

# **Analysis of Urban Renewal Hotspots and Trends Based on Citespace: A Case Study of WOS Data (2016-2025)**

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## **Abstract**

**Currently, as China's urbanization shifts from high-speed growth to a new stage of high-quality growth, the role of urban renewal is becoming increasingly important. To explore the research trends and hot topics in urban renewal, and to provide diversified suggestions for the high-quality development of future urbanization, this study employs quantitative analysis methods and utilizes CiteSpace literature visualization software to conduct a visual analysis of core literature related to urban renewal in the World Society of Urban Renewal (WOS) from 2016 to 2025. The analysis reveals that: 1) Keyword clustering analysis shows that research on urban renewal from 2016 to 2025 can be mainly divided into 13 clusters; 2) Time trend analysis shows that it can be mainly divided into three stages: macro-level urban renewal (2016-2019), meso-level and environmental renewal (2020-2022), and community-level renewal (2023-2025).**

## **Keywords**

**Urban Renewal; CiteSpace; WOS.**

## **1. Introduction**

In 2011, China's urbanization rate broke through 50% for the first time, marking a new stage in China's urbanization development. The release of the National New Urbanization Plan (2014-2020) in 2014 and the convening of the Central Urban Work Conference in 2015 marked that China's urbanization has shifted from high-speed growth to medium-high-speed growth and entered a new stage of transformation and development with quality improvement as the main focus [1]. However, the problems hidden behind the high-speed development have begun to emerge, such as environmental degradation, traffic congestion, and resource scarcity. The state has begun to advocate the shift from "incremental planning" to "stock planning", and the role of urban renewal has become prominent in this regard.

The academic community is increasingly studying urban renewal, and the scope of research is constantly expanding. For example, Chai Zitong (2025) [2] studied the internal logic and implementation mechanism of urban renewal under the background of cultural inheritance and innovation, emphasizing that cultural awareness should be taken as the core concept of urban renewal, so as to promote the transformation of culture from passive protection to active shaping, and stimulate the endogenous power and innovative vitality of urban culture [2]. Wang Chenghua and Li Zhiwei (2020) [3] explored the practice and exploration of the renovation and transformation of old communities under the background of urban renewal, and proposed that the renovation and transformation of old communities should take human development as the core, including the two levels of action and mechanism, and pay attention to the optimization of the surrounding built environment to achieve the overall improvement of regional development vitality [3]. Lin Chenfang, Du Yan, Yue Jun and Wang Jia [4] (2020) studied the mechanism of urban renewal with multi-subject collaborative cooperation [4].

Shen Yao, Zhang Dingxue, Li Si, Jiao Sheng (2015) [5] studied the spatial characteristics of children's school walkways from the perspective of urban renewal. They studied the behavior and spatial characteristics of children's school walkways in areas where old and new buildings coexist. They proposed feasible planning and design approaches for such areas to promote the organic renewal of old and new neighborhoods and the integration of children's daily activities. Cao Kexin, Deng Yu (2021) [6] studied the progress and prospects of the spatiotemporal evolution path and driving mechanism of sustainable urban renewal. They proposed that China needs to improve the multi-scale management system of "national-regional-city" in practice, establish a refined urban renewal management system oriented towards sustainable goals, and improve the multi-subject collaborative urban renewal participation mechanism. Cui Jianqiang, Broere Wout and Lin Dong (2021) [7] studied the role that underground space can play in the process of urban renewal and proposed that urban underground space should be considered by decision-makers for the transformation of existing urban areas to promote dynamic and denser development and mixed land use.

However, existing research on urban renewal is complex and multifaceted, with many interdisciplinary studies. Furthermore, much of this research focuses on policy, single theories, and the analysis of completed outcomes, often remaining at the theoretical level and resulting in a disconnect between practice and theoretical research. To better clarify the international development relationships and trends in urban renewal, this study will utilize relevant visualization and analysis software to organize the research content, providing clearer directions and specific recommendations for urban renewal development and future urbanization.

## **2. Analysis Methods and Data Sources**

### **2.1. Research Methods**

This study employs quantitative analysis, a method that, compared to traditional qualitative analysis, utilizes numerical and statistical methods to eliminate subjective influences and enhances objectivity. Furthermore, standardized indicators (such as percentages and growth rates) can precisely quantify phenomena, facilitating cross-sectional comparisons and trend tracking. Additionally, this study utilizes Citespace for literature visualization analysis. Citespace can transform large amounts of scientific literature data into visual graphs in a short time through code execution, effectively helping researchers identify key authors and research trends related to core research topics.

