Practical Dilemmas and Breakthrough Paths in the Renovation of Old Urban Residential Communities

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Abstract. As China's urbanization enters the "quality and efficiency improvement" stage (with an urbanization rate of 66.15% in 2023), the renovation of old residential communities has been endowed with the dual attributes of "livelihood project" and "development project", becoming a core driver for optimizing urban stock space and upgrading urban functions. Based on policies such as the State Council's Guiding Opinions on Comprehensively Promoting the Renovation of Old Urban Residential Communities (2020) and the Ministry of Housing and Urban-Rural Development's Refined Design Guidelines for the Renovation of Old Urban Residential Communities (2023), this study focuses on the practice of old residential community renovation and systematically sorts out its practical dilemmas: At the capital level, over-reliance on central and local finances leads to project "scale reduction", while social capital shows low willingness to participate due to the lack of profit points and complex property rights; At the data and design level, fragmented basic data (such as comprehensive pipeline drawings and ownership certificates) combined with compressed design cycles result in insufficient project demonstration and poor quality control; At the resident coordination level, mixed property rights of "publicly-funded housing + commercial housing + unit-managed housing" trigger divergent demands, and the problem of public space encroachment existing in 40% of communities (data from the Ministry of Housing and Urban-Rural Development, 2023) increases the resistance to demolition; additionally, the long opinion feedback chain (resident → community → sub-district → district government → renovation entity) makes it difficult to implement plans; At the function and space level, fixed land use in core areas leads to insufficient supporting facilities for rigid needs such as parking and fire protection, while the "unified appearance" assessment and "one-size-fits-all" vegetation protection result in "uniform appearance across communities" and loss of community characteristics. To address the above dilemmas, this study proposes breakthrough paths: Construct a diversified capital mechanism of "PPP model + reward-based subsidies", and activate social capital through tax reductions and subsidies linked to resident participation rates; Establish a "one community, one file" GIS-based digital data platform, refine design standards, and promote resident-participatory project demonstration; Establish a coordination team led by the Party organization to clarify property rights, implement differentiated cost-sharing, and build an online opinion collection platform to shorten the feedback chain; Optimize space through the integration of existing land, three-dimensional space utilization (roof gardens, three-dimensional parking lots) and cross-community co-construction and sharing, and allow differentiated design (e.g., building facades with the same hue but different color temperatures) to preserve community characteristics. This study aims to provide practical references for solving the problems in the renovation of old residential communities and achieving the goal of "resident satisfaction and urban quality improvement".

Keywords: Renovation of Old Residential Communities; Practical Dilemmas; Breakthrough Paths.

1. Introduction

1.1 Research Background

China's urbanization rate has increased from 52.6% in 2012 to 66.15% in 2023, entering a critical stage of "quality and efficiency improvement". With the transformation of urbanization, the traditional urban development model of "large-scale demolition and construction" has gradually withdrawn, and "optimization of stock space" has become the core direction. As an important part of urban stock space, old residential communities have an increasingly urgent need for renovation.

After the State Council put forward the concept of "The people build the city, and the city serves the people" in 2020, the renovation of old urban residential communities was endowed with the dual

attributes of "livelihood project" and "development project": it not only needs to solve residents' "urgent and pressing needs" (such as the installation of elevators and the renewal of pipelines) but also helps upgrade urban functions (such as the construction of smart communities and green communities). In the same year, the State Council issued the Guiding Opinions on Comprehensively Promoting the Renovation of Old Urban Residential Communities, which for the first time defined three categories of renovation content (basic category: water, electricity, gas, and road facilities; improved category: elevator installation and parking facilities; enhanced category: elderly care, childcare, and smart security), and proposed the goals of "basically forming a renovation system framework" by 2022 and "completing the renovation of old urban residential communities built before the end of 2000" by 2025 [1]. In 2023, the Ministry of Housing and Urban-Rural Development released the Refined Design Guidelines for the Renovation of Old Urban Residential Communities, requiring renovation plans to "respect residents' needs and preserve community characteristics". The 2025 trend research further put forward the "dual goals of function improvement and resident satisfaction", demanding the construction of a scientific satisfaction evaluation system (covering dimensions such as living environment, infrastructure, and community services). Various regions have begun to explore characteristic models for the renovation of old residential communities based on their regional characteristics. However, in practice, renovation work often stagnates due to issues such as capital, coordination, and space, and there is still a gap between the promotion efficiency and residents' expectations, which urgently requires systematic solutions.

2. Practical Dilemmas in the Renovation of Old Residential Communities

2.1 Financial Dilemmas: Tight Local Finances and Difficult Social Financing Highlight Financial Constraints

Capital is the "primary problem" in renovation, and its core dilemmas lie in "tight local finances and lack of returns".

