

Study on the renovation and reuse strategy of the first batch of high-quality residential communities in China at the end of the 20th century: A case study of Chongqing Jinguoyuan community

Zhaojiang Lv

University of Birmingham, The Vale Reception, Shackleton, Edgbaston Park Road, Birmingham, UK

1242920485@qq.com

Abstract. At the end of the 20th century, brick and concrete structures were commonly used in residential buildings. These types of buildings were cheap to construct and easy to build, but their disadvantages were also very apparent. They had poor seismic resistance, heavy structural weight, and poor fire resistance, among others. The Jinguoyuan residential community in Chongqing, discussed in this paper, adopted a frame structure building strategy, solving the problem of planning high-quality residential buildings and addressing the different needs for functional division among homeowners. During a time when brick and concrete structures were commonly used for commercial housing, the adoption of brick and concrete mechanisms improved the high-quality nature of the community. It enhanced the accommodation of different needs for rooms, ultimately achieving the effect of positioning as a high-quality residential community.

Keywords: High-quality residential community, residential buildings, renovation and reuse, landscape design, environmental quality.

1. Introduction

In the half-century from the founding of the People's Republic of China in 1949 to 1998, China's urban housing had always implemented a welfare housing system of allocation by units, meaning that the state would invest in the construction of housing according to the administrative level of units, and the units would distribute these houses to their employees for low-rent [1]. Although this welfare housing system ensured the basic living needs of employees, its disadvantages were also quite obvious. Under this system, the positioning of investing units in housing construction limited the channels for housing investment and construction, thereby causing the development of China's housing investment and construction to be in a state of stagnation. In 1978, the national urban per capita living area was only 6.7 square meters, and the supply of housing was severely insufficient. At that time, with limited macroeconomic regulatory capabilities, the government wanted to leverage the power of the market to help improve people's living conditions [2]. According to the recollections of the working class in 1993, their living conditions were basically in five-story brick and concrete structure houses; one family lived in one room, and a floor shared one public toilet and one public kitchen. There was even a

“mobile market” (locally known as “going to the market”) that occurred once every seven days to supply workers with daily necessities. People could only buy the goods needed for their family for a week through such temporary markets, including grain, side dishes, daily necessities, etc.

In 1986, in the “Report Outline of the National Basic Construction Work Conference,” the central government first proposed the principle of housing commodification, allowing “private purchase of houses, private construction, and private ownership of their residences.” In 1998, the State Council issued the “Notice on Further Deepening the Reform of Urban Housing System and Accelerating Housing Construction,” announcing that the commodification of housing had entered a comprehensive initiation stage. Even so, housing issues still have many local and historical characteristics [3]. Housing problems are inevitably limited by the local economic development level and the level of social development; including the local policies between cities at that time were often different.

Overall, China’s housing system can be divided into four stages. The first stage from 1978 to 1993 was the exploratory stage of “housing commodification mainly involving the sale of public housing.” The second stage from 1994 to 2000 was the full promotion stage of “housing commodification characterized by the delegation of rights.” The third stage from 2000 to 2015 was the housing market construction stage “mainly involving price regulation”; the fourth stage is after 2016, where commercial housing basically returned to the basic function of housing, belonging to the real estate regulation stage [4].

In 2000, the opening average price of Jinguoyuan community was 3450 yuan per square meter. Under the circumstances at the time, such a price already deterred most people. And the per capita disposable income of urban residents at that time was only 5442.84 yuan a year [5]. Of course, such a high price was also greatly related to its geographical location, building structure, etc.

