bringing the vitality to the city and promoting the economy in the suburban areas, with the function of economic development. In the process of designing urban greenways, the planners and designers should follow the principles of integrity, gradual progress, protecting the ecological environment, considering cultural elements and meeting people's needs and interests.

## **2. THE CURRENT PROBLEMS IN THE CONSTRUCTION OF URBAN GREENWAYS IN CHINA**

### **2.1 The Legal Basis for Urban Greenway Construction Is Limited**

With the rapid development of economy in China, the pace of urbanization is constantly advancing, but as an urban construction, the construction of urban greenways has not kept the same pace of urbanization. One of the fundamental reasons is that there is still no corresponding legal basis in the construction of urban greenways in China. Although there are some regulations that point out clearly that the green channel is an important part of China's national greening, for the current legal basis of urban greenway in China, most of the relevant implementation is based on the "*People's Republic of China Urban and Rural Planning Law*". There is no clear indication of the importance of urban greenway construction in urban construction and development or relevant legal conditions defining the construction of urban greenways clearly. At the same time, the construction of urban roads is emphasized highly in the urban planning, while the importance of urban greenway construction has not been highlighted. Therefore, in order to accelerate the construction of urban greenways, it is necessary to establish a comprehensive legal and regulatory system.

### **2.2 People's Understandings of Urban Greenway Are Biased**

After a series of publicity campaigns by the government, the public has general knowledge of the urban greenway, but the understanding is not profound or comprehensive. Many people have the concept that the construction of urban greenway is a municipal process or a task of the government, but they may not have the idea that building the urban greenway is aiming at addressing the

interests and meeting the needs of themselves, nor do they recognize the significance of urban greenway in their daily life or their living quality. As the urban greenway construction is public's need-oriented, lack of knowledge leads to lack of the public involvement. As the result, the public support in constructing the urban greenway is relatively limited, which results in the impediment of the construction of urban greenway. Only by further improving the public's understanding of urban greenway, can the planners and the designers plan and design a better urban greenway system.

### **2.3 The Relevant Factors of the Cities are not Well Considered in Urban Greenway Construction**

In China, the construction of urban greenway can be seen as a product of urban ecological construction, cultural construction and economic construction. It is also a combination of urban planning, scientific development and urban ecological development. However, at the same time, conflicts exist among those factors within the combinations. Addressing the conflicts requires the decision makers to develop specific strategies of urban greenway construction for the specific cities and decide which factor should put more weights than others, based on the specific situation of the society, the specific problem of the development of the city and the special needs of the citizens. It is common that the conflicts are not addressed well. In some urban greenway construction, the ecological benefits of greenways are overemphasized, while cultural factors are neglected; some urban greenway constructions do not match the level of local economic construction, but beyond the local economic level; other cities ignore the demands of urban transportation in the construction of the greenway and consider the construction of urban greenway as the construction of ecology and culture only. In summary, the greenway identification system is extremely imperfect, which make it difficult to find out the point of balance in considering the importance of each factor and difficult to connect the urban greenway construction with the local issues.

### **2.4 The Design of the Facilities in the Landscape Node Is Not Considered Both Aesthetics and Functions**

As an important part of the construction of urban greenways, landscape nodes are generally set up with pavilions, tables and chairs for people to rest next to the greenway, but the number of those facilities in the constructed greenway is not enough in many cities. Some design of many tables and chairs is not reasonable enough. For example, some swings and wicker chairs are set for aesthetics only, their functions are limited. In some places, the pavilion is far from the roadside and it is not convenient for tourists to access. These flashy settings do not reflect the true roles of the urban greenway. At this point, many local governments have been aware of the

problems and the situation has been improved, but the improvement has not well matched the needs of tourists and the public yet. Furthermore, some design is neither pretty nor functional. Some design of the pavilion is slightly simple and do not highlight the characteristics of the city. Although the design of some stone benches is user-friendly and practical, it is not coordinated with the surrounding environment.

### **2.5 There Are Problems in the Maintenance and Management of Daily Use**

In the maintenance and management of daily use of urban greenway, the common problems are relevant to the permeable pavements. The longer the greenway is used, the easier the surface is to accumulate sand, oil, garbage powder, dust and various other stuff filtered by rainwater. The accumulation is very likely to cause the pore blockage, so that the water permeability of the greenway is reduced and some materials with poor quality will be completely blocked, losing water permeability, which will affect the later use of the greenway seriously. In addition, for the construction of greenway projects in some cities, there may not be major quality problems in itself, but problems of management arise, which also affects the use of greenways negatively. For example, the distance of the greenway of the Honghua Lake Scenic Spot in Huizhou is 28 km. After the greenway is open to use, all vehicles except the construction and management vehicles cannot enter the scenic spot. Tourists entering the greenway can walk or rent bicycles and trams provided by the scenic spot only. The greenway made it inconvenient to access the scenic spot. In this case, the urban greenways have violated the basic functions of the greenway.