2.1.1 High Fiscal Dependence Leads to Project "Scale Reduction"

Currently, renovation funds are mainly borne by central subsidy funds, social investment, municipal and district government funds, and pipeline operation unit funds. Some local governments have to reduce the scope of renovation content due to fiscal constraints.

2.1.2 Low Willingness of Social Capital to Participate and Lack of Return Mechanism

Most renovation projects of old residential communities are public welfare projects with no commercial profit points; second, complex property rights (e.g., communities with a mixture of "publicly-funded housing and commercial housing") make it difficult to coordinate profit distribution, and social capital is worried about "no return on investment".

2.2 Dilemmas in Data and Design: Weak Foundation Undermines Design Quality

"Data shortage + compressed cycle" result in low design quality and difficulty in plan implementation.

2.2.1 Fragmented Basic Data and High Survey Costs

Most old residential communities lack original data, requiring unmanned aerial vehicles (UAVs) for project land surveying and base map processing after data acquisition; the lack of comprehensive pipeline drawings necessitates exploration with special equipment, and some cities even lack the capability for such exploration; the existing power supply cannot support capacity expansion, making it difficult to solve residents' key concerns such as rainwater, sewage, and power supply issues; some communities have complex "building ownership", making it difficult to determine the nature of building demolition and modification during design.

2.2.2 Compressed Design Cycles and Insufficient Plan Demonstration

Although local governments have issued renovation technical guidelines and action plans, local governments compress the design cycle inadvertently to meet "annual renovation targets" and address the need for communication and confirmation of complex on-site issues during the design process. Combined with the lack of basic data, this leads to insufficient plan demonstration and poor design quality control.

2.3 Dilemmas in Resident Coordination: Complex Property Rights and Interest Differences Hinder Collaboration

Residents are the "core participants" in renovation, but their "interest heterogeneity + organizational fragmentation" result in inefficient coordination.

2.3.1 Complex Property Rights and Divergent Demands

Old residential communities often have mixed property rights of "publicly-funded housing + commercial housing + unit-managed housing": residents in publicly-funded housing are mostly the elderly, who pay more attention to "barrier-free facilities" and are unwilling to contribute more funds; residents in commercial housing are mostly young people, who focus more on "parking + smart security" and are willing to bear part of the costs; for unit-managed housing, the unclear responsibilities of the original unit make it difficult to share renovation costs.

2.3.2 Widespread Public Space Encroachment and High Demolition Resistance

According to 2023 data from the Ministry of Housing and Urban-Rural Development, 40% of old residential communities have public space encroachment, such as clutter piling in corridors, vegetable gardens built in green belts, and ground locks installed in parking spaces. Residents show strong resistance when these encroached spaces need to be demolished during renovation.

2.3.3 Fragmented Coordination Entities, Overlapping Inter-departmental Responsibilities, Long Opinion Feedback Chain, and Difficult Implementation

Renovation involves residents, community committees, property rights units, and design units, requiring the Housing Bureau to communicate and coordinate with various responsible departments and renovation-related entities; community committees lack "decision-making power" and can only convey opinions; property rights units mostly participate passively and are unwilling to bear costs; design units are only responsible for technology and cannot coordinate interests. A single department sometimes cannot take the lead in interest coordination, and residents' opinions on the plan need to be transmitted through the chain of "resident → community → sub-district → district government → renovation entity", resulting in a long feedback chain and difficulty in implementing the final plan.

2.4 Trade-off Between Function, Space, and Community Characteristics: Space Constraints Hinder Function and Urban Characteristic Improvement

Most old residential communities are located in urban core areas, and "fixed land use + upgraded supporting standards" lead to functional conflicts.

2.4.1 Limited Land Resources and Unmet Rigid Supporting Needs

Old residential communities are mostly low-rise residential areas with low plot ratios, narrow existing roads, limited green space, and no space for new land use. During renovation, "increasing parking spaces and widening fire-fighting roads" require occupying green space, and "public health facilities" need space for layout, making it difficult for design to balance these needs and restricting function optimization.

2.4.2 "Uniform Appearance Across Communities" and "One-size-fits-all" Vegetation Management Lead to Loss of Urban Characteristics

Some local governments take "unified appearance" as an assessment indicator for the overall urban style, requiring "consistent exterior wall colors and unified greening layouts for communities on the

same street". Some regions impose overly strict vegetation protection policies, such as "banning the felling of any trees", which limits renovation conditions and affects facility construction. Lewis Mumford once metaphorized cities as containers of culture, stating that cities are "dedicated to storing and passing on the achievements of human civilization" [2]. If cities present a "uniform appearance across communities", they will lose their unique cultural characteristics.

