Research and Empirical Analysis on Urban Renewal and Community Construction Strategies

Mingming Xu

City Institute of Dalian University of Technology, Dalian 116600, China.

Abstract: Urban renewal and community transformation are important core topics in China at present and in the future.Urban space and community micro renewal mainly include two aspects: one is the renovation and development of new real estate projects, and the other is the creation of renewal oriented communities in existing areas. Regardless of the measure, it is necessary to update and design the multi-level spatial system of the landscape, the improvement and updating of functions, the integration of functions, the intelligent interactive design of landscape facilities, and the shaping of landscape ecology, culture, and landscape art to meet the needs of modern urban community life. In addition, attention should be paid to creating a people-oriented and humanized living environment, while strengthening the hardware construction and software planning of public spaces. Various methods should be adopted to enhance the "community identity" and achieve multiple satisfaction of needs, feelings, and emotions, so that every resident has the opportunity to enjoy a brand new open space in every corner near their home.

Keywords: Urban Renewal; Community Building; Operational Research; Community Identity

1. The main issues of urban public space and community renewal

In the past few decades, it has been the norm for China to carry out large-scale demolition and construction, and vigorously develop. With the rapid development of these decades, many spaces have not been built due to demand, but rather because of their investment attributes or asset value, leading to increased vacancy rates, poor population mobility, and low community vitality.

In the future, issues such as low birth rate, aging population, and gradually sluggish population growth will become increasingly prominent, and China's physical space will also be surplus. How to convert dilapidated low-quality urban space into high-quality space, enhance urban and community vitality, and reduce waste of spatial resources is a relatively serious problem to face in the future. Currently, active renewal has become the main approach.

2. Environmental Renewal

Urban public spaces and communities are countless points in the urban context that are connected to each other. Touching any point in the city will have an impact on the entire urban context system. By stimulating and treating the acupoints of the city, the environment of this local or even the entire urban space can be improved. Being able to accurately locate the treatment site is the key to urban space and community development.

2.1 Building a multi-level public space network system

Based on the summary and analysis of urban overall planning cases, while renovating micro point public spaces, repairing linear pedestrian spaces to form a public space network system consisting of sidewalks, small parks, and small squares can greatly improve the overall urban landscape. In the process of renovation design, a multi-level public space network system of "two parks and five rings" should be built as a whole while respecting the characteristics of the city itself. The concept of "two gardens" refers to the concept of "outside the park and inside the garden", which is compatible with the outside. The outer park enhances the overall atmosphere of small parks, commercial spaces, and sidewalks around the community, while the inner garden optimizes the daily needs of the surrounding and internal spaces of the community. Both the interior and exterior should meet the landscape requirements of urban reception halls, meeting diverse functional spaces such as communication, rest, sports, and participation. The interior and exterior complement each other and coexist in a diverse way, allowing residents to enjoy a beautiful and attractive living environment no matter where they go. The "Five Rings" system is a subdivision of the con-

cept of two parks, mainly including: 1) Urban small park ring - open core public activity area; 2) Urban small square ring - peripheral leisure and entertainment area; 3) Pedestrian and vehicular traffic loop - linear traffic flow loop; 4) Community surrounding control ring - community public service facility control ring; 5) Community Garden Ring - Community Activity and Rest Area. As a form of public space use, community gardens greatly enrich the connotation and extension of urban green space without changing the nature of land use and green space attributes. The setting of outer parks and inner gardens becomes blurred and integrated, jointly creating a multi-level public space network system.
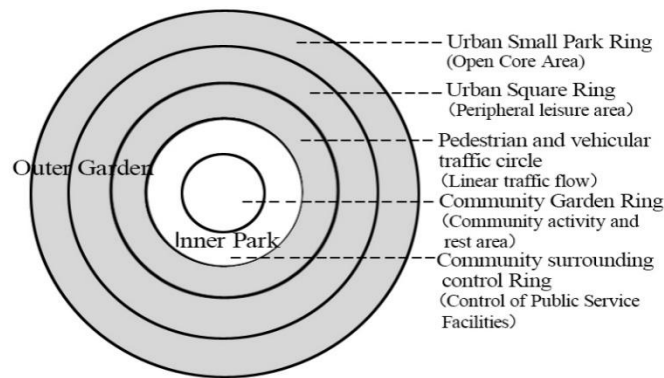

Fig.1 the multi-level public space network system of "two parks and five rings"

2.2 Improve and enhance functions to create a comprehensive activity venue

2.2.1 Functional Diversification

Create a comprehensive activity venue to meet the needs of various levels of activities. According to the analysis of the population using community space, the usage space can be divided into youth fitness area, elderly entertainment area, children's activity area, public activity area, etc. The functional design should pay attention to every person in the community, attract all people to participate in community activities, and create a comprehensive activity venue: equip young people with professional fitness equipment, not just traditional equipment suitable for the elderly, and move the gym outdoors, Consider the needs of young and middle-aged people for exercise; Increase dynamic activity areas suitable for teenagers, so that they no longer become addicted to online games and unleash their individual needs; A full age amusement park that emphasizes both fun and puzzle can be designed for children. Children can meet partners at different stages during the game, and parents are no longer bystanders, enhancing parent-child relationships through companionship. In addition, specialized designs should be set up to achieve comprehensive diversification of functions, such as outdoor mother and baby rooms, flea markets, pet exchange activity areas, etc., so that pets have a centralized playing area and can also enhance friendly and harmonious community relationships.