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## **3. SOLUTION**

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### **3.1 Strengthen Legislation to Ensure the Status of Urban Greenway Construction in Urban Construction**

In order to achieve rapid development of urban greenways, it is necessary to establish the status of greenway construction in urban development and construction, which requires the country to establish relevant legal guarantees. At present, China is in an important period of rapid urbanization. Only by establishing a sound and comprehensive legal system can it avoid or reduce utilitarianism and blindness in urban development. Urban greenway construction is an important factor in urban development and construction. The components must have relevant laws as the basis for creating an external environment to protect urban greenway planning and construction. Only by this means can urban greenway planning and the concept be promoted and implemented gradually to promote the rapid development of the city.

### **3.2 The Government Guild the Public to Understand the Urban Greenway Construction Better**

Relevant government departments should play the leading role and increase publicity efforts to raise public's awareness of urban greenway construction, letting the public realize the importance of urban greenway construction for urban development and letting the public recognize the starting point and foothold of the construction of urban greenways of the government. The publicity should highlight the points that the purpose of urban greenway construction is improving the living quality of urban residents. It is also important to highlight that the construction of urban greenways is related to urban ecology, recreation, economy and protection of historical and cultural heritage closely, as well as related to people's daily life strongly. Only in this way will more people support and get involved into the construction and development of urban greenways, thus improving people's quality of life.

### **3.3 The Construction of Urban Greenways Should Be Integrated With the Situation of the City Closely**

In China, cities with different scales have different functional orientations and urban characteristics. They are generally divided into five categories: super-large cities, mega-cities, big cities, medium-sized cities, and small cities. The construction of urban greenways should be integrated with the characteristics of the city closely. Combining the characteristics of cities and using the limited urban resources to carry out urban greenway construction has always been a problem that needs to be addressed in the process of urban greenway construction. For example, in large cities, due to the high density of population, the land resources are very intense. When constructing greenways in these cities, we must try to save land and assemble the functions of urban greenway within a relevantly smaller space. In addition, when constructing urban greenways, it is necessary not only to combine the characteristics of the city, but also to consider that the urban greenway construction should follow the principle of adapting to local conditions, such as the economic development, historical culture and other factors of the city. Take the impacts of the urban traffic into consideration, the urban greenway construction can meet the needs of the city and the residents, so that its functions can be maximized.

### **3.4 Reform the Rest Facilities in the Landscape Node**

The urban greenway is a leisure space for people to walk, jog or cycle, a traffic corridor to connect the origins and the destinations, with beautiful scenery along the way. In the process of construction, the urban greenway should be designed rationally and scientifically in its landscape nodes. The first concern is the setting of rest facilities. The rest facilities along the greenway are mainly for visitors to rest, to gather, to appreciate the natural beauty or to

avoid bad weather temporarily. These facilities mainly include benches, pavilions, galleries, flower stands and open spaces. Different cities should set up rest facilities according to their characteristics, standards and the needs of people. Generally, the interval of the facilities should be within 1 km (a distance of 20 minutes at a walking speed of 3 km per hour). In the setting of the pavilion, the planners and designers must also take the characteristics of the city and the human factors into account, so that the pavilion has more characteristics that the city should have. In the selection of materials, the style and color should be coordinated with the surrounding environment. When designing the landscape nodes, on the basis of considering the landscape ecology, recreation, aesthetics, etc., we must fully consider the visual enjoyment and experience of the tourists and create landscape pieces in the nodes to attract more visitors to stop and use the urban greenway. The site should be paid special attention to meet the requirements of fire prevention, water intake and safety lighting. Detailed design standards should be designed with reference to relevant landscape standards, so that landscape nodes can play their due role and make urban greenways benefit more people.

### 3.5 Focus on Daily Maintenance and Management

Daily maintenance and management are also important parts of urban greenway construction. In the maintenance and management of urban greenway daily use, the problem of permeable pavement often occurs, so we must strengthen daily maintenance, setting up a special maintenance team, regularly cleaning and maintaining the urban greenway and putting some garbage. At the same time, it is necessary to strengthen the work of daily management. Since the Greenway is a relatively long linear open space, it is usually complicated to manage. Establishing a sound management system and regulation and setting up a team leading to do the work of management are suggested. The management of the road should ensure that it can serve the city and the people.

### CONCLUSIONS

In summary, urban greenway construction plays an important role in the development of modern urban

construction. With the continuous development of China's economy, the role of urban greenway will become more prominent, which will promote the development of cities and improve the lives of urban residents. At this point, the government should constantly improve relevant laws and regulations, establishing the important position of urban greenways in urban development and should closely integrate the urban greenway construction with the characteristics of cities. Taking the factors such as urban economic development and human history into account and actively promoting the enthusiasm that triggered public participation are also important in urban greenway constructions. Furthermore, both of functions and aesthetics should be combined in the design and the daily maintenance and management should be paid attention to. In addition, it is necessary to refer to social science research methods and learn the experience from other counties or region to establish a systematic work plan to innovate more suitable methods and to generate new ideas of urban greenway planning, design and construction.

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