2. The Construction History and Location Environment of Jinguoyuan Community

2.1. Construction Background

“Jinguoyuan” is a high-quality villa and high-rise residential project developed by Chongqing Jinguoyuan Real Estate Development Co., Ltd. in 1998, marking the first batch of such developments in Chongqing. The community was completed and put into use in 1999. Jinguoyuan is located at No. 139, Keyuan 3rd Street, Jiulongpo District, Chongqing. The residential buildings in Jinguoyuan community are divided into multi-storey slab buildings and detached villa types. On the west side of the community are five-story low-rise buildings with a frame structure. The community is divided into villas, small high-rise, and high-rise buildings, with villas primarily offering semi-detached and detached options, and high-rise buildings featuring two main layouts of 137 and 127 square meters. A total of 42 buildings were constructed within the community, comprising 464 units. There are 26 buildings of semi-detached and detached villas, totaling 51 units. The high-rise buildings include 16 structures designed in two types of layouts, specifically 137 and 127 square meters. Each layout features a bright kitchen, a separate cloakroom, and a living room facing south.

The plot ratio of the community is 2, with a building density higher than 18% of other communities in the same area. Jinguoyuan has a greenery rate of 45%, surpassing 55% of the communities in the area. The standard for greenery rate: the green space area in residential communities should occupy more than 30% of the total land area, with the central urban area not less than 25%. The community boasts a 24-hour security patrol management system and a card-access security mode, further enhancing the community’s privacy and forming a stark contrast with the housing allocated by the government at that time [6].

2.2. Location Environment

In terms of location and transportation, Jinguoyuan Community is situated in a relatively central position within the main urban area of Chongqing. Within a 2km (straight-line distance) radius, there are 5 subway stations such as Chenjiaping and Shiqiaopu; and 80 bus stations, including Kanghua Hospital Station, Keyuan Fourth Road Station, etc., making transportation convenient.

Regarding infrastructure and facilities, within a 3km radius around Jinguoyuan Community, there are 36 hospitals, such as the First Affiliated Hospital of Chongqing Medical University and Chongqing Minghao Hospital, providing very convenient medical services to the residents. Nearby educational facilities range from primary schools to universities, including Chongqing Radio & TV University, Medical University, Forest Primary School, Shiqiaopu Primary School, among others.

In terms of living service facilities, there are 37 shopping centers within a 3km radius around Jinguoyuan Community, such as Chongqing Longhu Times Center, Otter Cloud Selection Plaza, etc.; and there are also 1027 supermarkets, like Jinguoyuan Grocery Store, Hema Fresh, etc. Although there were not as many supermarkets around the community in 1998, there were still advanced facilities like the New Century Supermarket and richly assorted markets available for residents to purchase daily necessities. Such facilities have been in use up to the present day. Within a 3km radius around Jinguoyuan Community, there are 72 parks, such as Yugaopark, Shuangxiang Park, etc., providing green spaces for leisure and entertainment for the residents. (See location map, figure1 below)

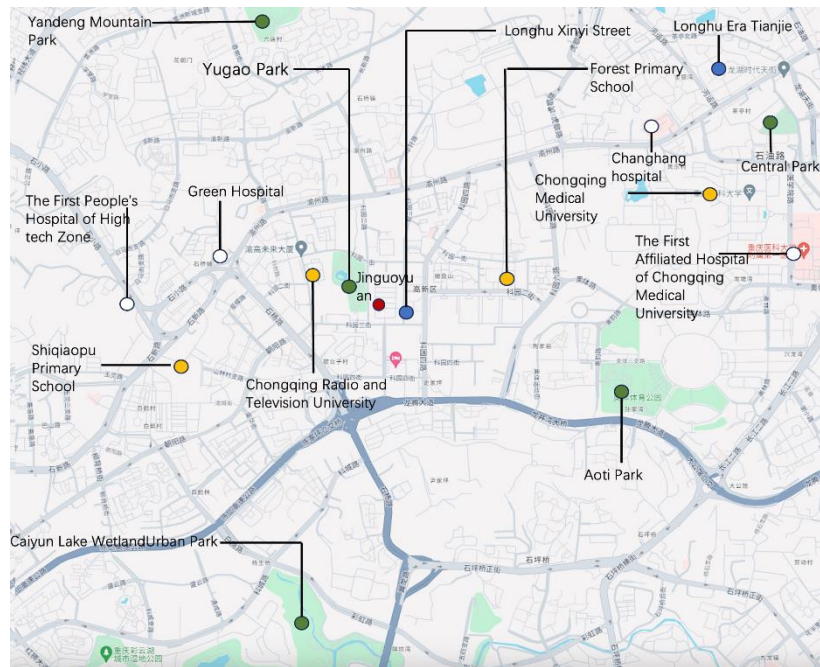


Figure 1. Regional Map 1, self-drawn.