### **2.2. Data Sources and Analysis Process**

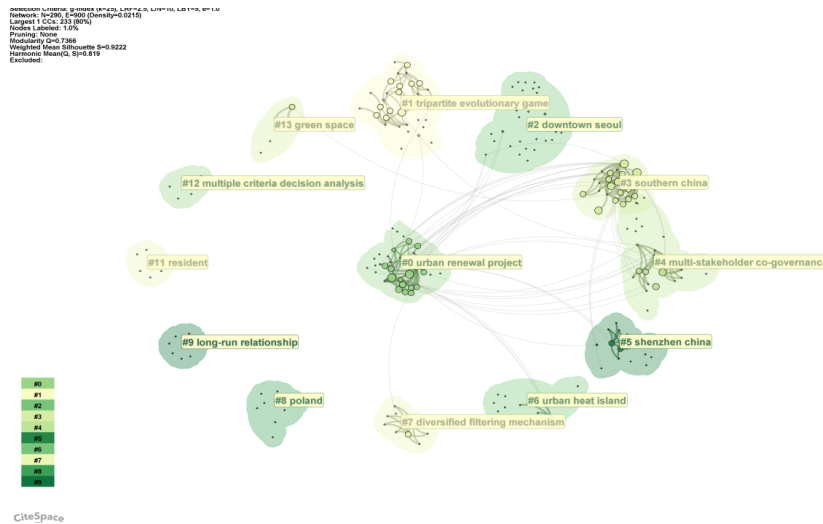
The data for this study originated from the Web of Science (WOS) database. The search method used was the Web of Science Core Collection, employing a topic search with the theme "urban renewal." The search period was limited to 2016-2025, and the source of the literature was restricted to open access, with the literature type being "Article". The WOS database source was limited to the SSCI dataset. Irrelevant studies were then manually removed. Based on these screening results, 106 core relevant articles were selected, including full records and cited references, and exported as plain text files. In the analysis, LLR clustering was used, and time trend analysis was performed after keyword clustering.

## **3. Analysis of Urban Renewal Research Trends**

This study used Citespace to perform a visualization analysis of urban renewal-related literature in the WOS database from 2016 to 2025. The results are shown in Figures 1 and 2.

### 3.1. Keyword Clustering Analysis

Using Cite Space's LLR clustering, a visual analysis of urban renewal-related literature in the WOS database from 2016 to 2025 was performed. The results are shown in Fig. 1. Specifically, The Clusters Were Divided Into 13 Dimensions: Urban Renewal Project (#0), Tripartite Evolutionary Game (#1), Downtown Seoul (#2), Southern China (#3), Multi-Stakeholder Co-Governance (#4), Shenzhen China (#5), Urban Heat Island (#6), Diversified Filtering Mechanism (#7), Poland (#8), Long-Run Relationship (#9), Resident (#10), Multiple Criteria Decision Analysis (#11), and Green Space (#12).



**Fig 1.** Clustering analysis of urban renewal keywords (co-occurrence)

Specifically, the reasons and content analysis of the top five were discussed. For the urban renewal project (#0) cluster, it covers sub-fields such as urban renewal, city, framework, construction project, heat island. The reasons for the popularity of the above clusters are as follows: Since China's urbanization rate exceeded 50% in 2011, China's planning has shifted from high-speed development to high-quality development. Under the macro background of ecological civilization and the overall framework of "five-in-one" development and national governance system construction, urban renewal projects of different sizes have been carried out in China. Moreover, since 1990, Western urban renewal has shifted from the original government-guided old city redevelopment to the current community comprehensive revitalization guided by humanism, which is a renewal model that aims to improve the living environment and protect the historical value of the community [8].

For the three-party evolutionary game (#1) cluster, it covers sub-fields such as management, evolutionary game theory, urbanization, sustainable urban renewal, and thematic cooperation. Game theory has always been a major area of research in urban construction and urban renewal because urban renewal involves the interests of all parties and the differences in their interests are huge. In order to meet the demands of all parties and handle the interests well, Wang Weilai (2023) proposed a three-party evolutionary game mechanism involving local governments, urban renewal project developers, and residents of the urban renewal project site, [9] in order to reduce the government's financial pressure, maximize the developer's profits, maximize the residents' welfare, and promote the more scientific and efficient implementation of urban renewal projects. Since the research on stakeholder coordination and interest distribution in this theory has great similarities in Chinese and Western cities, it has become a major focus of urban renewal research.

For the Seoul city center (#2) cluster, it covers sub-fields such as policy, impact, alternative, protection, and urban planning. As an emerging city among the super cities in the Asia-Pacific region, South Korea has seen its population increase reach 9 million in the past 40 years and has become a key global city for development. However, since the early 1980s, Seoul's decentralization policy has changed the city's pattern and layout. Its industrialization and commercial attributes have been continuously enhanced, resulting in a large number of industrial and commercial districts outside the Seoul city center [10]. The development of these sub-districts outside the center has also hindered the renewal and development of some historical cities. Therefore, Seoul carried out top-down reforms in these cities, but there are also some drawbacks, such as neglecting humanistic values in the rapid renewal and development of the city, urban gentrification, and ecological degradation. These problems are not only common in Western countries, but also have important research value for the current development of urban renewal.

