Evaluation and Spatial Governance Strategies for Old Residential Areas' Renewal and reconstruction in Urban Downtown Districts: A Case Study of 70 old residential areas in Changzhou ,China

HU Pan , Sun Keyi, Cheng Jialu, SHI Yu

Affiliation:School of Architecture, Southeast University
Email:hupan@seu.edu.cn

Abstract

As vital components of urban renewal efforts in old city districts, old residential areas play a crucial role in rejuvenating regional vitality, enhancing residents' well-being, and fostering sustainable economic and social development in cities. Taking the example of the transformation of old residential areas in the Zhonglou District of Changzhou City over the past three years, a comprehensive assessment is conducted.By integrating the theory of a full life cycle, a holistic evaluation system for the renovation of aging residential communities is established to assess the project comprehensively. This evaluation system focuses on three dimensions: space, services, and culture, in order to evaluate overall resident satisfaction across all elements.Finally, long-term governance strategies are proposed from four dimensions: government governance, social operations, engineering projects, and economic funding.

Keywords

Old residential area,Renewal evaluation, Spatial governance

Introduction

With the accelerated process of urbanization and rapid population growth, some old residential areas face the imminent threat of decline and contraction, posing a critical issue of how to rejuvenate these communities (Schenkel, 2013). Old residential areas, integral components of urban downtown districts, need to consider various influential factors including multi-stakeholder participation (Bovaird, 2007), preservation of historical heritage (Said, Aksah, and Ismail, 2013), infrastructure upgrading and redevelopment, resident satisfaction (Gu et al., 2019), and the diverse needs of marginalized groups (Clark, Kearns, and Cleland, 2016). The renewal of old residential areas holds paramount significance in revitalizing regional vitality, enhancing resident well-being, and fostering the sustainable development of urban economics and social aspects.

On the practical front, Singapore, Japan, and Western countries initiated urban renewal projects in the 20th century, tailoring innovative transformation models to address issues such as elderly care and employment for low- and middle-income groups based on their respective development contexts. Tokyo actively engages in the transformation of old residential areas, exemplified by projects like Hanada and Takashima, leveraging both governmental and private sector efforts to create multi-party agreement platforms that ensure smooth renovation processes. Regions like Sweden, Denmark, and the Netherlands prioritize community aging adaptation and eldercare service facility configurations. In the Eastern New York Neighborhood Plan in the USA, there's an emphasis on the mixed-use of community street spaces, highlighting the shaping of public areas during transformations.

Compared to international efforts, China's old residential area renovations started relatively late. Since its initiation in 2020, significant progress has been made but challenges such as long-term operation difficulties and governance shortcomings have emerged. In July 2023, China's Ministry of Housing and Urban-Rural Development issued the "Notice on Solid Progress in the Renovation of Old Urban Residential Areas in 2023," proposing qualitative and quantitative analyses to evaluate the current phase of renovations and strengthen the analysis of experiential issues.

As phases of old residential area renovation projects are complete, many Chinese cities are evaluating and providing feedback on completed work at the district level. The Ministry of Housing and Urban-Rural Development surveyed residents of old residential areas in eight pilot cities in Shandong, Zhejiang, Shanghai, and Suzhou in 2022, focusing on residents' subjective satisfaction. Cities like Tianjin's Binhai New Area, Ningbo's Fenghua District, and Nanchang's Donghu District are conducting annual performance evaluations of old residential area renovation projects. Changzhou, as one of Jiangsu Province's pioneering cities in old residential area renovations, has numerous typical samples for evaluation, aiding in systematically addressing issues and demands during renovations and improving management methods and resource allocation for future projects.

Literature review

Research on the renovation of old residential areas mainly includes aspects such as policy analysis, renovation models and strategies, and community governance. In terms of policy analysis, some scholars analyze the advantages and disadvantages of policy samples through textual analysis of renovation policies and quantitative evaluation (ZHANG et al., 2022); while others analyze the policy systems and implementation measures for the renovation of old residential areas in domestic and foreign cities (Lu , 2023). In terms of renovation models and strategies, scholars usually conduct research around a certain element involved in the renovation of old residential areas, such as spatial renovation(MA et al., 2021), sponge-city transformation (LI, GU and WANG, 2019), funding input (LI and ZHANG, 2019), etc.; or from the perspective of micro-renovation (CAI , YANG and LI , 2017), community renewal (Dai , Wang and Dong , 2019), etc., exploring the content and countermeasures of renovating old residential areas. In terms of community governance, some scholars analyze the conditions for social forces' participation and the ways of benefiting, constructing a community governance system for social forces to participate in the renovation of old residential areas (XU and XU, 2020); or from the perspective of resident participation, analyzing the paths and strategies that promote resident participation in governance in the renovation of old residential areas (LI, GU and ZHU, 2020); there are also scholars exploring informal governance models based on communities from the perspective of community administration (ZHAO , LIU and WEN , 2023).

