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Strategic Approaches to Realize Sustainable Neighborhoods in Urban Renewal: A Case Study of Banan, Chongqing, China

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Abstract: Due to the lack of effective impact assessment, urban renewal in China is facing many challenges and dilemmas. Residents' perceptions are important for the sustainability of urban renewal. This study evaluated the impacts of urban renewal on the economic, social, and environmental sustainability of a neighborhood via a case study of Banan, Chongqing, China. According to the analysis of the questionnaires and in-depth interviews and with local residents, Banan's urban renewal led to both positive and negative impacts. This study proposed strategic approaches to realizing sustainable neighborhood during urban renewal in China according to impacts. Based on the analysis, strategies for creating sustainable neighborhoods during urban renewal were developed, including balancing of economic, social, and environmental interests, satisfying residents' needs, and enhancing innovation. The impact of urban renewal in Banan was evaluated based on the economic, social, and environmental sustainability of a neighborhood, and the findings will be useful for policy makers and researchers engaged in sustainable urban renewal to refine their strategy.

Keywords: urban renewal; sustainability; neighborhood sustainability; Banan; Chongqing; China

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1. Introduction

Urban renewal is viewed as an essential strategy to address the problems embedded in urbanization, revitalize urban development, and regenerate the vitality of a city [1,2]. Indeed, the development history of a city is a process of continuous transformation and renovation. Davis and Whinston [3] considered a city as an organism, and the city development is the metabolism process by which the city grows, decays, renews, and revitalizes. Urban renewal occurs in the whole life-cycle of the city, propelling its continuous evolution. Urban renewal can also be initiated or pushed by external power. Governments worldwide implement urban renewal strategies, such as updating infrastructure, renewing old buildings, improving the landscape, adjusting the industrial structure, and developing new industries to realize re-urbanization [4,5].

Urban renewal, in essence, is a systematic project involving economic, political, cultural, social, and ecological dimensions. The project rebuilds not only the material aspects of a city, such as its shape, texture, structure, and scale, but also the spiritual aspects [2,6,7], which are reflected in the residents' perceptions. A successful city is capable of satisfying residents' multiple needs, and the achievement of sustainable neighborhoods (or communities) is an inherent requirement of urban renewal [2]. However, the impacts of urban renewal on neighborhoods are multiple and complicated, since it brings substantial changes to the economic, ecological, and social environment of these neighborhoods [8–10]. Sustainability is, thus, a critical issue in the urban renewal process and possibly its ultimate goal [11].

Most researchers have focused on the scale of an urban renewal project, but limited understanding has been observed in terms of sustainability assessment from the perspective of the neighborhood [1,2]. At this scale, sustainability is based on whether urban renewal strategies satisfy residents' multiple interests. "Neighborhood" typically connotes a section of a city with a built-up area [2]. These neighborhoods or communities compose cities in space. Generally, a neighborhood is a geographically defined subarea inside a city where residents share services, facilities, and interests, and serves as the front line for encouraging sustainable development because land development and building construction activities frequently take place there [12]. It is arguable whether urban renewal strategies implemented by local government, rather than superficial prosperity, can realize sustainable neighborhoods. Zheng et al. [13] found that many urban renewal projects determined by local government in China are driven by economic or political goals. Local governments artificially implement urban renewal strategies in order to pursue economic growth indicators (e.g., GDP) and political achievements, but sustainability consists of not only the economy but also society and environment [14]. Zhuang et al. [15] evaluated the participation of the stakeholders during the process of urban renewal using in-depth interviews and a questionnaire survey. Zheng et al. [13] developed an urban renewal assessment framework based on several research methods, such as a literature review, interview, and case study; then, they proposed strategies to support decision making. However, it is difficult to quantify the impacts of urban renewal on residents. It is meaningful to evaluate these impacts before making further strategies. Moreover, the majority of empirical studies have been conducted from a macro-perspective, whereby residents' perceptions were largely ignored. Hence, there is little knowledge about whether and how urban renewal leads to sustainable neighborhoods from a micro-perspective. This research argues that statistical data, such as GDP growth, employment, and greenhouse gas emission, cannot fully and accurately reflect the sustainability performance of the city, and hence, we need to develop in-depth knowledge based on the perceptions of residents who have experienced the entire process of urban renewal.

The purpose of this research is to evaluate the impact of Banan's urban renewal on its economic, social, and environmental sustainability. Meanwhile, this study also seeks to develop a strategic approach to realizing a sustainable neighborhood in urban renewal.