3. Breakthrough Paths for the Renovation of Old Residential Communities

3.1 Construct a Diversified Fund-raising Mechanism and Strengthen Policy Support to Alleviate Fiscal Pressure

Introduce the PPP model: if enterprises construct elderly care and childcare facilities, the government provides tax reductions, and enterprises recover costs through operating income.

Optimize fiscal subsidies and implement "reward-based subsidies". Local governments can provide rewards to residents who actively participate in renovation projects to encourage their participation in urban renovation-related activities; the government can use special fund subsidies and tax incentives to drive developers of old residential communities to participate actively, and also implement operational support policies [3]. For example, fiscal subsidies are no longer allocated "per project" but linked to "resident participation rate and social capital proportion": projects with high resident contribution rates and social capital proportions receive a higher subsidy ratio; additional fiscal subsidies are provided to projects that have completed "smart and green" renovations.

3.2 Improve Basic Data Management and Design Systems to Enhance Design Quality

Start with "data digitalization + standard refinement + resident participation": establish a "one community, one file" digital platform, and obtain ownership certificates through archives bureaus and original construction units; input data into the GIS system to build a "digital archive platform for old urban residential communities", which is open to design units, communities, and residents for inquiry. Formulate "hierarchical and classified" design standards, and local governments formulate detailed rules based on climate and culture.

Refine the guidelines for the renovation of old residential communities to control design boundaries: conduct "plan public announcements" during the plan design stage for residents to vote on; promptly optimize details for controversial points in the plan and organize negotiations between residents and design units. Arrange project schedules scientifically based on practical problems encountered in the project.

3.3 Improve Resident Coordination Mechanisms to Resolve Interest Differences

3.3.1 Address "Coordination Difficulties" with the Party Organization as the Core to Integrate the Strength of Multiple Entities

According to the "Ladder of Citizen Participation" theory proposed by American scholar Sherry R. Arnstein, public participation can be roughly divided into three development stages: non-participation, symbolic participation (including informative, educational, and placatory forms), and substantive participation (including cooperative, representative, and decision-making forms) [4]. In view of this, China should take relevant measures, such as clarifying the leading entity of "Party organization leadership" and promoting an "intelligent opinion collection platform" [5]: offline, the community Party organization establishes an "old residential community renovation coordination team", with members including the community secretary (team leader), resident representatives, property rights unit representatives, design unit representatives, and legal consultants. The coordination team has "decision-making power" (e.g., determining the contribution ratio), "execution power" (e.g., organizing the demolition of encroached spaces), and "supervision power" (e.g., supervising project quality) to avoid "multi-head management"; online, collect residents' opinions through multiple platforms and methods, promote the transformation of public participation in old

residential community renovation from formalized and symbolic participation to substantive and in-depth participation, and build a fair and reliable communication and discussion platform in residents' minds.

3.3.2 Innovate Interest Coordination Strategies to Resolve Differences

Address complex property rights by promoting "clear property rights + differentiated cost-sharing". For issues such as complex property rights of self-managed housing, publicly-funded housing, and encroached spaces, first determine the property rights subject, divide responsibilities, and then the relevant department takes the lead to share renovation costs with various stakeholders in proportion to solve historical issues. Strengthen consensus education, popularize the significance of renovation through public platforms such as WeChat, and disclose work processes and cost details to reassure residents.

3.4 Explore Strategies for Intensive Land Use, Supporting Optimization, and Characteristic Style Preservation to Break Through Space Constraints

Address "land use constraints" by improving space efficiency through "intensive land use + three-dimensional utilization + co-construction and sharing + refined design": integrate existing land such as open spaces, wasteland, green spaces, and land from illegal construction demolition in the community; design three-dimensional spaces such as roof gardens and three-dimensional parking lots; promote "cross-community co-construction and sharing" to reduce land demand by sharing supporting facilities with surrounding communities, schools, and shopping malls. Achieve "space superposition" through refined design and improve space utilization through functional composite design methods. On the premise of adhering to design red lines, allow flexible renovation principles and differentiated design to highlight community characteristics, such as allowing building facades with the same hue but different color temperatures and different facade compositions under the control of the overall urban style plan, and transplanting or felling existing plants according to the actual situation of the community and design requirements.

4. Conclusion

Based on the practice of old residential community renovation, this study aims to sort out the difficulties faced by the renovation of old residential communities in China and propose corresponding solutions to achieve the goal of "resident satisfaction and urban quality improvement". Through design practice, we found that the problems faced by old residential communities are intertwined. With the advancement of "smart community" and "green community" construction, the direction and quality requirements of old residential community renovation will be updated and iterated in the future. It is hoped that this study can provide certain reference value for the further development and problem-solving of old residential community renovation.

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