Research on the evaluation of renovation projects for old residential areas is still in its early stages. Researchers usually evaluate the implementation effects of renovating old residential areas from a specific perspective, with significant differences in indicator selection. Some papers have evaluated the effectiveness of renovating old residential areas in a specific aspect

from perspectives such as environmental suitability (LI and WANG, 2016), aging-friendliness (HU, MA and HUANG, 2021), comprehensive environmental improvement (ZHANG, LI and GU, 2021), material space renewal (WEI, 2022), etc.; while others have started from the perspective of project performance evaluation (LI, SI and BAI, 2021), analyzing the comprehensive benefits and outputs of renovating old residential areas.

Through a review of existing theoretical research, it becomes evident that the evaluation of renovation projects in old residential areas encompasses various dimensions. Nevertheless, a comprehensive evaluation system addressing the entire project life cycle remains absent, with a limited number of studies offering comprehensive reviews and summaries of renovation efforts in old residential areas. Drawing upon existing research and practical experiences, this study examines the renovation of old residential areas in Zhonglou District, Changzhou City, employing life cycle theory to develop an evaluation system and establish an evaluation framework at the district level for such renovations. Subsequently, empirical research is conducted.

Research Demands and Objectives

Research Demands

1. The renovation of old residential areas is influenced by various factors such as the scale of construction, construction era, construction subjects, personnel composition, spatial location, and more. It is urgent to propose classified and graded renovation and optimization strategies through scientific evaluation. Effectively enhancing residents' satisfaction is one of the important goals of the renovation work.

2. The factors influencing satisfaction are diversified, including the cultural atmosphere of the community, the organization of activities, personnel composition, and the situation of residents' families. To more effectively guide future work, it is necessary to conduct scientific and systematic research to accurately identify the core contributing factors that enhance residents' satisfaction before and after the renovation, precisely match residents' needs, and effectively improve their satisfaction.

Research Objectives

Based on the two core demands mentioned above, this study aims to establish an evaluation framework with the following objectives:

Incorporating the concept of a full lifecycle, this study comprehensively considers the types of renovation and facilities involved in the renovation of old residential areas. It evaluates the entire renovation process from multiple dimensions, including the output of renovation projects, the quality of renovation works, the management of renovation operations, and the comprehensive benefits of renovation. This evaluation framework encompasses multiple stakeholders, such as residents, community (street) leaders, property management companies, and construction companies.

Furthermore, this study aims to verify the accuracy of the evaluation results by surveying residents' satisfaction after the renovation. Through questionnaire surveys comparing

satisfaction levels before and after the renovation, as well as satisfaction with individual elements and among key demographic groups, this study aims to scientifically identify the proportion of satisfaction improvement brought by the renovation of the community. This will provide sufficient data support for the implementation of future work.

Finally, based on the evaluation content and results of these two parts, this study aims to summarize the experiences and issues encountered during the renovation process and propose long-term governance strategies for community renovation from multiple dimensions.

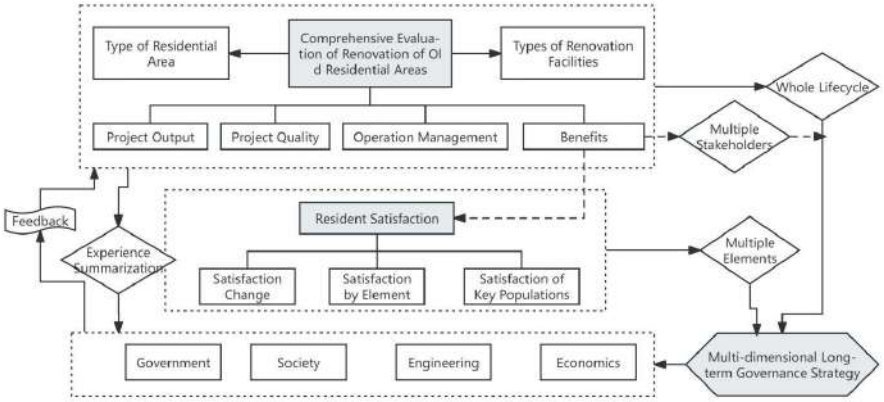


Figure 1 Research Framework

Research Design and Methodology

Construction of a Comprehensive Evaluation System for Renovation

The concept of the whole lifecycle, originating from project management science, is used to describe the various stages of a project from its inception to its completion. The application of the whole lifecycle theory to the evaluation of renovation projects in old residential areas helps align the evaluation chain with the various stages of the renovation project. This approach establishes a comprehensive evaluation process that integrates problem identification, resource allocation, implementation planning, supervision and feedback, as well as summary and improvement. It avoids issues such as incomplete element selection and biases in evaluation focus, providing a basic framework for the implementation, management, and evaluation of future renovation projects in old residential areas.

