



Analysis and Exploration of the Current Situation of Modern Landscape Architecture Planning and Construction Problems – Taking Zhuhai Yuanming New Garden as an Example

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ABSTRACT: This paper discusses and analyzes the current situation of domestic urban landscape architecture planning and design, and takes the Yuanming new garden, a typical modern landscape architecture in Zhuhai, as an example. Based on the bibliometric analysis and the fund research analysis of Wanfang Data Kehui platform, this paper combs the frontier and development trend of the current landscape architecture planning and design research. Secondly, through the field investigation of Zhuhai Yuanming new garden and the visual analysis of the data platform, this paper discusses the current situation, problems in planning practice, and suggestions to be improved.

Keywords: Urban construction, landscape architecture planning and design, people, living space

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INTRODUCTION

Since the 1980s, China's garden construction has achieved an unprecedented development, with scenic spots, comprehensive parks, forest parks, wetland parks, landscaping Expo parks and other special parks showing a vigorous development trend. By the early 1990s, with the gradual urbanization of China, the rapid growth of gardens and the increasing number of gardens, the landscape architecture industry has entered a prosperous period. With the development of social and economic level, people have higher and higher requirements for environmental protection awareness and quality of life. Landscape architecture planning and design is no longer a single consideration from the site design, but a comprehensive consideration from the humanities, history, geography and political aspects, reflecting local conditions and people-oriented.

The 21st century has entered the era of big data, and science and technology are widely popularized and applied among people. In recent years, the proposal of smart city construction has made China increasingly mature in the collection and evaluation of basic environmental information, and now the wide promotion of BIM Technology in environmental landscape design has gradually transformed people's research methods from qualitative analysis to quantitative analysis. Therefore, the application of mathematical algorithms in landscape architecture can make the research process more rational and objective. Relevant software can model parametrically, build relevant models and calculate the data, so that people can more easily find the rules behind the objective facts, and then make reasonable adjustments to the current situation, so that the current situation will develop towards a good situation.

LITERATURE REVIEW

Analysis of frontier theme words in Landscape Architecture Planning Research

Landscape architecture planning and design elements include natural landscape elements and artificial landscape elements. It intersects with planning, ecology, geography and other disciplines, and embodies different values and meanings in different types of disciplines. Landscape design is everywhere in the city, which plays a role in shaping social groups.

According to the analysis platforms such as SCI fund WanFangDATA and home for researchers, a total of 30784 pieces of data were retrieved. After further screening and filtering the sub projects such as travel reimbursement and holding review meetings, a total of 102 National Natural Science Foundation grants related to landscape architecture in the past decade, amounting to 44.464 million yuan. After landscape architecture was established as a first-class discipline in 2011, the first small peak of fund support also appeared (Figure 1), which also shows that the cause of landscape architecture in China is in the period of development.

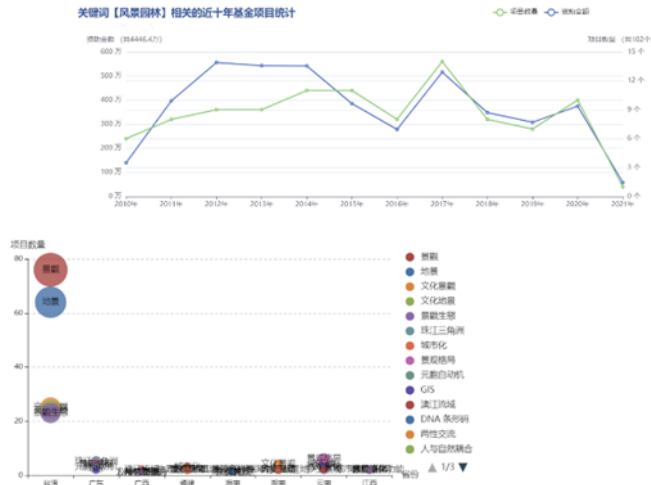


Figure 1. Statistics of Fund Projects of Landscape Architecture in Recent Ten Years