2.3. Current Situation Analysis

Through interviews with residents and discussions with property management, the author learned that approximately ten years ago, due to its advantageous location, most of the villas in this community were converted into office buildings, with people mostly renting these villas for office spaces. The original residents who purchased these houses in the early 20th century gradually moved out of the community, leaving only a few elderly residents.

From the interviews, we learned that their impression of Jinguoyuan Community is not ideal. Although the community's geographical location is good, the aging of the construction has led to peeling of the exterior wall bricks, giving the overall appearance of the community a dilapidated and old-fashioned look. Interviewees claimed that when Jinguoyuan Community was newly built, it was in good condition overall, but in recent years, the quality of property management has significantly declined. The author visited the community six times for on-site inspections, covering all seasons of the year, but there has been no change in the greenery of the community. The overall environment of the community is also deteriorating year by year, with some plants wilting along the roadsides and lawns becoming bare, yet no one has come to repair or replant them, resulting in poor landscaping. Although many areas have vegetation, there are also areas where plants are wilting. Furthermore, the

community security is managed by elderly guards, which cannot guarantee the safety of the community, causing concern among homeowners about their living environment.

According to housing price data from the internet, although the housing prices in Jinguoyuan Community fluctuate, they have been on a downward trend since May 2022, decreasing by 2.19% compared to other communities in the same area (see figure 2 trend chart of Jinguoyuan's prices over the past three years). There was only a slight increase in September 2023. Undoubtedly, although Jinguoyuan Community was among the latest high-end communities in Chongqing when it was first built, it has now become a mediocre and outdated community.

Jinguoyuan Price Trend Chart

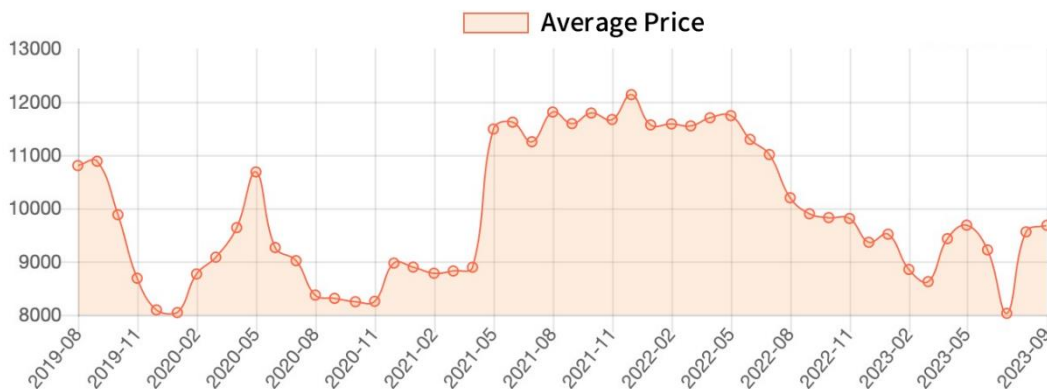


Figure 2. Recent three-year trend price chart of Jinguoyuan Community.

3. The Design Superiority of Jinguoyuan Community:

3.1. Significant Innovation in Architectural Structure Design

Constructed in 1998, the Jinguoyuan Community was innovative in its residential architecture at the time. For instance, while most buildings were still using brick-concrete structures, Jinguoyuan Community had already begun to utilize frame structures. Such an architectural structure allows homeowners a certain degree of freedom to design the interior spatial layout, thereby granting greater liberty in interior design and decoration. For China at the turn of the 21st century, this represented a significant innovation in housing construction methods. The interior space design is rational, catering to the living needs of those seeking high-quality residences.