In light of the planning and construction characteristics of renovation projects in old residential areas, the whole lifecycle of these projects can be divided into four main stages: pre-decision stage, implementation and renovation stage, operation and maintenance stage, and benefit evaluation stage. By further aligning the evaluation process with each stage of the whole lifecycle, an evaluation system for renovation projects in old residential areas can be constructed (Figure 2).

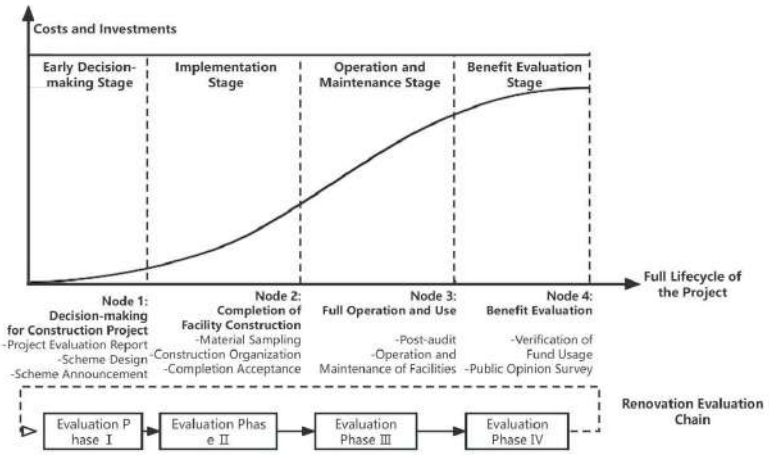


Figure 2 The lifecycle stages of renovation projects in old residential areas

(1) Early Decision-making Stage

Prior to the design of the renovation scheme, it is necessary to conduct a physical examination and assessment of the current operational status of the old residential areas to identify the main issues they face. During this stage, various methods such as field research, interviews, and big data analysis are typically employed to comprehensively evaluate the internal and external environments of the old residential areas. A comprehensive project evaluation report is then formulated. Next, based on the results of the physical examination and assessment, a list of renovation projects for the corresponding old residential areas is compiled. By considering residents' renovation preferences and funding estimations, renovation projects with urgency and feasibility are reasonably selected. This ultimately leads to the formation of a planning and design scheme with clear objectives, reasonable implementation plans, and high recognition among the residents. The indicators of this stage reflect the completeness of the physical examination and assessment results as well as the renovation project list.

(2) Implementation Stage

The implementation stage of the renovation of old residential areas involves multiple aspects such as authorization, execution, supervision, and management control of the renovation projects. During the implementation process, apart from focusing on the completion of construction objectives and the engineering benefits generated by the project, attention should also be paid to residents' satisfaction with the construction progress and the collection and feedback of public opinions. Residents should be encouraged to participate in supervising the renovation process. At the end of the implementation stage, acceptable renovation results should be achieved, with the project accounting settled and residents' feedback addressed appropriately. The indicators of this stage mainly focus on the engineering construction progress during the renovation process as well as the construction status of various facilities at key completion milestones.

(3) Operation and Maintenance Stage

The operation and maintenance stage of the renovation project for old residential areas is a crucial part of the entire lifecycle. At this stage, the spatial renovation and facility configuration for the old residential areas have been fully completed. It is necessary to establish corresponding operation and maintenance institutions or organizations and establish a long-term management mechanism for the residential areas to ensure the sustainable operation of the renovation projects. The quality of operation and maintenance is directly related to whether the project can effectively radiate and drive surrounding areas, and it also influences residents' evaluation of the project. The indicators of this stage assess the operational management status of the old residential areas based on the completeness of institutional systems and actual communication.

(4) Benefit Evaluation Stage

For the completed renovation of old residential areas, a "looking back" process should be implemented. Through the evaluation and measurement of the project's implementation benefits, a comprehensive understanding of the actual outcomes of the project's implementation should be obtained. Incorporating the evaluation and analysis of the renovation benefits of old residential areas into the lifecycle stage of the renovation project helps the government to make a deeper judgment on the social and economic benefits generated by the renovation project. The indicators of this stage demonstrate the benefits brought by the renovation project from both economic and project recognition perspectives (Table 1).