Figure 2. Distribution of Hot Topics

Image source: drawn by the author

If we add the statistics and analysis of Hong Kong, Macau and Taiwan, the hot topics and hot trends of the funded funds in China include: landscape, landscape, cultural landscape, cultural landscape, landscape ecology, the Pearl River Delta, urbanization, landscape pattern, cellular automata, GIS, the Lijiang River Basin, the coupling between man and nature, etc., and the number of landscape and landscape based scientific research fund projects in Taiwan Province ranks first in the country (Figure 2).

From the current situation and construction of landscape architecture planning and design, there are still many problems, such as plagiarizing others' design ideas and methods, not considering the idea of adjusting measures to local conditions, the mixed use of landscape design styles in the South and North, and failing to redesign, transform and innovate in combination with the actual situation of human customs, regional characteristics and contemporary natural environment and climate characteristics. Blindly imitating the means and direction of Western landscape design, it did not show the characteristics of the area to be designed, and finally caused the effect of "four unlike". At the same time, the planning practice should also be better integrated with the hot topic words of scientific research, so as to achieve the effect of industry university research.

METHODOLOGY

Through the method of field investigation and bibliometric analysis, the construction status of the Zhuhai Yuanming new garden is studied.

EXAMPLE ANALYSIS: ZHUHAI YUANMING NEW GARDEN

Current situation: the contradiction between obsolete construction facilities and tourism commercial development is prominent

At the beginning of the planning and design, the purpose is to provide Zhuhai citizens with more leisure square space and increase the urban green area. Before the completion of Fuhuali and high-rise buildings from Gongbei port to Yingbin Avenue, the Yuanming new garden ranked first in Zhuhai. Although it promoted the tourism volume of Zhuhai in the early stage, many problems also arose in the late stage: prominent commercial development projects in the park, built structures that are difficult to coordinate with the park's style, and relevant developers seek benefits from foreign tourism groups, Many places in the scenic area have been changed into paid entertainment projects, with less and less retro feeling and more and more serious commercialization. After seeking benefits from the people, developers did not repair the dilapidated buildings and hung high on the dilapidated buildings and landscapes (Fig. 3 and Fig. 4).