Fig.2 Design of functional site for environmental renewal of a community in Shanghai

2.2.2 Functional integration

Generally speaking, the public spaces in urban communities have the characteristics of small area and large quantity. Therefore, only

through reasonable planning and design of land use and structures can we create a positive and rich spatial experience. By integrating functions and purposes, setting up flexible and adaptable infrastructure to meet the needs of various community activities, and accommodating numerous activity schedules and possibilities within limited venue content, we aim to create countless new venues that are full of interactivity, flexibility, high technology content, and full of art and activity atmosphere. This will change the way people communicate with each other and meet the basic needs of living, shopping, leisure and entertainment While working, one can also shape one's own space according to needs, becoming an attractive and frequently used urban public space. Fully utilize functionality every quarter and every day. A very successful case design is the design of The Lawn on D Square in Boston, where both local residents, workers, and tourists can find their desired activity venue.
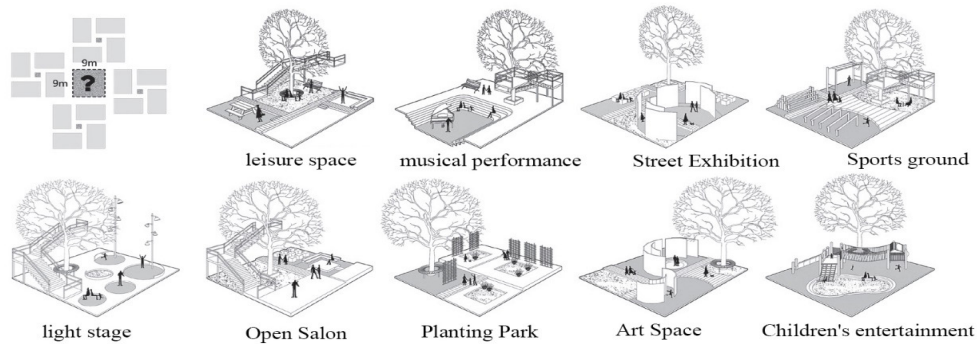

Fig.3 possibility analysis of activities in limited public spacc

2.3 Ecological landscape renewal

In the past few decades of reform and opening up, along with the significant achievements in China's urbanization development and construction, a large number of phenomena such as ecological environment damage have also emerged, which is a crucial point in urban problems. The construction and restoration of ecological greening has become the primary task of Chinese landscape park cities. In the process of urban public spaces and community transformation that are closely related to residents' lives, we should closely follow the pace of the "park city" concept, respect natural ecology, create an artificial green landscape system, integrate nature with the city, and jointly build an ecological system with complex functions and green grids. Many urban community renovation spaces are located in high-density and low-income residential areas, with severely insufficient green configuration and no sense of hierarchy. Only basic pruning can be achieved, which seriously affects the aesthetics of the community. In community renovation, the following principles should be adhered to: 1) Form a complete multi-level greening system, set up vertical greening, consider the landscape line of sight, create a five layered plant design and plant cluster landscaping, and use flowers and plants to match different landscapes in different seasons. 2) Referencing advanced ecological concepts: Some achievements have also been made in the construction of ecological cities both domestically and internationally, such as the harmony between people and water advocated by sponge cities, zero waste proposed by circular cities, and zero emissions pursued by low-carbon cities.
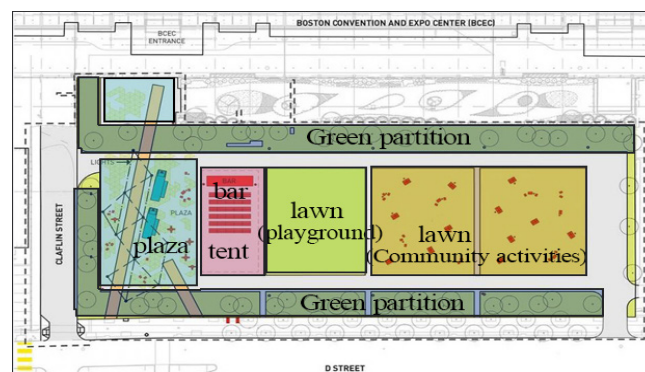

Fig.4 Research on The strategy of function and use fusion - The Lawn on D square

2.4 Intelligent Interactive Design of Landscape Facilities

Urban public space, as a public activity place for residents, provides them with diverse activities such as recreation, conversation, and entertainment. Landscape facilities, as an important component of urban space design, are also one of the important acupoints for urban community transformation. With the changes in people's lifestyles and communication methods, conventional landscape facility renovation methods can no longer meet the needs of modern life. It is necessary to strengthen the intelligent interaction design of facilities, increase interaction between people and the environment, and achieve a new interaction of "landscape human technology":1) Experience intelligence: high-speed WIFI coverage, real-time network access, and convenience through high-speed networks; Install and update lighting facilities, set up intelligent night running navigation, and attract residents to enjoy outdoor activities at night; Set up outdoor heated seats to enhance outdoor activity comfort, etc. 2) Interactive environment: install QR code devices on the floor, plants, and water features, scan and control environmental facilities to obtain relevant knowledge and information, and achieve benign interaction between people and the environment; Implement real-time monitoring in special areas such as children's and elderly activity areas, check the direction of children's activity status, and provide humanized safety protection for residents' activities. Landscape intelligent interactive design can greatly improve the quality of public spaces, improve the community's technological environment, and enhance the attractiveness of the space.