Table 1 Comprehensive Evaluation Index System for Renovation of Old Residential Areas

Primary Indicators	**Secondary Indicators**	**Explanation of Indicators**
Early Decision-making Stage	Type of Residential Area	Proportion of improvement and upgrade renovation projects among the types of community renovation projects
	Types of Renovation Facilities	Whether the types of renovation are comprehensive
	Number of Renovated Facilities Produced	Output of renovation and construction of facilities in old residential areas
Implementation Stage	Civility in the construction process	Whether the implementation process of the project construction meets relevant safety and civilization management regulations
	Qualification rate of renovation works	Operational and maintenance status of completed renovation projects
Operation and Maintenance Stage	Completeness of Management Organization	Whether the organization and business management system of the project implementation unit is sound
	Effectiveness of multi-stakeholder communication	Whether the communication channels between residents, construction parties, and the government are complete
Benefit Evaluation Stage	Project recognition	Residents' recognition of the project
	Efficiency of economic investment	Whether the improvement in residents' satisfaction is proportional to the capital

	investment per unit of renovation area in the community

Satisfaction Evaluation System and Questionnaire Design

Based on the "Technical Guidelines for Renovation of Old Residential Areas in Jiangsu Province (2021)"(jsszfhcxjst.jiangsu.gov.cn, n.d.) and the "Technical Guidelines for Renovation of Old Urban Residential Areas in Jiangsu Province (2022)" (jsszfhcxjst.jiangsu.gov.cn, n.d.), this article draws on the widely referenced evaluation systems for physical spatial environment and public service levels in existing research . By combining emotional value evaluation methods based on residents' perceptions, a comprehensive satisfaction evaluation system encompassing three dimensions of "space + service + culture" and 22 indicators is constructed. The Likert five-point scale is adopted to collect and analyze data on a per-element basis.

Among these, satisfaction with the spatial environment is the most obvious and intuitive aspect of the renovation of old residential areas, and it is also the core content of the early renovation work. Satisfaction with supporting services involves various aspects such as hygiene, parking, elderly care, property management, and safety, reflecting the comprehensive renovation level and humanistic care. Cultural satisfaction covers content such as cultural atmosphere creation, information communication, and dispute resolution efficiency, demonstrating the fine level of renovation and the changes in life brought about by the renovation. In addition, further attention is paid to changes in satisfaction before and after the renovation, as well as the impact of the renovation on surrounding areas and residents' activities (Figure 3).

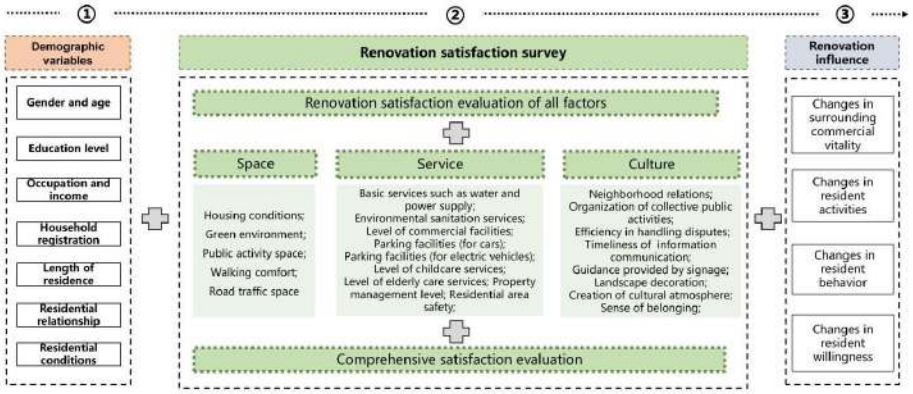


Figure 3 Questionnaire Design and Evaluation Indicators

Research Objects and Data Processing

The Zhonglou District of Changzhou City, located in the central area of Changzhou City, Jiangsu Province, is a core urban area with a long history. In recent years, some old urban residential areas in Zhonglou District have faced issues such as aging infrastructure and incomplete facilities, necessitating renovation and upgrading works. The renovation projects for old residential areas in Zhonglou District of Changzhou City are carried out on a street-by-

street basis, with the old residential areas within the area being classified into two types: improvement type and upgrading type[1].The research objects of this study are 70 old residential areas in Zhonglou District of Changzhou City that started renovation and upgrading from 2020 to 2022 (all built before 2000). More than 90% of them are located in the old city revitalization demonstration area of Zhonglou District, covering both the inner and outer parts of the old city of Changzhou. From 2020 to 2022, a total of 49,126 households were covered by the renovation, with a total building area of 4.0386 million square meters.

Through a comprehensive survey of the implementation of renovation in 70 old residential areas in Zhonglou District, Changzhou City, 1200 valid resident questionnaires and quantitative data on capital investment and engineering construction in each residential area were obtained. Among them, a judgment matrix (see formula 1) was constructed, and the 1-9 scaling method was used to compare the relative importance between renovation evaluation indicators. A questionnaire for judging the importance of indicators was designed. Experts from planning institutions, universities, and street management departments were invited to score the importance of the indicators. Decision-making expert Meta-decision software Yaaph was used to process and analyze the data, obtaining the weight values of the renovation evaluation indicators（Table 2）.

$$A = (a_{ij})_{m\times n} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{bmatrix} \quad (1)$$