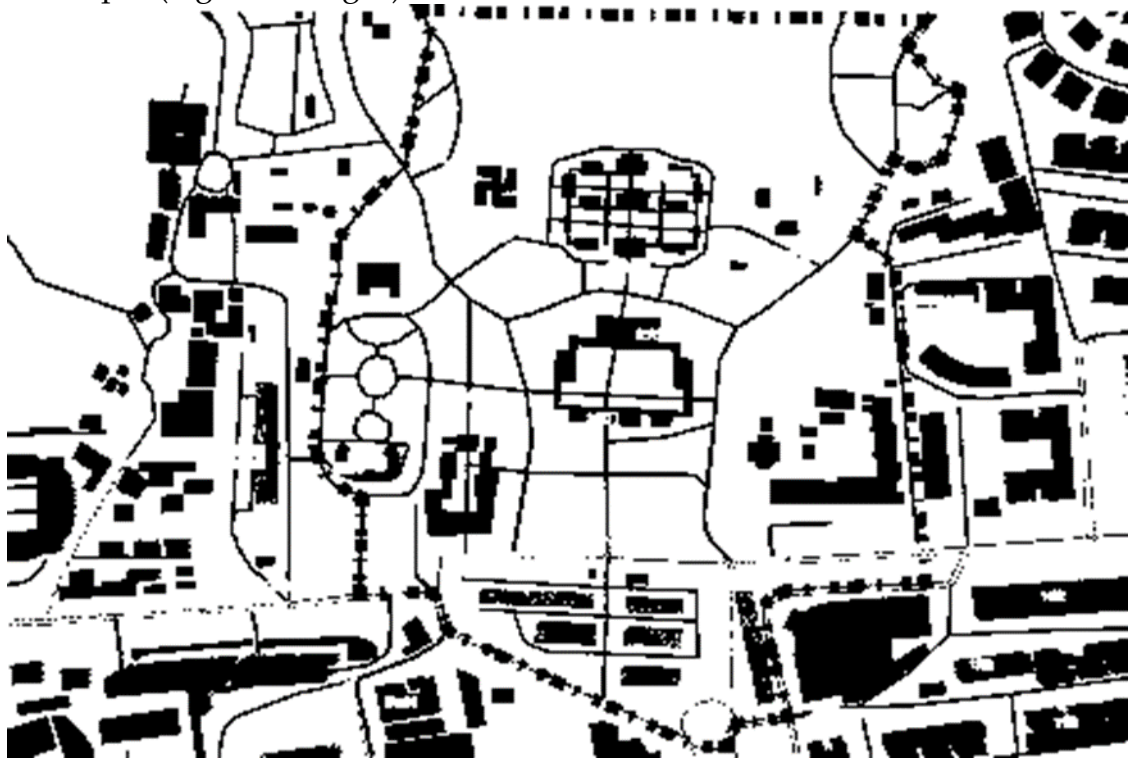


Figure 3. Distribution Map of Main Buildings and Road Network of Yuanming New Garden



Figure 4. Rising Real Estate Residential Groups Around
Image source: by the author

Insufficient historical and cultural inheritance

From the perspective of the garden itself, the Yuanming new garden, which built the northern Yuanmingyuan in the south in the same proportion, Zhuhai Yuanming new garden is a replica of Beijing Yuanmingyuan. Oranges grow in the South as oranges, and in the north as trifoliate orange. Beijing Yuanmingyuan is rebuilt in the south. The environment, geography, humanities and society are different. If it is just a simple garden copy, it will inevitably lack of inheritance. This kind of regional innovation that seems to have no historical context, coupled with the current failure to carry forward the traditional Chinese culture that the designers originally hoped to continue, the environment of the park is much worse than before, and has evolved into a landscape with less obvious significance. Beijing and Zhuhai are located in different regions, and the seasonal changes of plants, an important element in landscaping, are also different. In winter in Beijing, the lake freezes, and there are many deciduous trees in the park, making the scenery bleak; However, Zhuhai is located in the subtropical marine climate zone in South China, where the four seasons are like summer, and it is prosperous and blooming all year round with spring (Fig. 5 and Fig. 6).

At the same time, there are conflicts in the concept of adjusting measures to local conditions in landscape design, as well as the abuse of design elements and cultural symbols. For example, the symbols of the current regional cultural elements of Zhuhai City are the city images with strong regional culture, such as Zhuhai fisherman, the sun and moon shell of Zhuhai Grand Theater, Hong Kong Zhuhai Macau Bridge, Meixi memorial archway, Jiuzhou City, Chimelong ocean Kingdom, etc., but the integration of regional cultural symbols in the Yuanming new garden needs to be further improved. As a tourism landmark that once opened the new era of Zhuhai, Yuanming new garden is now also facing problems such as the brand culture does not meet the expectations of

residents, the internal layout of tourism products and parks is messy, the infrastructure is imperfect, and the distribution of commercial formats is uneven. Therefore, to upgrade, organically update and transform the internal and external systems of Zhuhai Yuanming new garden is to comply with the trend of the development of the times and the future dream of every Zhuhai person.



Figure 5. Winter Scenery of Yuanmingyuan Lake in Beijing



Figure 6, Winter Scenery of Yuanmingyuan Lake in Zhuhai
Image Source: Taken By The Author

In terms of the inheritance of historical gardens, after the Yuanming new garden was completed and put into use, the rapid economic development of Zhuhai also led to the rapid expansion of nearby real estate. Large single buildings were also built one by one, gradually covering up its light, and people even ignored the existence of gardens. Under the development of commercial

development, carrying forward traditional culture and displaying traditional ideas are also aspects that should be balanced at present.