The green landscaping within the villa courtyards can be designed by the homeowners themselves to meet their own needs. Each family has two parking spaces.

3.2. Advanced Architectural Design Technology and House Quality

In 1998, the construction and design of Jinguoyuan Community began to utilize computer modeling. According to the literature, the frame structure used for Jinguoyuan residences was designed using the professional computer software PKPM, which was a bold attempt at the time. During interviews conducted by the author, residents expressed that the quality of the residential buildings was very good. For example, the sound insulation in the houses was well managed, and there were no complaints about noise from neighbors due to poorly designed plumbing. The designs, including separate kitchens and bathrooms, met the demands for high quality.

3.3. Leadership in Architectural Style

The overall design of the housing adopted the then-trendy European architectural style, which is evident from the design of many balconies. The use of curved balconies and Aquarius column railings are characteristic of European architecture. The form of the Aquarius column is applied to the

decoration of the balcony railings, emphasizing the three-dimensional effect of the balcony, with the combination of curves and square lines accentuating the shadow relationship of the balcony fences [7].

However, while Jinguoyuan Community was highly innovative at the time, from today's perspective, there are still some flaws. My first impression during the research was that the community lacks comprehensive convenience facilities. Through observation, there were no sports facilities within the community to satisfy the daily exercise needs of residents, leading to dissatisfaction among them, who often had to go to nearby parks for physical activities. Jinguoyuan Community ensured the privacy of its residents by setting up access controls at various community entrances and exits through security work, making the entire community environment exclusive to its residents, with visitors needing to register upon entry. However, it did not consider the leisure activities of the residents within the community. There were no decorations for various holidays, resulting in the community looking the same throughout the year, lacking in human warmth due to the absence of decorations for Mid-Autumn Festival, Spring Festival, etc. The sense of ceremony during festivals is important for bringing happiness to people and is a way to enhance the sense of belonging among residents, making them enjoy being part of the community.

The author interviewed a housewife living here, in her fifties. According to her, she moved in right after the community was built and witnessed the entire process of its decline from prosperity. The most significant and obvious issue is the community's property management, which has transitioned from young people to older individuals, causing concerns over both the appearance and the actual safety of the community. There were no decorations throughout the year except for the Spring Festival, making the community uninteresting for residents. Moreover, the majority of the people in the community are office workers, which has caused disturbances in the internal circulation of people within the community and serious doubts about its safety. Regarding the current residents of Jinguoyuan, through visiting the residents and inquiring with property staff such as security personnel, it was learned that due to its good location and large living spaces, most of the people currently here are office workers coming to work in this area, with not many actual residents living here.

4. Design Issues in Jinguoyuan Community

4.1. Monotonous Spatial Layout

4.1.1. Overall Monotonous Spatial Planning. The planning and layout technique of the community is too monotonous, mainly adopting a row-column layout. The arrangement of the entire community resembles a barracks, with a rigid building arrangement. (See Figure 4) The overall residential group is symmetrically arranged along the central axis, with the main entrance on the south side; a north-south long and east-west short outdoor swimming pool is arranged on the central axis of the community. The overall planning design lacks richness, and the shape of the central pool also lacks aesthetic appeal. (Figure 3:Aerial view below)

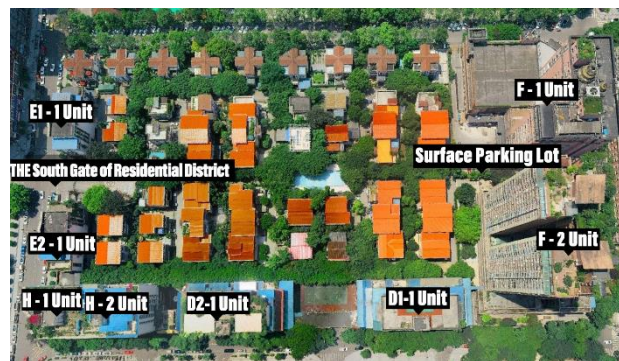


Figure 3. Aerial view, From: https://chongqing.anjuke.com/community/pano/?comm_id=198027&anchor_pano=1



Figure 4. Main thoroughfare of Jinguoyuan Community, taken by the author.