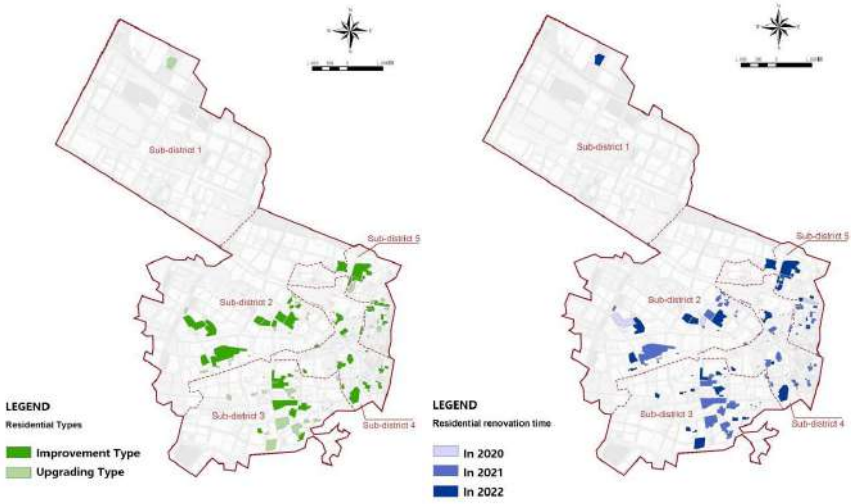
Note: a_{ij} represents the ratio of importance between row factor i and column factor j. When a_{ij} is 1, the two indicators are equally important. The larger the number, the higher the importance of row factor i compared to column factor j.

Table 2 The weight of the evaluation index system

Primary Indicators	Weight Values	Secondary Indicators	Explanation of Indicators
Early Decision-making Stage	15.48%	Type of Residential Area	7.79%
		Types of Renovation Facilities	7.69%
Implementation Stage	39.22%	Number of Renovated Facilities Produced	16.29%
		Civility in the construction process	10.86%
		Qualification rate of renovation works	12.07%
Operation and Maintenance Stage	15.55%	Completeness of Management Organization	10.53%

[1] According to the "Technical Guidelines for Renovation of Old Residential Areas (Creation of Livable Residential Zones) in Jiangsu Province," improvement-type renovations emphasize improving residents' daily lives and enhancing the environmental facilities of the community, while upgrading-type renovations focus more on improving social service provision and enhancing the quality of life.

Benefit Evaluation Stage	29.75%	Effectiveness of multi-stakeholder communication	5.02%
		Project recognition	9.92%
		Efficiency of economic investment	19.83%



(a) (b)

Figure 4 Spatial layout of the old residential areas

(a. Residential Types, b. Residential renovation time)

Results

Comprehensive Evaluation Results of Renovation

In accordance with the performance scoring and rating method outlined in the "Measures for the Administration of Performance Evaluation of Project Expenditures" issued by the Ministry of Finance , the total evaluation score is set at 100 points and divided into four tiers. Specifically, a comprehensive score of over 90 points is considered excellent, 80-90 points is considered good, 60-80 points is considered passable, and below 60 points is considered in need of improvement. For the secondary indicator level, the weights of each indicator are converted into specific scores based on a hundred-point system, and the scoring criteria remain consistent with the comprehensive scoring standards. Based on the comprehensive evaluation results of the renovation, the residential areas can be divided into four categories: demonstration communities with excellent renovation results, communities with good evaluation results, qualified communities with one or two shortcomings, and general communities whose evaluation results need to be improved. Figure 5 displays the comprehensive evaluation results of the four types of communities. It should be noted that some scattered residential buildings, due to the limited scope of renovation and the lack of representative data results, are not included in the evaluation results indicated on the map.