3.3 Insufficient attraction of people and heat

Using Baidu thermal map analysis tool, the traffic flow near Yuanming new garden in Zhuhai is analyzed (Figure 7). The darker the color, the greater the traffic flow. The analysis time is from 8 a.m. to 24 p.m. the analysis shows that the area with relatively dense traffic flow is Zhuhai metro station, and the traffic flow in Moore square is also relatively dense by 24 p.m. First of all, Zhuhai urban rail station is the starting station of all the bullet trains in Zhuhai. It operates the moving berths from Zhuhai to West Beijing and Shanghai Hongqiao, to cross provincial bullet trains such as Guilin north, Nanning north, Guiyang North, Kunming south and Zhengzhou East, as well as the urban rail and bullet trains in Guangdong Province.

In addition, the Qingmao port opened in September 2021 in Zhuhai and Macau is directly connected to Zhuhai urban rail station. Gongbei port is less than 1 km away from it. A large number of tourists, office workers Cross border schoolchildren and others arrived here, with a huge flow of people. At the same time, the long-distance bus station next to Zhuhai station and the underground shopping mall are important places for business and entertainment, and also the first stop for most tourists to Zhuhai. How to reasonably guide the flow of people here to Yuanming new garden needs to be further improved. From the further analysis of the thermal map, it can be seen that the passenger flow near Yuanming new garden is more in the afternoon and evening, but the intensity is still less than that of Gongbei Port Zhuhai station area. In the future renovation and reconstruction of Yuanming new garden, we can properly consider starting from the thermal distribution, and strengthen the dredging Service in the afternoon and evening. For the old residential areas at the edge of the park, we can improve the infrastructure construction, and the surrounding plots to be built can be upgraded and transformed into Hotel, commercial, office and residential complexes, which can be organically combined with the old Yuanming new garden to better serve urban residents.

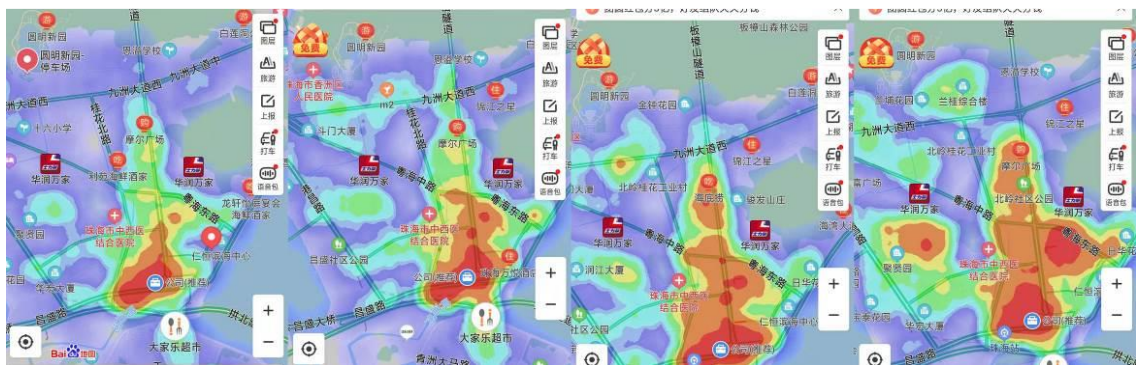


Figure 7. Baidu Thermal Distribution Map at Different Time Periods
Near Yuanming New Garden

Image Source: The Author Exported It According To Baidu Map

Certain light pollution

The light pollution in Yuanming new garden area is analyzed by light pollution map, as shown in Figure 8. It is found that there is currently moderate to high light pollution, there are many nearby commercial blocks, and nightlife is rich. However, Yuanming new garden, which is a large modern park in the city, has rich animal and plant populations. If outdoor lighting is excessive at night, the sky light, diffuse light Interfering light and reflected light will shine brightly on the living and resting environment of animals, disturbing their normal circadian rhythm; At the same time, light pollution will also destroy the biological clock law of plants planted in Yuanming new garden, even endanger their normal growth, affect the discoloration of stems and leaves, lead to death, and finally affect the dormancy and flowering rhythm of plants. In the future urban renewal and reconstruction, attention should also be paid to effectively control the intensity of night lighting.