4.1.2. Commercialization of Building Spaces Affects Living Space. Looking north from the main entrance on the south side, the villa buildings on both sides, due to their bottom spaces being rented out as shops, lack basic spatial separation from the adjacent residences, and the privacy of the villa residences is difficult to ensure. Although to a certain extent the sale volume of Jinguoyuan's commercial housing is ensured, it sacrifices the overall privacy of the community.

4.1.3. Waste of Central Swimming Pool Space, Lack of Elderly-Friendly Central Green Space in the Community. At the beginning of the community design, following the spatial configuration of high-end communities, a swimming pool was set up at the central axis. However, research has found that the utilization rate of the pool in this area is very low. Moreover, with the change in the age composition of the community residents, the pool, suitable for young people's use, is completely unfriendly to the elderly's recreational activities. Currently, there are no designs or facilities targeted at the elderly and children within the community, forcing all recreational activities of the residents to take place outside the community. A few activity areas with hard pavement could be set up at the main entrance plaza. (See Figure 5)



Figure 5. Main entrance of Jinguoyuan Community, photo source: taken by the author.

4.2. Insufficient Design and Maintenance of Plant Landscapes

Although the roads in the community are wide and straight, the space is rather rigid. There is a lack of pleasant landscape spaces on both sides of the road. The buildings are too stiff and lack decorative elements.

4.2.1. Limited Plant Varieties, Lacking Seasonal Representative and Characteristic Plant Landscapes.

Overall, the landscape design lacks variety in plant species and animals. Most of the greenery in the community consists of potted plants placed in flower pots, with no uniformity in the color, texture of the pots, or types of potted plants. (See Figures 6 and 7) The only tall plants in the community are Yellow Catalpa trees, showing a lack of variety. By the standards of current high-quality residential communities, there should be a design that features “scenery in all seasons” through the use of different plants flowering or remaining evergreen in different seasons. Additionally, while fulfilling the greening requirements, different viewing spots should be set up for seasonal characteristic plants.

4.2.2. Lack of Regular Care and Maintenance for Plant Landscapes. In many areas within the community, the appearance is dominated by overgrown weeds, indicating that the design and daily maintenance of plant landscapes are not adequately addressed. Some trees have died, but the property managers have not replanted trees or dealt with the roots.



Figure 6. The driving passage of Jinguoyuan.
Photo Source: Taken by the author.



Figure 7. The pedestrian walkway of Jinguoyuan.
Photo Source: Taken by the author.

4.3. Immature Overall Style

Arbitrary modifications to the appearance of buildings have resulted in a disordered architectural style within the community.

4.3.1. After moving in, most homeowners have personalized their residences through redesign. The transformation of the residential facades has affected the consistency of the community’s architectural style. Villas within the same residential area have even had their windows and walls modified to different colors and styles. (See Figures 6-8)

4.3.2. Immature design techniques in villas and other high-quality residential communities. When designing Jinguoyuan Community, there was a lack of mature Chinese models for high-quality residential community design to reference. Therefore, the design vocabulary for detached villa buildings was not very mature. In designing the exterior of the community, designers did not yet have mature design techniques for high-quality residential buildings. Based on field observations, the author found that the distinct modernist style of large glass windows, curved balconies on the gable walls, and European decorative moldings created certain conflicts. The use of pure white paint material for the main facade of the detached villa buildings also did not harmonize with the style of multi-story residential buildings within the same community.



Figure 8. The exterior walls of Jinguoyuan. Photo Source: Taken by the author.