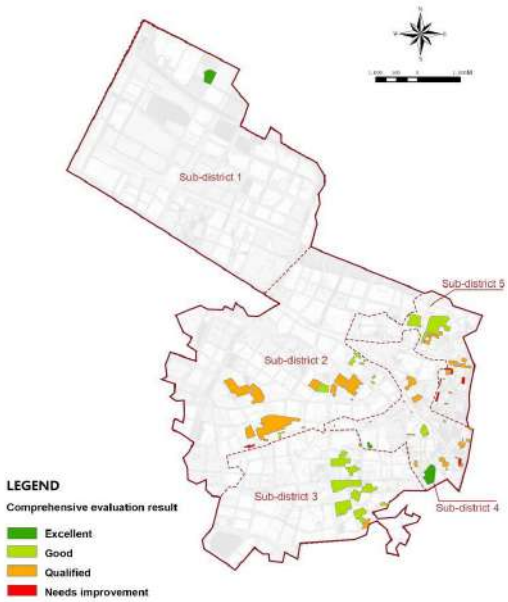
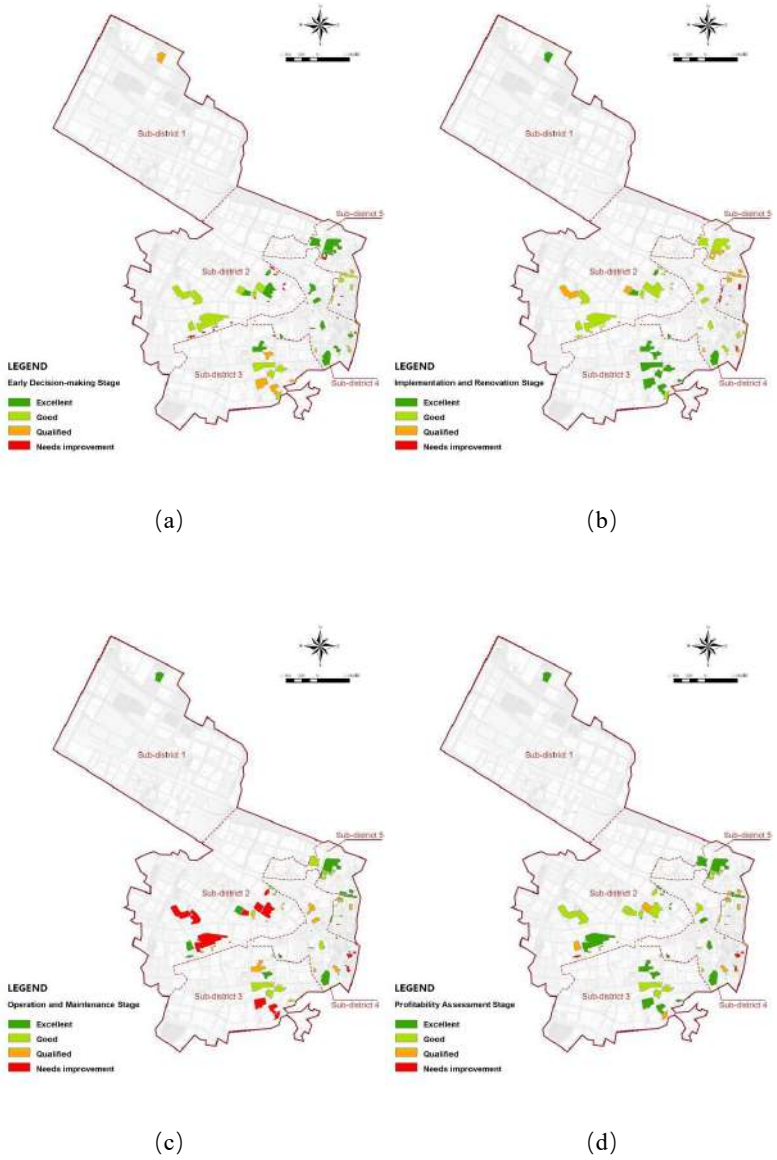


Figure 5 The comprehensive evaluation results of the renovation project

Based on the scoring results of each stage of the life cycle of each residential area, it is found through comparison that:

(1) Excellent and good demonstration residential areas in renovation have made sufficient preparations in terms of preliminary scheme design, engineering construction organization, and later operation and maintenance. Moreover, the construction units have also adopted finer manufacturing techniques, optimized construction methods, and more durable construction materials during the construction process to ensure the effectiveness of various facilities.

(2) For the old residential areas with problems, the main issue is that the effect of the renovation project is difficult to meet various requirements throughout the renovation process of the old residential areas. For example, in terms of building construction, some apartment blocks in some residential areas have issues such as peeling walls and balcony leakage, which have not been promptly addressed during the renovation; in terms of additional parking spaces, some residential areas are limited by their own site conditions and need to vacate parking spaces by reducing green activity spaces, leading to conflicts among residents of different ages; in terms of landscaping, due to the lack of professional greening management teams or property companies, the greening management and maintenance work after the renovation of old residential areas is difficult to carry out in a timely and effective manner; in terms of facility renovation, some old facilities in some residential areas have not been replaced in time, and there are also phenomena of secondary damage after replacement.



(a) (b)

(c) (d)

Figure 6 Evaluation Results for Each Lifecycle Stage

(a. Early Decision-Making Stage, b. Implementation and Renovation Stage, c. Operation and Maintenance Stage, d. Benefit Evaluation Stage)

Evaluation Results of Residents' Satisfaction

The evaluation results indicate that since the renovation of the old residential areas in Zhonglou District, the satisfaction of the residents has significantly improved, with an overall increase of 21.87%. Specifically, the satisfaction levels in the spatial dimension, service dimension, and cultural dimension have increased by 25.32%, 21.44%, and 19.78% respectively (Figure 7). Among the single factors, the improvement in walking comfort stands out the most, as the partial separation of pedestrians and vehicles, road hardening, and the improvement of public spaces have significantly enhanced the quality of daily life for residents. Additionally, through the renovation, most of the residential areas have added access control and garbage classification facilities, leading to a notable increase in satisfaction with environmental hygiene and community safety. Furthermore, the integration of cultural elements of some neighborhoods with wayfinding signage design during the renovation has been widely recognized by residents.