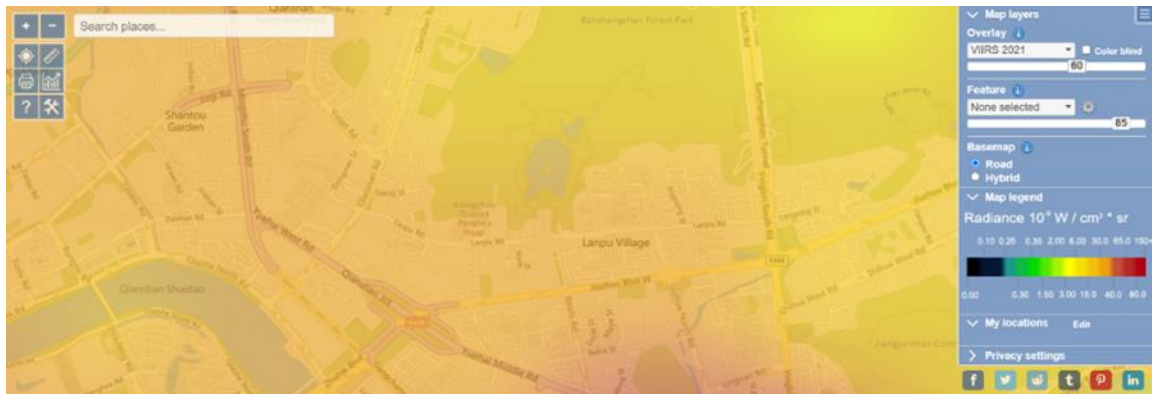


Figure 8. Light Pollution in Yuanming New Garden Area: Yellow Is Medium
(Image source: the author according to
<https://www.lightpollutionmap.info/#zoom=14.03&lat=22.2369&lon=113.5400&layers=B0TFFFFFFFFFFFFFFFFFFFF Export>)

CURRENT POLICY SUGGESTIONS RELATED TO LANDSCAPE ARCHITECTURE PLANNING AND DESIGN IN CHINA

Improve the cognitive level, operating skills and professional ethics of landscape architects

Landscape architects should constantly enrich their theoretical knowledge and related skills. In the stage of higher education, the discipline group of landscape architecture should fully mobilize surrounding resources and conduct discipline alliances with various higher education institutions. They also need to improve the construction of landscape architecture discipline, cultivate landscape architecture planning and design talents needed by future society and life, and keep up with the changes of the times. If you are still in the learning stage of students, you should constantly improve your professional level and your understanding of society, humanities and history. In the course design, avoid "making cars behind closed doors", and you should conduct fieldwork and interviews to understand the needs of users.

An excellent landscape architect should not only have rich theoretical basis and professional ethics, but also cultivate the ability to take risks. The state now implements a lifelong responsibility system for architects. In short, designers should take lifelong responsibility for the projects they design. This system undoubtedly acts as a constraint on designers, forcing them to assume corresponding responsibilities. On the one hand, it allows designers to follow up the project throughout the whole process, including bidding, bidding and final construction acceptance, rather than signing in name and perfunctory, resulting in the phenomenon of mutual shirking of responsibility after problems arise later. On the other hand, designers can continue to learn and improve their professional ability, theoretical knowledge, skills and professional ethics.