This study is significant in terms of the following aspects. First, this research develops a systematic framework to assess both the positive and negative impacts of urban renewal on the sustainable neighborhood, whereas previous studies focused only on a few aspects of sustainability in urban renewal, such as social environments [8], waste of resources and energy [9], economic loss [16], potential social conflicts, and loss of urban culture [17]. Second, previous studies pertaining to urban renewal and sustainable neighborhoods were largely based on a macro-perspective, ignoring the perceptions of residents, the key stakeholders in urban renewal. Hence, this study develops in-depth knowledge from a micro-perspective that supplements the existing literature. Third, achieving a sustainable neighborhood is a crucial objective of urban renewal, but it is a challenging task because of the difficulty in balancing the economic, social, and environmental interests. This study provides a critical reflection on both the positive and negative consequences of urban renewal and identifies significant implications for realizing sustainable neighborhood in urban renewal.

2. Literature Review

City development is confronted with many challenges, such as urban dilapidation, environment pollution, traffic congestion, inadequate facilities, and uneven distribution of development. Urban renewal has been put on the agenda in many economies to solve urban problems [2]. It responds to shifting expectations that abandoned and derelict urban buildings be refurbished and reused [10]. Urban renewal refers to demolishing many old properties, which provides space for the planning and construction of a new set of buildings, streets, and infrastructures. Thus, urban renewal can be interpreted as a process

of re-constructing urban areas via physical changes or plans to rectify urban problems and accomplish different social-economic goals [1,10,18].

Although urban renewal can bring prosperity to cities, it also has negative impacts [19]. Plenty of urban renewal projects can address urban decay problems effectively; however, there are some projects that generate negative outcomes with externalities [20]. Hyra [21] pointed out that there were two periods of urban renewal in the United States, old urban renewal (1949–1974) and new urban renewal (1992–2007). Although urban renewal projects have revitalized areas in the US, they still have negative social impacts. The old urban renewal has negative consequences with respect to race, and the new urban renewal shifted metropolitan poverty to different locations. Hence, many scholars worldwide have recommended that urban renewal should be implemented based on sustainability development principles [22].

China's urbanization level increased at an average rate of 1.05% per annum from 1978 to 2012 [23]. This put a burden on urban redevelopment, specifically, infrastructure and housing constructions [21]. Adams and Hastings [1] argued that many buildings established before the 1970s did not abide by high construction guidelines. In addition, these buildings made unauthorized use of sands, which reduced their quality. Thus, these buildings were dangerous. Likewise, Liu et al. proposed [24] that the average longevity of the buildings constructed between 2008 and 2011 is about 38 years in China. The research by Sansheng Consulting on the redevelopment of dilapidated building areas in China reported that more than 14 million households were in need of renewal as of 2020 [25]. Apart from this, some low-density buildings occupy the best-located sites, but they are ineffectively used [1]. According to Couch [10], these sites were adopted at the sub-optimal intensity. In other words, they have low building densities, which need to be reconstructed for effective utilization [10]. Therefore, as suggested by Liu et al. [21], for most older urban areas, it is desirable to depend on comprehensive renewal to improve the living conditions of citizens and achieve sustainable development.

However, in the process of renewing urban areas, demolishing and renovating the old or dilapidated buildings create problems such as adverse impacts on living environments [8], waste of resources and energy [9], economic loss [16], potential social conflicts, and loss of urban culture [17]. Renewal initiatives are sometimes characterized by unsustainability. Thus, they are criticized by the citizens [26]. However, according to Zheng et al. [2], despite criticism over the urban renewal practices, urban renewal projects offer chances for accomplishing sustainable development if effectively implemented. This can be explained by the fact that urban renewal is helpful for solving urban decay, enhancing land values, and improving the environment [18]. Likewise, urban renewal involves the reuse of resources and redevelopment of the urban environment. Therefore, urban renewal can potentially promote sustainability if it is implemented sustainably.