4.4. Irrational Parking Space Design

4.4.1. Insufficient Consideration for Public Parking Spaces. As one of Chongqing's first batches of high-quality residential communities, architects believed at the time that providing two private parking spaces for each villa would be sufficient to meet people's needs, given the number of vehicles owned then. However, twenty years later, the parking arrangement in the community does not meet the needs following China's development over two decades. Currently, there is a severe shortage of parking spaces in the community, with many external vehicles parked along the roadsides, causing congestion (see Figure 9) and affecting normal traffic flow. For residents of high-rise buildings, finding parking within the community has become a significant challenge, resulting in many private cars parked outside the community walls. This poses problems for public transportation and the safety of residents.



Figure 9. The current situation of disorderly parking in Jinguoyuan Photo Source: Taken by the author.

4.4.2. Failure to Fully Develop Underground Parking. Jinguoyuan Community did not develop an underground parking garage. This omission clearly leaves room for future development and vehicle capacity expansion within the community. For a high-quality residential area, this lacks foresight in design.

4.5. Deficiencies in Property Management

4.5.1. Outdated Management Methods, Failure to Provide Adequate Security Management for High-Quality Residential Spaces. The current property management methods in the community are highly outdated. The property management company hardly offers any effective solutions to the various problems existing in the community. Faced with issues such as the refurbishment of damaged houses within the community, the property management department has not proposed reasonable repair plans but instead shifts all responsibilities to the homeowners. Most of the security personnel in the community are elderly, and the property management company has not provided them with adequate training and deployment. Consequently, the security measures in the community are virtually nonexistent, leading to a chaotic and unregulated flow of people in and out, which is the primary cause of insufficient security in the community. Regarding community management, the property management company adheres to the principle of “maintaining the bottom line standard of operation,” without planning to address the community’s usage issues more effectively. Since the property management company does not offer better services, homeowners cannot accept an increase in property management fees; however, without an increase in fees, the company lacks the incentive to improve the community’s property services. This creates a vicious cycle, resulting in no possibility of gradual improvement in the quality of residential living in the community.

4.5.2. Failure to Provide High-Quality Public Spaces Matching the High-Quality Community. There is a significant lack of public spaces such as small libraries, specialty teahouses, upscale clubs, and cigar bars within the community. The community has not provided corresponding supporting spaces for homeowners to conduct business and entertain partners within the residential area. Additionally,

the community lacks convenient facilities for residents, such as small carts to help transport items and storage shelves for temporarily storing parcels for community residents.

5. Research on Strategies for Enhancing the Overall Environmental Quality of Jinguoyuan Community

5.1. Transformation of the Landscape Structure of the Neighborhood

By refurbishing and redesigning the plant landscape, the quality of public activity spaces within the community can be improved. Many of the roads within the community are spacious enough to facilitate the separation of pedestrians and vehicles. Some areas with varied topography can be landscaped appropriately to enhance the attractiveness of the community. (see Figure 10) With the support of the homeowners, green vegetation or green spaces suitable for the rest and activities of the elderly and children can be added within the community. Additionally, a small portion of the land can be jointly managed with the homeowners, allowing them to plant vegetation or trees, with quarterly evaluations determining reduced property fees for the best-maintained areas. This approach encourages a sense of belonging among the homeowners and involves them in the improvement of the community. Before undertaking renovations to the community's roads and greenery, extensive input from homeowners regarding their preferences and needs should be solicited to ensure that their spatial requirements are progressively realized within the community.