2.5 Culture and Landscape Art Shaping

In the past period of rapid urbanization, the urban renewal methods of large-scale demolition and construction in China placed too much emphasis on the improvement of material space, while neglecting the protection and continuation of urban community culture, resulting in a series of problems such as loss of spatial culture and decline of characteristic culture. The shaping of contemporary spatial culture can be approached from three directions: spatial culture, spiritual culture, and material culture: 1) Space culture is the most direct form of cultural shaping, mainly manifested in public spaces and landscape greening. It transforms cultural characteristics into spatial characteristics through functional improvement, landscape coordination, and transportation sorting. By transforming and designing landscape facilities, regional characteristics are created, promoting the visualization of cultural elements. 2) Spiritual culture mainly includes the display of spiritual culture and spiritual cultural activities. The display of urban spiritual culture mainly refers to billboards, community achievements, graffiti wall paintings, etc., which not only enhance the understanding of the community, but also facilitate the reconstruction of residents' historical memory and living space; The main way for spiritual and cultural activities is through the involvement of art in public spaces. It is a form of cultural activity that appears at the social level, such as art exhibitions, performances, spatial installations, etc. It emphasizes the joint participation of residents, aiming to improve the quality and vitality of the humanistic environment and reshape the spiritual culture of the community. 3) Material culture provides a display space for cultural revival, shaping urban community spaces that can carry memories into true cultural spaces. Combining natural and cultural characteristics, different themed cultural walls, cultural signs, introduction signs, etc. are divided to evoke people's memories. Surrounding areas are equipped with resting seats, and a visual cultural landscape environment is constructed.

3. Specific Construction Considerations for Landscape Transformation and Urban Community Renewal

3.1 Humanistic Residential Environment Construction Based on Humanism

The construction of urban public space and community renewal is a comprehensive social engineering, with the main body being the residents of the city. The needs of the public determine the direction of urban renewal. Therefore, it is necessary to adhere to the people-oriented concept, actively create a pleasant living environment, and effectively consider the communication needs, convenience needs, and safety needs of human habitation. The road is designed with no obstacles, with a clear view of the terrain and care for special groups; Install outdoor sockets and other charging devices for the convenience of the public; Set up technology equipment such as sound systems, time reporting systems, and lighting night running navigation to improve safety performance, and create a people-oriented living environment that is perceivable, comfortable, intelligent, sustainable, and interactive.

3.2 Strengthening the hardware construction of public spaces and promoting software plans simultaneously

The subjects involved in urban community renewal are diverse, and developers, media, various institutions, public organizations, etc. can all be initiators. They can build a management model led by the government and participated by multiple parties, strengthen the ability to utilize public space, guide residents to participate through the construction of service platforms, enhance spatial attractiveness, and intervene through activities, Stimulate residents' participation: Establish multi-party participation organizations for renovation work (such as community garden practices implemented in multiple places such as Shanghai), and jointly explore ways to improve the quality of community public spaces; Increase public spaces such as water bodies and greenery to guide residents to join and create a healthy and friendly living atmosphere; Create community communication spaces such as social welfare projects, flea markets, and lecture salons to enrich forms of public participation.

3.3 Creating a sense of community identity

With the prevalence of modernism and postmodernism in the last century, in many modern urban public spaces and communities, venues do not have self-identity. Group life should highlight the identity of each region, and each space should display its own characteristics. Public art can become an important part of group identity, easily becoming the center of identity, and making people living here feel more integrated into the environment they live in. There are two main ways of presenting public art: static sculpture art and installation art, and the other is the planning and performance of artistic activities, creating different themes based on the characteristics of the space, giving the space a personality and recognition, and becoming a local landmark. Multiple parties can also be organized to explore the demands for public spaces and artistic activities, avoiding homogenization, thereby enhancing residents' sense of identity and belonging, and enabling them to play a higher level of quality in participating in space creation.

4. Conclusion

The approach of "urban recovery" has gradually shifted from high-speed development to high-quality development. Lowering the speed and improving the quality of previously completed works, making the areas with lower quality more high-quality and dynamic, and reorganizing and updating the original urban and community spaces, is an inevitable direction for urban development. The key issue in "updating" is how to preserve the memory of the original city while transforming its space, function, and ecological landscape, so as to continue the culture, context, and past life of the city. Emphasis is placed on the construction of distinctive culture, new intelligent interaction design, and a people-oriented humanized living environment. The organic connection between "history" and "future" is of utmost importance.

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