The term sustainable development was originally used to refer to an economy with an equilibrium between economic growth and ecological environment. In 1987, the World Commission on Environment and Development (WCED) defined sustainable development as development that addresses the needs of the present generation without compromising the needs of the future generation. It proposed the prospect of a win-win situation. It also urged the government to commit to addressing the triple objectives, that is, "economic growth, social justice, and environmental protection" [27]. In the 1990s, sustainable development was introduced to urban renewal in China, and urban planning was integrated with the government's policies [28]. For instance, the Housing Planning and Lands Bureau suggested that a major goal of urban renewal is to achieve sustainable development in Hong Kong [29]. The Sustainable Communities Plan [30] of the United Kingdom developed a long-term programmed action to develop sustainable communities at urban and rural levels. In China, sustainable development is the basic principle throughout urban planning [31]. In 1997, China launched a National Model City for Environment Protection (NMC) program in order to identify cities that meet strict environmental standards in energy supply, waste management, and green space. However, Yi et al. argued: "in practice,

developments in China unfold as government projects without a broader consideration on the sustainable program" [5]. No strategic declaration has emerged to direct sustainable urban renewal (SUR) as a development goal in Chinese city planning by considering long-term urban sustainability. Indeed, most projects have emphasized economic regeneration instead of the regeneration of society and the environment [13]. Thus, it is necessary to improve the understanding of sustainable urban renewal in China, which will help solve urban problems and promote long-term sustainable communities for citizens by balancing economic, societal, and environmental developments.

According to Shi et al., a multi-scale perspective should be adopted when analyzing urban development. It consists of wide-ranging planning units at regional and project levels [32]. In terms of urban renewal, it covers a variety of spatial scales, specifically, city, district, neighborhood, and building blocks. At a city scale, renewal policies and direction will be presented. Because specific projects are carried out at neighborhood and district scales, it is comparatively easy to carry out a specific plan [2]. Compared with the city scale or building scale, it is much more feasible to introduce urban renewal planning at the neighborhood scale. As suggested by Brandon and Lombardi [33], projects can be designed in line with the vision for developing urban areas or cities; meanwhile, they can be adapted to fit in with the needs of established buildings, businesses, and inhabitants. Evert et al. [6] took the neighborhood as a specific urban residential area where there are permanent interpersonal relationships among the citizens who interact with each other socially. It can be considered a fundamental element of urban life where residents live independently but are connected [7].

Neighborhood scale is important for comprehensively designing urban renewal projects in which land is developed and new buildings are constructed. It can help the direct establishment of a sustainable community and implement the actions for promoting sustainability in the cities [14]. As Arundel and Ronald [34] suggested, if the neighborhood is created and planned in a way that minimizes the resource use and pollution, it can make a difference in addressing the environmental problems at the goal scale. Nevertheless, based on a comparison with the sustainability assessment targeted at the city level, few efforts have been made to explore the development of neighborhoods in a way that promotes sustainability [35], despite the neighborhood attracting the interest of urban planning policymakers and influencing the development of strategic goals [32]. For example, the National Planning Policy Framework (NPPF) developed the Nation Planning Policy to support the development of vibrant communities through providing the residents with accessible infrastructure and suitable housing provision [36]. China has also introduced a series of policies to promote sustainable neighborhood development [32]. For example, China's leading decision makers have already realized the limitations of current development and seized the opportunity to implement the National New-type Urbanization Plan (2014–2020) [23]. It set out pathways to address many problems that Chinese cities face. For instance, it guarantees that residents have access to basic social services, it provides green infrastructures to residents, and it is committed to improving the mechanism for public participation and supporting innovation to improve and rebalance the economy [37].

In the Western world, public participation is seen as the key factors of successful urban renewal projects [38]. However, previous work in the UK and the Netherlands has proved that the uneven power of different stakeholders, including governmental sectors, consultants, residents, and developers, leads to conflict in urban renewal projects [36,39]. In China, the local government usually has more power than other stakeholders [40]. The conflicts of interest between the public and other agents are more apparent, but the research on the public is still inadequate and has been criticized in many studies [15]. Knowledge about the consequences of urban renewal for residents is beneficial to further decision making and even to achieving sustainable urban development.

The current practices in China are confronted with many challenges. For instance, the policies are not effective enough, there is a lack of experience, and there is low investment in environment-related projects [32]. Kanhua and Hui [41] argued that the cause of many

sustainability issues is the government. Local governments have failed to develop specific departments with staff who have sufficient understanding of how to deliver sustainable neighborhoods. These factors inhibit the development of sustainable neighborhoods [32]. Thus, it is essential, first, to identify the factors linked to the positive development of sustainable neighborhoods so that the place-based projects and policies can be developed in a way that improves the health, welfare, and life qualities of the local people [39]. The National Planning Policy Framework (NPPF) argues that accomplishing the goals of sustainable development calls for the planning system to meet the objectives of economic development in alignment with the social and environmental development [36]. The economic development should support social and environmental development. The goal of enhancing urban qualities should be introduced for the purpose of renewing the neighborhood [14].