Figure 10. Effect Picture, From: https://www.google.com/url?sa=i&url=https%3A%2F%2Fstowndfn2030.commonplace.is%2F&psig=AOvVaw15VpR-yVkViCDc_7L-mUJv&ust=1706481361538000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCNiktc7Q_oMDFQAAAAAdAAAAABAD

5.2. Installation of Additional Parking Spaces to Improve Parking Environment in the Community

Currently, the number of parking spaces within the community is clearly insufficient. To address this issue, the community must plan effectively and gradually expand outdoor temporary parking spaces. Eco-friendly parking space designs can be adopted to alleviate this problem. Eco-friendly parking spaces represent another innovative application of the sponge city concept in the landscape renovation design of older communities. In constructing eco-friendly parking spaces, materials such as permeable turf, grass grids, and grass pavers are utilized instead of concrete. Furthermore, grass and trees are planted around the parking lot to not only provide practical parking functions but also add ecological value (The improvement of parking lot in the effect picture) [8].

5.3. Introduction of a Professional Property Management Team to Enhance the Operational Standards of Community Property Management

Based on inquiries made by the author to homeowners, significant issues exist regarding the property management within the community. The current management team fails to address issues related to greenery and security within the community, which significantly impacts the residents' living experience and even poses threats to their personal safety. It is imperative to introduce a professional property management team into the community. Such a team should focus on improving the community's security, meeting the daily needs of homeowners, and enhancing their sense of identity and belonging to the community.

5.4. Implementation of Unified Management of the Architectural Style within the Community to Enhance Aesthetic Appeal

The community property management should engage professional design teams to provide unified housing renovation designs, maintaining consistency in the architectural and plant landscape styles of the community. Alternatively, housing renovation plans could be subject to democratic voting by the homeowner community, with the majority's preferred renovation plan being selected.

6. Conclusion

Jinguoyuan Community in Chongqing was one of the earliest high-quality residential areas built in the late 20th century. In terms of architectural structure, it adopted the framework structure commonly used in public buildings in the late 20th and early 21st centuries. This bold attempt allowed for flexible layout of interior functional spaces in the houses within the community, perfectly meeting the residential needs of the residents. The location of the community is superior, and the surrounding infrastructure remains very convenient up to now. However, the housing prices in this community are gradually decreasing, signaling that Chongqing's earliest high-quality residential areas are on the brink of decline. The author believes that the current challenges facing the community include declining building quality, lack of greenery, overall stylistic confusion, and parking difficulties. However, from the current perspective, although Jinguoyuan Community has many problems, it cannot be denied that it represents an early exploration by Chinese designers into high-quality residential areas. Through the research and discussion in this paper, the author proposes five aspects for upgrading the environmental quality of the community: restructuring the community, integrating public spaces, improving parking environment, introducing professional property management teams, and renovating and upgrading the internal buildings of the community. Only through these measures can Jinguoyuan Community better meet the requirements of modern people for high-quality residential areas, thus ensuring its enduring vitality and infinite vigor.

References

- [1] Ni, P. F. (2019). 2019 Chinese Housing System Reform: New Mechanisms and New Models. Guangzhou, China: Guangdong Economic Publishing House.
- [2] Li, G. Q., & Zhong, T. J. (2022). Historical Evolution and Social Effects of China's Housing System. Sociological Research, 4.
- [3] Xiao, L. T. (2009). Ministry of Housing and Urban-Rural Development: Promoting Housing System Reform from Three Aspects. Central Government Portal Website. Retrieved from www.gov.cn
- [4] Wang, Z. X. (2018). 40 Years of China's Housing System Reform: Review and Reflection. Financial Think Tank, 2.
- [5] Chongqing Municipal Bureau of Statistics. (2019). Statistical Bulletin No. 11500000009276206R/2019-01267. Chongqing Municipal Bureau of Statistics.
- [6] Fangtianxia (2020). <https://cq.esf.fang.com/loupan/3110937238/strategy.htm#change3>

- [7] Fan, T. Y. (2022). Study on Decorative Research of Stairs and Balustrades of Harbin European-style Historical Buildings (Master's thesis). Northeast Forestry University. doi:10.27009/d.cnki.gdblu.2022.000438
- [8] Zhang, W. S., & Zhang, L. L. (2023). Application of Sponge City Concept in Landscape Renovation Design of Old Communities. Engineering Seismic Resistance and Reinforcement, 45(06), 184.