For the Southern China (#3) cluster, subfields such as sustainability, indicator-based methods, urban renewal performance, support, and systems are covered. Southern China, coastal areas, and some developed northern cities such as Beijing, Shanghai, Shenzhen, Nanjing, Hangzhou, and Xiamen, as pioneers in China's economic and urban development, have taken the lead in carrying out urban renewal construction under the support of national policies, and have conducted analysis and evaluation of existing urban renewal projects from different perspectives. For example, the assessment of the quality of living environment in Binjiang District of Hangzhou [11], and the study on the dynamic coupling and interaction mechanism between digital infrastructure and sustainable urban renewal in Jiangsu Province [12]. These studies are of great significance to the development of urban renewal.

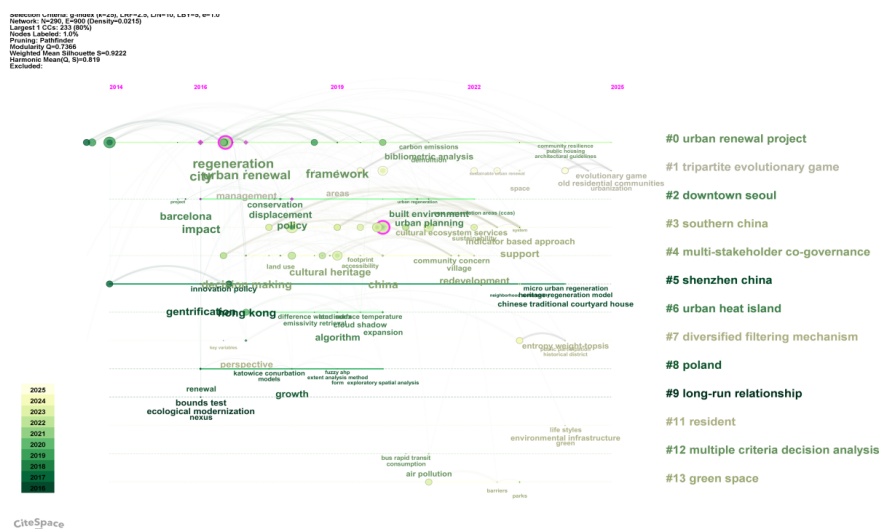
For the multi-stakeholder collaborative governance (#4) cluster, it covers sub-fields such as China, decision-making, redevelopment, land use, and decision support. Since the Third Plenary Session of the 18th CPC Central Committee proposed "social governance", China has been constantly exploring governance theories that adapt to the actual situation of China's reform and development, and collaborative governance is one of the research hotspots. This theory originated in the West and has long been widely used in the fields of political science, economics, management and sociology in Western countries [13].

### **3.2. Time Trend Analysis**

From 2016 to 2025, research focus has gradually shifted from overall urban renewal to urban renewal from a micro and multi-perspective perspective. This can be mainly divided into three phases: 2016-2019, 2020-2022, and 2023-2025 (Fig 2).

The research from 2016 to 2019 mainly focused on the urban renewal strategy of a certain city, the problems that arise in the process of urban renewal, urban regeneration theory, urban renewal land use, or the problems exposed in the urban renewal of a specific city from a macro perspective. The keywords of this stage are mainly: urban regeneration, city, urban renewal, land use, policy, etc. Liu et al. [14] (2017) evaluated the urban renewal policy of Shenzhen by establishing a policy evaluation framework, data survey and pattern matching and other quantitative analysis methods. They proposed that the government should rationalize the number of urban renewal and planning policies by limiting the number of policies, and further measures should be to increase the number of policies of supply and demand types, and attach importance to the systematization, coordination and compatibility of various urban renewal policies to further promote urban renewal in Shenzhen. Mehdipanah [15] (2018) used the background-mechanism-outcome (COM) model to reveal the relationship between gentrification, urban renewal and residents' health. It is worth noting that Hong Kong appears frequently during this period, mainly because after World War II, Hong Kong rapidly developed into another major world financial center and one of the

most densely populated cities. Its urban renewal strategies and policies have strong reference value for China and the international community.