3. Materials and Methods

3.1. Study Area

Banan is a district located in the southwest of Chongqing China. By the end of 2020, it had a regional GDP of RMB 86.5 billion (or GBP 13.1 billion), a population of 1.06 million, and a scale of 1834 km^2. It is a relatively lagging area in Chongqing in terms of economic development. The government aimed to fundamentally revitalize the district though a set of strategic initiatives, such as renewing dilapidated buildings, rebuilding shantytowns, updating infrastructure, and speeding up ecological migration. The urban built-up area in recent years has steadily increased. Meanwhile, the urbanization rate increased from 54% in 2005 to 80% in 2020. The district provides a valuable opportunity for this study to probe the impacts of urban renewal on sustainable neighborhoods because of its dramatic changes in a short period.

3.2. Research Method

There are two fundamental methods for social researchers: qualitative and quantitative. These two methods are suitable for different social phenomena and have divergent philosophical foundations. Illustratively speaking, the quantitative method is embedded in positivism, which insists on objectivity and independence. Consequently, value-neutral and accurate numbers are suitable to describe and measure social phenomena. Meanwhile, numbers effectively reflect the external attributes of social phenomena because these attributes are commonly unidimensional or linear, such as the size and length. The qualitative method is embedded in interpretivism and advocates subjectivity and inseparability. Meanwhile, the meanings of social phenomena are always dynamic, multiple, and complicated. Moreover, the researcher's value judgments are inevitably involved. Consequently, texts that contain multiple and rich meanings are more suitable for describing the internal attributes of social phenomena, which are multi-dimensional and non-linear [42].

This study collected the primary data via in-depth interviews and questionnaire surveys to analyzed the impact of Banan's urban renewal. Sustainability is often considered in terms of the three dimensions of environmental, social, and economic (ESE) impacts [43]. Furthermore, strategic approaches to realizing sustainable neighborhoods in urban renewal were developed according to these impacts.

An in-depth interview is an empirical strategy of collecting primary data via direct communication and interaction with research subjects. This study carried out the in-depth interview with Banan's residents to learn how they perceived the economic, social, and environmental impacts caused by urban renewal projects in the previous 10 years. The researchers were interested in their views pertaining to these issues because these interviewees were the most important stakeholders in these projects and had experienced the entire process of urban renewal over the past 10 years. Researchers interviewed Banan residents who were experienced and insightful because they could provide the most valuable and abundant information. The main characteristics of interviewees were as follows: (1) they were over 30 years old; (2) they had received at least a middle school education; (3) they had been living in Banan for most of the past 10 years. A total of 13 interviewees who met

the above criteria participated in this study. In this way, the researchers summarized and evaluated the types of economic, social, and environmental impacts.

The data were analyzed via the following procedures (Figure 1). First, the researchers transcribed the interview recordings into texts and organized them. Second, the researchers read the interview transcripts and listened to the interview recordings many times in order to become familiar with them. Following this, the researchers held an open attitude when coding the interview transcripts, i.e., using a short expression (meaning unit) to summarize the core meaning of a piece of interview transcript [44]. For example, "I have received a large sum of compensation from the government . . . " was coded as "economic income" (meaning unit). After all the interview transcripts were coded, the researchers categorized meaning units into emerging themes. For example, "economic income" was categorized into "Positive Economic Impacts". Finally, the researchers linked these emerging themes in a theoretical framework and designed the questionnaire accordingly.

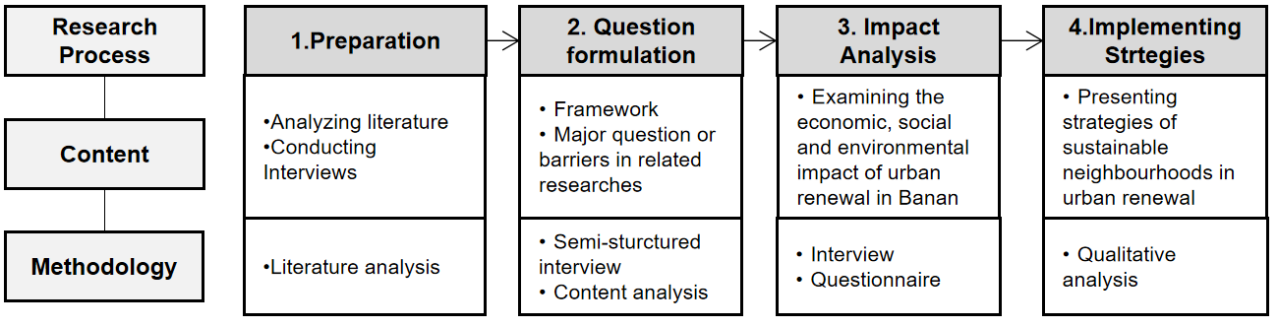

Figure 1. The four-step research process.

