

The Urban Green Space Context in China

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Abstract: In increasingly crowded cities, green space is already at a premium and the only remaining urban green space should be a valuable presence. Exposure to the natural environment, including that of urban areas, is good for human health. In urban development, people are realising the importance of the landscape to the urban environment, and indeed urban green space and the services it provides play an important role in promoting human health and urban sustainability.

1. Introduction

Traditional Chinese thought advocates the 'unity of heaven and man', which sees man and the environment as interdependent, and Ian McHarg points out that the relationship between man and the environment is based on the continued existence of other organisms in the biophysical world[1]. However, in China today, where urbanisation continues to increase, the previous focus on building cities has neglected the importance of the landscape, and part of the urban green space is simply to fill in the white space behind buildings without having any ecological value, which is a wasteful use of green space in cities. This article analyses and describes how to renew and rebuild the old urban green spaces that already exist in the city from their roots and promote sustainable social development.

2. Problem Statement

It is an unfortunate phenomenon in urbanisation that cities expand spontaneously or passively, while the systems of the city, including transport, infrastructure, ecology and historic landscape conservation, fail to keep pace with the development. By the time urbanisation has reached a certain point, it is too late to realise that the renewal and preservation of these systems is an important measure. One of the more costly remedies that have been attempted to redeem the neglected parts of earlier urbanisation is urban green space.

The development of urban landscape and green space planning theory and practice has been relatively slow, influenced by the old planning philosophy of "buildings first, green space to fill in the blanks", the urban planning community has done very little research on urban green space systems, which are more often considered to be a problem for the landscape department. In addition, the establishment of a landscape theory basically follows the planning methods and some of the principles of urban open space planning introduced in the early 1950s during the comprehensive study of the Soviet Union, with a combination of point, line and surface layout

throughout the urban green space planning system. Although this is not considered to be a scientific rule, it is the inevitable result of construction and theory. The greenery of each road forms a green line, the intersection of the green lines forms a green point, and the natural necklace of green lines and green points forms a unit. The greenery of each unit thus forms the green surface, and thus the conclusion of the dots and lines is the result of a non-emergence in the city.

In recent years, this layout principle has further evolved into abstract green space layout patterns such as "a combination of rings, blocks, points, wedges and networks of green spaces". Under the coverage of "green centres, green wedges and green axes", the green spaces and open spaces that the city really needs are being encroached upon. The extensive, comprehensive, fundamental and long-term nature of green space planning in the whole planning system has been neglected for a long time.

In most cases, the establishment of a green space system basically occurs after the specific industrial, residential, commercial, administrative and transport functions have been defined, and then the greening rates and the greening requirements of the national and local norms for the various types of green space are listed. In the end, the aim is to achieve the three indicators of 'public green space per capita', 'urban green space ratio' and 'green coverage', rather than the real need for an urban green space system. The root cause of this is that, as a product of the economic era, the link between the green space system and human society has not been realised, and as a result it has not been effective to a certain extent.

As a living public good in a city, green space is interlinked from planning, construction to maintenance, requiring comprehensive planning, systematic management and scientific maintenance, a process that is 'seamless' and vital to the ultimate realisation of urban green space. However, as China's planning for urban green space is divided into three separate models, including planning, construction and maintenance, there is often a discrepancy in the understanding and management mechanisms between the various departments. The result is that valuable ecological space can easily be used unscientifically or even 'misused', resulting in a huge waste of public investment and management.

In the case of China, the reasons that hinder the effectiveness of urban green space systems can be summarised as the lagging of the theoretical establishment and the lack of a practical platform. Therefore, exploration and practice can be one of the new ways to promote the upgrading of urban green space systems, and it is worth trying to find and experiment with new theoretical bases and redistribution of management systems.

3. Objective+ Methodology

Urban green spaces are an important vehicle for building urban ecology and improving the quality of the human environment, and they are also the most relevant technical means of solving urban ecological and habitat problems. Therefore, the creation of a green space system that can be adapted to the urban context is an immediate and long-term goal. In response to the above analysis of the current problems, the project aims to create a green space system that can be adapted to the current urban context, trying to keep it as close as possible to the rhythm of urban development. Practice and exploration are the objectives of the project, including the updating of the theoretical system and the management of the practical platform.

3.1 Updating the Theoretical System

Green spaces, as a form of urban land use, have three basic functions: ecological, humanistic and landscape at the same time. In addition, each type of green space has a different function, for example, special environments: nursery, retirement homes, hospitals, etc., and parks and ecological

green spaces, each with a different focus on ecological, humanistic and landscape requirements, and therefore the corresponding design approaches and concepts should be different.

The three basic functions of green space are regarded as subsets, and the urban green space system is decomposed into three major parts: the ecological urban green space subsystem, the recreational urban green space subsystem and the landscape urban green space subsystem, and the theory of urban ecology, the theory of garden green space planning and design and the theory of urban design are practiced and applied respectively to construct a multi-level, multi-structured and multi-functional green space system in a scientific and systematic manner.

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Ecological green space systems aim to build on the ecology of non-building land conservation and creation, and can be seen as public good undertakings. For example, it can play the role of a large biological corridor in the city, providing space for wildlife to migrate, nest, feed and breed. In addition, waterways green corridors are networks formed by the interconnection of protected land and waterways, where riverbanks are transformed and managed using ecological berm transformation and maintaining natural river morphology as far as possible, while ensuring flood and water prevention requirements. Ecological green space is an effective means of enhancing biodiversity in the city and promoting sustainable social development.