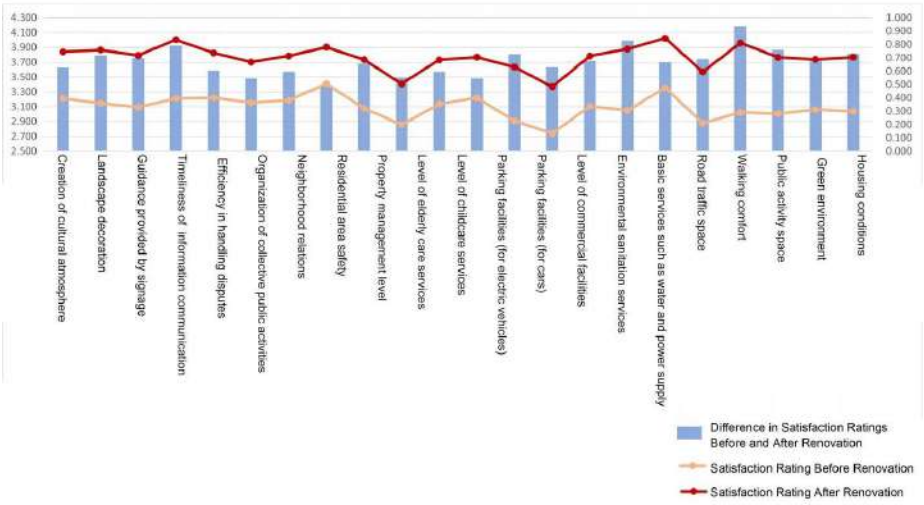


Figure 7 Changes in Satisfaction Ratings for Different Factors Before and After Renovation

However, the difficulty of parking for motor vehicles remains the most prominent issue in old residential areas. Additionally, problems such as inadequate property management, a shortage of human resources, and insufficient introduction of property management companies in old residential areas have generally affected the satisfaction ratings for property management.

The proportion of elderly individuals in the renovated old residential areas is generally high, and whether their living needs have been met during the renovation process has become an important factor influencing satisfaction. The changes in satisfaction among the elderly population towards various facilities before and after the renovation are basically consistent with the overall situation. However, satisfaction levels in areas such as elderly care, parking, and greening are relatively low (Figure 8). The focus on elderly care facilities during the renovation process was not high, and the main renovation content involved elderly canteens and meal assistance services. Although some neighborhoods provide elderly canteens and meal

assistance services on a community-basis during the survey, this service has not yet been popularized in all residential areas. Furthermore, the elderly population often has a high demand for green environments, which conflicts with the demand for parking spaces among other younger and middle-aged groups. The improper management of parking spaces by property management companies later on has led to chaotic parking, which not only encroaches on the activity spaces and green spaces of the elderly but also poses safety hazards for their travel.

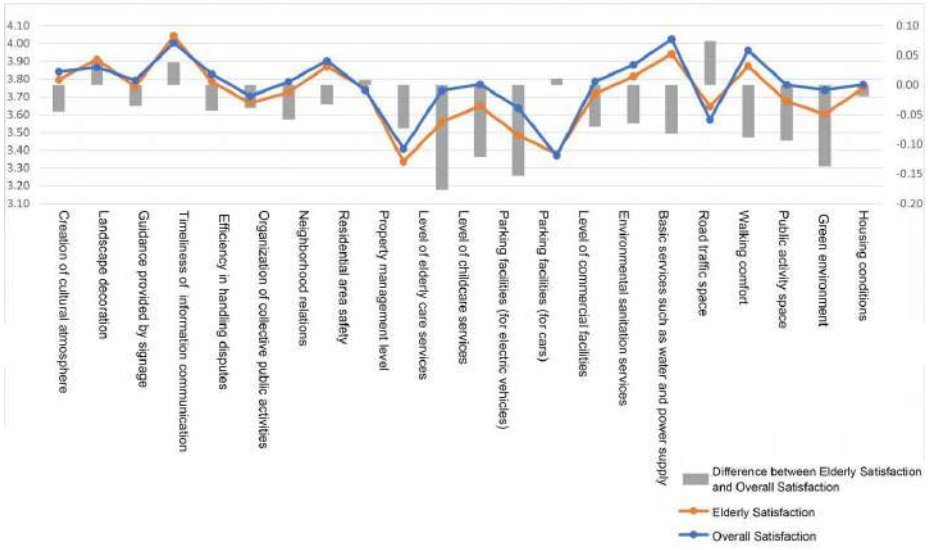


Figure 8 Comparison between Satisfaction of Elderly Groups and Overall Satisfaction