The quantitative analysis of sustainable neighborhoods in urban renewal was supported by questionnaire data. The questionnaire was divided into two parts to introduce the background of the participants and their perceptions. The first part involved the collection of basic information from the interviewee, which primarily included the interviewee's age, gender, and years living in Banan. In the second part, based on the three dimensions of sustainable neighborhoods, the respondents were invited to use a five-level Likert scale scoring method to score each question according to their level of agreement (1 = strongly agreed, 2 = agreed, 3 = neither agreed nor disagreed, 4 = disagreed, 5 = strongly disagreed). The respondents judged the importance of each impact based solely on their knowledge reserves and accumulated experience. The list of survey questions was designed according to the interview and analysis framework. The mean value and standard deviations of each variable measured in the questionnaire were calculated in order to evaluate various impacts of urban renewal.

4. Results

4.1. The Information on Participants

Thirteen interviewees were diversified in terms of gender, age, educational level, and occupation (see the Supplementary Materials section). All the interviewees had lived in Banan for more than 10 years. Consequently, they were familiar and knowledgeable about the historical changes that occurred in Banan in the recent decade. The questionnaires were mainly delivered through social media. A total of 200 questionnaires were distributed, and 145 questionnaires were returned, of which 143 were valid with an effective response rate of 71.50%. The statistical sample comprised 73 males (51.05%) and 70 females (48.95%).

4.2. Economic Sustainability

Interviewees generally believed that Banan's urban renewal projects were a strong impetus to regional economic growth. Banan was previously a lagging district in Chongqing, but its economic growth in recent years has maintained a high level (above 9.0% per year),

outperforming the majority of other districts in Chongqing. The participants highlighted the role of real estate development and infrastructure construction.

They witnessed a dramatic change in Banan's service industries. Within the previous 10 years or earlier, Banan's economy heavily depended on agriculture and manufacturing, but now the service industry has become the pillar of the local economy. The government implemented many initiatives to promote such a transformation, such as preferential loans, strict environmental regulations, policy subsidies, and the promotion of external investment. In addition, the Bureau of Land Resources has transformed agricultural and bare lands into business and industrial lands with the construction of industry parks. Such initiatives fundamentally changed the economic structure in Banan. Meanwhile, this industrial transformation was also a driver of Banan's economic achievements because the low value-added industries were eliminated from the district and replaced by high value-added industries.

The urban renewal and industrial transformation that occurred in Banan created many employment opportunities. First, the industrial transformation led to a diversified economy, and hence, new companies were emerging. Second, infrastructure construction directly created many employment opportunities. Third, numerous people engaged in entrepreneurship. Finally, the urban renewal substantially changed the city image, and hence, attracted much external investment, which produced employment opportunities.

However, it is questionable whether the above positive economic impacts can be sustainable. According to the interviewees, this study summarized three types of negative economic impacts.

First, the interviewee argued that Banan's economic growth is not in a sustainable pattern. The urban renewal projects controlled by the government cannot be sustained in the long term. More seriously, Banan has not developed its core competitiveness. The short-term prosperity in recent years concealed this problem.

Second, interviewees complained that their income growth has lagged behind the economic growth and commodity price growth, which seriously affected their living standards. Hence, residents gained relatively few economic benefits from this investment. On the other hand, the urban renewal did not substantially improve productivity.

Third, sluggish income growth partially led to another problem: economic inequality. Many residents became rich only because they were involved in the urban renewal projects, receiving government compensation, engaging in infrastructure construction, and doing business with the government, rather than because of their efforts, intelligence, and skills. The income of bottom-level residents increased only slightly or was reduced.

4.3. Social Sustainability

Many of Banan's residents merely expected peace and comfortable living conditions. Many of them had still not fully adapted to the social changes caused by urban renewal projects. The social impacts from residents are summarized as follows.