**Fig 2.** Analysis of Urban Renewal Time Trends

The research from 2020 to 2022 mainly focused on the environmental problems faced by cities in the process of urban renewal and how to achieve sustainable urban development, while the research scale was reduced. Due to rapid urbanization and industrialization, cities in the United States have experienced problems such as poor air quality, heat island effect, increased frequency and severity of extreme events (such as floods, droughts, storms and heat waves), abandoned industrial land, dysfunctional urban areas, rising crime rates, social exclusion, inequality, marginalization, poverty and deteriorating urban environment [16], and these problems are particularly evident in developing countries. The key words in this stage are: carbon emissions, microclimate, redevelopment, environmental construction, air pollution, etc. On September 22, 2020, Chinese President Xi Jinping solemnly declared at the general debate of the 75th session of the United Nations General Assembly that China's carbon dioxide emissions will strive to reach peak before 2030 and strive to achieve carbon neutrality before 2060. Under the background of "dual carbon", Chinese scholars are committed to studying the influencing factors and driving mechanisms of carbon emissions in order to achieve the goal of carbon neutrality. Heat island effect and microclimate are also one of the hot topics during this period. Lin et al [17] (2024) took Huili Ancient City in Liangshan Yi Autonomous Prefecture, Sichuan Province as the research object, summarized the current problems of the community, and formulated specific renovation strategies for issues such as historical and cultural heritage, old-new relationship and green building technology layout, providing new suggestions for the renovation of historical communities from a new perspective. Hsieh, Yu, Shao (2023) [18] started with small projects because large-scale urban renewal projects are difficult to implement. They used computer simulation to evaluate the degree of influence of building form changes on site wind flow in small-scale renewal, and emphasized the important role of small-scale renewal projects in transforming the local wind environment and heat island effect in the city. They used the micro-environment perspective to alleviate the environmental problems in the urban process.

The research scale further narrowed in 2023-2025, and the research usually focused on the evaluation of completed renewal projects, urban renewal and transformation under a certain concept, and was closely integrated with the construction practice of urban renewal projects. In addition, urban renewal research in this period paid more attention to the evaluation of residents' participation in renewal projects. For example, the popular community renewal and

transformation, old community renovation, and the renewal and utilization of abandoned industrial areas in this period aimed to renovate and transform buildings and structures within the community. The key words in this period are: community sustainability, evolutionary game, participation, environmental protection awareness, etc. Dong Guoqun et al. (2023) [19] conducted a survey on old communities in a university in Beijing. Through field surveys and visits, they summarized and analyzed the problems and proposed feasible strategies to satisfy the government, developers and residents. Yan et al. (2023) [20] collected data through visits and field surveys and studied the impact of urban renewal on community sustainability in Banan City, Chongqing. The study found that while urban renewal has brought positive impacts to Banan City, such as economic prosperity, optimized industrial structure, community safety, and convenient transportation, it has also led to economic unsustainability due to real estate development becoming the main driver of the economy, excessive commercialization due to the imbalance between economic and social interests, and a lack of community culture.

#### **4. Findings and Conclusion**

This study used CiteSpace to visualize and analyze relevant literature on urban renewal, revealing two key findings. First, LLR clustering of urban renewal identified 13 major categories, with the top five being: urban renewal project (#0), tripartite evolutionary game (#1), downtown Seoul (#2), southern China (#3), and multi-stakeholder co-governance (#4). Second, time-trend analysis revealed four distinct phases: from 2016 to 2025, the research perspective on urban renewal shifted from a macro-city-wide approach to a micro-community-level project approach. This can be further divided into three phases: 2016-2019 (macro-level urban renewal, focusing on urban renewal strategies); 2020-2022 (meso-level and environmental renewal, focusing on environmental issues and environmental impacts); and 2023-2025 (community-level renewal, focusing on community-level urban renewal and the role of residents in the process).

Based on the above analysis, this study proposes the following suggestions: Recent research on urban renewal has focused more on people's experiences in cities, and the goals of renewal are more closely aligned with residents' real needs. Developed Western countries should continue to improve the living environment and the historical and cultural value of cities, effectively addressing the livelihood issues of the underprivileged, building upon existing renewal efforts. Developing countries like China should first analyze their current stage of development, formulate relevant policies, promote the renovation of old residential areas and industrial sites, and implement sustainable development principles to develop urban renewal in a targeted, strategic, and efficient manner. Furthermore, given the significant importance of urban renewal for countries in the later stages of urbanization—it not only optimizes urban space and improves quality of life but also promotes sustainable development—the government should proactively formulate policies to promote relevant research and development, while collaborating with local enterprises to implement renewal projects. Universities and researchers should be at the forefront, continuously contributing to the theoretical field of urban renewal and playing a leading role.

Due to limitations in research scope, time, and space, this study only selected the WOS database as its data source, resulting in an overemphasis on English-speaking countries and a lesser focus on non-English-speaking countries. Furthermore, urban renewal, as a rapidly developing international discipline in recent years, holds significant importance for nations, cities, and residents. With the continuous development of the world, it will inevitably play an increasingly important role in all aspects of urban development and achieve greater progress.

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