Summary

In recent years, the number of old residential areas included in the renovation scope in Zhonglou District has continued to increase, with the renovation involving a wider range of diverse content and increasingly rich connotations and levels. Through a comprehensive assessment, it can be found that the current core contradiction mainly manifests as a focus on renovation over management. Particularly, difficulties in introducing property management after renovation and the lack of flexibility in using remaining funds have led to a large number of issues arising in the later stages of the residential areas. These issues include patches of bare soil in the green spaces, unmanaged parking spaces, inadequate garbage classification, and difficulties in rapidly accessing firefighting facilities. These problems have seriously affected residents' evaluation and satisfaction with the renovation results.

Suggestions

Based on the analysis of existing issues and the interpretation of relevant policies, this paper draws on the experience of old residential area renovation from both domestic and international contexts to propose targeted long-term governance strategies for the renovation of old residential areas from four dimensions: government, society, engineering, and economy

Dimension of Government Governance: Improving Long-Term Management and Emphasizing Multi-Dimensional Linkages

Optimize the long-term management mechanism, advocate a multi-party co-governance system, and establish a governance system with the participation of grassroots party organizations, community residents' committees, owners' committees, and property management enterprises. Strengthen the leading role of grassroots party organizations in party building and coordinate the handling of various mass affairs; stimulate the supervisory role of owners' committees and actively participate in the follow-up management and effect feedback of the renovation plan; promote cooperation between property management enterprises and party organizations to jointly promote community governance activities. Provide multiple information transmission channels and combine online platforms to timely report community governance information and ensure the right to know for residents in the community. Establish long-term management evaluation standards, normalize the work of conducting "look-back" assessments on the renovation of old residential areas, and conduct graded and categorized acceptance inspections on the management effectiveness of renovated old residential areas.

Dimension of Social Governance: Encouraging Multi-Party Participation and Implementing Classified Management Models

Encourage property management enterprises to actively participate and explore diversified property management models. Research a trinity model combining government underwriting and trusteeship, residents' self-management, and property enterprise management based on the principle of "one community, one policy." For communities that do not meet the conditions for introducing market-oriented property management, an owner self-governance management model can be adopted. For communities that already have property management enterprises, it is necessary to actively promote service upgrades to meet residents' high-quality needs and stimulate enterprise enthusiasm through market-oriented means. Reduce property management costs and minimize "small, scattered, and isolated" communities through management models such as "connectivity, merger, and trusteeship."

Dimension of Engineering Governance: Addressing Facility Shortcomings and Promoting Facility Upgrades

Regularly conduct self-inspections of infrastructure renovation projects, coordinate with communities, and organize construction units to actively make rectifications to ensure smooth and level roads and unobstructed drainage systems in the community after renovation, safeguarding residents' basic daily travel environment. Enhance the quality of housing through improved technological processes, promote the adoption of technologies and materials that are innovative, mature in process, meet quality standards, and have controllable costs, maintain the unity of styles and materials for the renovation of old residential areas in different districts, and achieve organic integration with the cultural heritage and stylistic characteristics of the community. Scientifically assess and accelerate the updating of infrastructure pipelines and ducts with potential safety hazards such as water supply and heating systems, and strengthen the supporting infrastructure for fire safety.

Dimension of Economic Governance: Innovating Financing Models and Using Special Funds Flexibly

Innovate pilot fund sharing and sharing mechanisms, improve fund allocation rules, and raise renovation funds through general public budgets and government bonds. Pilot the introduction of a flexible fund use mechanism, where a smaller proportion of land transfer income from newly added residential land can be extracted as special funds for the renovation of old residential areas, with the remaining portion allocated according to regulations. Increase government financial support, attract market forces to participate, encourage qualified state-owned enterprises to participate in the renovation as scaled implementation and operation entities, and further explore various funding methods.

Conclusion

Based on the concept of a full lifecycle, this article constructs a comprehensive evaluation system for the renovation of old residential areas, aiming to provide a scientific and reasonable evaluation standard for relevant departments to accurately grasp the issues and contradictions in the renovation of old residential areas. An empirical analysis of the renovation of 70 old residential areas in Changzhou City shows that there are still core issues such as insufficient public participation, prominent contradictions in the needs of different groups, inadequate facility maintenance, and a lack of long-term management mechanisms during the renovation process of old residential areas. In the future renovation of old residential areas, it is necessary to further combine the characteristics and needs of the renovation of old residential areas in the region, identify the positioning of the management subject, straighten out various relationships, strengthen the multi-level linkage management model of district-street-community, focus on establishing corresponding operation and management organizations or platforms at various stages of the project's full lifecycle, and explore the formation of sustainable renovation and management models for old residential areas.

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