Recreational green space system is a product of the economy's response to the impact on the public good. With the development of the urban economy, people are increasingly concerned about their health. Today, when the physical space available for urban green space is very limited, consideration should be given to providing a limited amount of public open space for the public by adding an appropriate amount of recreational facilities, so that the green space resources and coastal resources of the city can be opened up to the public to the maximum extent on the basis of ensuring the stability and virtuous cycle of the ecosystem. To a certain extent, it is also conducive to people's awareness of nature.

Landscape green space system applies urban design principles to serve urban landscape construction. The greening of important public activity spaces in cities, including transport spaces, concentrates approximately 80% of citizen activity, despite the small size of the space. The overall greening of urban transport spaces is therefore the most direct and pervasive aspect of the overall urban landscape and forms the bulk of the landscape green space system. In addition, the possibility of future green corridor construction is foreseen if possible, linking green corridors with adjacent parks and green spaces, linking public and natural spaces as well as multifunctional residential communities, and providing more resting spaces for citizens.

3.2 Management of the Practice Platform

With China's large population and limited resources, people need to value green space even more. Therefore, the potential of urban green space should be exploited and its construction effect should be improved. The relative separation of the control of 'green space' and 'greening' has led to a certain degree of unscientific use or misuse of urban green space, and more appropriate spatial management should be considered. As the planning, construction and management of urban green spaces are divided between different departments, a better distribution of responsibilities is an important part of promoting the spatial renewal of urban green spaces. Possible conflicts between

departments should be minimised and the allocation and implementation should be rational based on principles and the nature of the green space.

Individually occupied green space, including ecological wetlands, natural woodlands, etc. It is managed from natural to managed properties by giving clear property rights and management attributes to the land in regional green spaces and large ecological corridors. The ecological properties generated are more obvious and intuitive than those of non-self-contained green space. Nonetheless, non-self-contained green space finds opportunities to tap and add new green space as buildings and structures increase. Given the high density of urban form in the city, one such opportunity is three-dimensional greening, with green roofs, footbridges and so on, effectively increasing the green area in a limited space and improving the urban ecological environment and landscape, which has significant ecological implications in urban ecology. For the development of potential green space, greening construction aiming at ecological restoration can focus on the ecological restoration of abandoned urban sites, such as the greening of quarries and the restoration of landfill sites.

Good urban green spaces can generate value for a variety of sectors, including the real estate sector, commerce and even tourism. Urban green spaces of high aesthetic and ecological quality can contribute to increased property values in the surrounding area, although this has also been pointed out as one of the disadvantages, which can potentially drive out low-income households. There is no denying that the image of a good urban green space can provide positive benefits such as a stronger sense of local identity, and better socio-cultural ecosystem services[2]. Leopold[3] argues that there are right and wrong ways of behaving towards land, not just in terms of exchange and privilege, but also in terms of moral responsibility and obligation. He concludes that 'something is right when it tends to preserve the integrity, stability and beauty of the biome'.

The ecological value generated by urban green space systems is one of the factors that support the sustainable development of society. Sustainable development of society cannot be achieved without support between the economy, society and ecology, although the economy is often one of the main factors in damaging ecology. Redesigning urban green spaces can provide a win-win strategy for both biodiversity and people. The aesthetic and ecological values generated by urban green spaces are important factors in attracting people to gather, while the economy is needed for people to generate activities to create them. This strategy may improve the long-standing relationship between the two and further the sustainable development of society.

4. Conclusion

Research into urban green space systems has been ongoing, the reason for this is that urban green space has been following the footsteps of urban development, the space for the development of urban green space systems is unknown, but its physical development space is limited, in addition, the factors that may arise during the development process are difficult to foresee. And generally speaking, the long term planning of Chinese cities can only be done for a maximum of 15-20 years. China is developing and there is still a great potential for urban development, therefore, it is very important to achieve a sustainable development of society, and the study of China's urban green space system is now only a beginning. Humanity, as the main promoter, continues to explore and follow up, studying and summarising the experience and theoretical basis of previous generations, going on to create a long-term relentless research and practice direction to renew or establish green spaces in cities.

It has been shown that urban green spaces of high aesthetic and ecological quality are more attractive to urban dwellers and provide better conditions for ecosystems[4]. Furthermore, the balance between landscape aesthetics and landscape ecology is a key factor in achieving interaction

between urban green spaces and humans. Ecological aesthetics are normative and people want to derive aesthetic pleasure from landscapes that are ecologically functional. In this way, the aesthetic experience promotes and sustains healthier ecosystems, thus indirectly contributing to the relationship between economy and ecology. The visual aesthetic value and ecological significance that green spaces bring to people and humans to generate interactions are very important in cities [5]. At the same time, green space promotes ecological health, maintains normal environmental functions, is protected from stress and degradation, and maintains productivity, autonomy, and organization over time [6]. Furthermore, one of the important factors for ecological health is biodiversity and vice versa.

There is still a great deal of potential and opportunity for research into China's urban green space systems. While the construction and updating of theory will require long-term research and summaries by the industry, the development of China's cities requires more and more appropriate planning practices. Such long-term strategic goals cannot be required to be achieved in their entirety immediately, but they can guide future urban planning and construction, the layout at all scales, and thus affect every aspect of the city.

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