Correctly understand the relationship between Chinese traditional gardens and modern gardens

Traditional gardens and traditional buildings occupy an important position in the long history of development. After a long evolution and development, the shape and specific meaning of traditional gardens have been widely recognized by the society. Up to now, the emergence and development of modern gardens represent the development direction of domestic gardens and are the inevitable product of the progress of the whole era. Traditional gardens and modern gardens are not mutually exclusive. Everyone lives in a specific historical and cultural environment and has his own national characteristics. Therefore, we should look at problems from the perspective of dialectics, connection and development, compare the differences between traditional gardens and modern gardens, take their essence and discard their dross, and create a context that can reflect social values and the development of famous ethnic cultures, It can also reflect the social value and people's aesthetic and a new form of landscape architecture with the flavor of the times. Only by organically combining traditional gardens with modern gardens, while accepting modern civilization and respecting traditional cultural characteristics, can we make progress in landscape planning and design.

Zhuhai Yuanming new garden is the product of construction in a specific period. As a once popular tourism project, its garden style is quite different from Lingnan regional culture. As people pay attention to the changes of hot spots, they gradually fade out of sight and gradually decline. In the construction, protection and development of urban gardens, the urgent task is to find out the problems existing in their management and use, and to explore the direction and ways of research, transformation, governance and improvement. At this stage, under the concept of urban renewal, Zhuhai municipal government plans to carry out demolition and reconstruction, increase service supporting facilities, adjust the transportation system, improve environmental quality, and add new cultural tourism venues and various

infrastructure to better meet the cultural, leisure and tourism needs of citizens and tourists, and improve the quality of humanized services; Finally, unified signs, garbage classification, separation of people and vehicles, and systematic improvement of software and hardware quality, the final effect also needs to be further tested.

Scientifically and reasonably plan landscape architecture and improve the management mechanism and system

In the process of planning and construction of urban scenic spots, if the factors such as the geographical environment, climate change and the changing trend of the future population of the city are not fully considered, it is easy to lead to the pursuit of a grand garden scale in the garden construction, and the overall situation of the garden has not changed in a single direction, and the constructed garden has a great disconnect from the actual regional environment.

Therefore, to improve the management mechanism of landscape architecture, it is necessary to improve the cognitive level of all government departments and pay attention to landscape architecture. In the planning and design of domestic urban landscape architecture, we should always maintain close contact with the people's government and the people, go deep into the grass-roots research, record the people's needs, and truthfully reflect their needs with the superiors in the meeting. Therefore, the relevant urban planning institutes and government management departments should plan landscape architecture reasonably and pertinently in the construction of landscape architecture, so as to achieve the effect of adjusting measures to local conditions. At the same time, determine the system of reward and punishment, and strengthen the knowledge cognition level and work ability of relevant staff between departments. Relevant departments and design units should also always accept the supervision of the people, advocate public participation, and maximize the healthy and orderly development of modern urban landscape.

When necessary, the elements of rural landscape can be properly considered in urban landscape design to relatively reduce the commercialization and industrialization brought about by urbanization. The

development of rural areas. Relevant design units can also use ArcGIS, Ecotect analysis, guidos toolbox, Rhino (grasshopper), SWMM, global mapper and other space-time big data analysis software platforms to capture their development laws and existing problems, and better build and improve modern gardens.

CONCLUSION

The era of big data has come, and modern high technology should be used as the technical support to reasonably apply it to the construction of landscape architecture; Combined with the characteristics of the local climate, ensure the scientificity and rationality of landscape architecture planning, design according to local conditions, constantly improve the city's ecology, environmental aesthetics and comfort, and promote the continuous development of urbanization.

ADVANCED RESEARCH

This paper studies the current situation of local park construction. However, each region has its own architectural features and different cultural heritage. Our future direction can only learn from historical villages or buildings of the same type in the same area. This is also a limitation. In the future, you can also try to add quantitative research methods to make design decisions more scientific.

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