The neighborhood security in Banan was significantly improved by the urban renewal projects. These projects fundamentally changed the neighborhood structure. The previously chaotic neighborhood layout was replaced by modernized residential neighborhoods. Both permanent and transient residents are registered in police offices. Crime activities in Banan have decreased because most streets are now monitored by surveillance cameras. It is worthwhile to mention that female interviewees preferred to report their satisfaction with the reduction in crimes in the neighborhood. Meanwhile, the removal of dilapidated buildings substantially reduced fire risks. Consequently, Banan residents felt much safer than before.

The changes in the neighborhood layout greatly facilitated the transportation conditions. The previously congested streets and roads were reconstructed, the illegal buildings that hindered transportation were removed, and the connectivity of different neighborhoods was improved. Consequently, Banan's residents were satisfied with the facilitated transportation conditions.

Living conditions in Banan's neighborhoods have been significantly improved along with the infrastructure update. The expansion of business zones, the improvement in neighborhood facilities, and the increase in open space greatly facilitated resident life in Banan. Modernization is a crucial theme in Banan's urban renewal. Facilities around the neighborhood have been more convenient and advanced than before. The government developed public spaces, such as libraries and basketball courts. Residents have gained benefits from the modernized renewal.

Interviewees also pointed out many negative social impacts that may lead to unsustainable neighborhood development. Firstly, the traditional Banan's neighborhoods were in open forms where neighbors freely visited and communicated with each other. Residents usually lived in flats or low houses near the streets. At present, the majority of them were relocated to modernized neighborhoods and high buildings. Hence, it is inconvenient for neighbors to visit each other, which influences the relationship maintenance. The frequency of neighborhood interaction has reduced. Some interviewees indicated that they were almost unfamiliar with their neighbors and seldom interacted with each other. Consequently, urban renewal in Banan has weakened neighborhood relationships.

Accompanied by the weakened neighborhood relationships, Banan's traditional cultures were gradually disappearing, but new unique cultures have not formed yet. Some of the historic buildings, old business patterns, and lifestyles were the carriers of Banan's traditional cultures, and they disappeared with the urban renewal.

Interviewees pointed out that their neighborhoods were excessively commercialized, which was difficult to adapt to. In the past, people usually enjoy traditional entertainments in open spaces, such as tea, Mahjong, and gambling with neighbors. However, most entertainment spaces are currently charged; for example, playing Mahjong in a chess room is charged approximately USD 1.5 per hour. They also complained that numerous advertisements are all over the streets. With a mix of commercial and residential functions, residents appeared to be less motivated to engage in public activities.

4.4. Environmental Sustainability

The land use, landscape, and living environment of Banan's neighborhoods have experienced dramatic changes. Consequently, the environmental impacts cannot be ignored. These impacts were generalized based on interviewees' answers.

Public facilities, such as bins in the street and municipal refuse disposal stations, have been improved by regional projects in consideration of local needs. The household wastes in Banan's neighborhoods have been transferred promptly. In the past, household wastes were discarded carelessly, and there was an insufficient public investment in solving the household waste problem. Interviewees were satisfied with the safe disposal of household waste initiated by urban renewal projects.

They also perceived that the greening rate and green space had increased quickly in recent years. The government developed open spaces such as city parks, waterfront streets, and green footpaths for residents, which made them feel contented.

After the urban renewal project, the landscapes of Banan's neighborhoods and streets are orderly, well-organized, and compact. Previously, the layout of these neighborhoods and streets was disordered and chaotic. Consequently, interviewees thought that the landscape in their neighborhoods was much more beautiful than before.

For the negative effects, several interviewees critiqued the monotonicity of Banan's urban landscape after the urban renewal. The new buildings in Banan are highly homogeneous and lack uniqueness and diversity. The neat streets and roads replicate those of other cities.

The population density in Banan has increased in recent years, and some interviewees complained that the district is overly crowded. The neighborhood environment is crowded as well. Because of the high housing prices, the density of buildings in most neighborhoods is excessively high. The crowded environment leads to psychological stress in the residents.

Banan's modernized renewal has also led to a stressful environment. The dense buildings and roads make Banan's environment stressful. Furthermore, many environmental problems were produced by the urban renewal projects, such as unnecessary light pollution, acoustical pollution, and even atmospheric pollution.

4.5. The Results of Residents' Evaluation of Urban Renewal in Banan

This study comprehensively evaluated three types of sustainability in Banan's urban renewal, i.e., economic sustainability, social sustainability, and environmental sustainability (Figure 2). It was found that Banan's urban renewal has produced both positive and negative impacts, which were further analyzed through the questionnaire survey (Table S2 in the Supplementary Materials section).

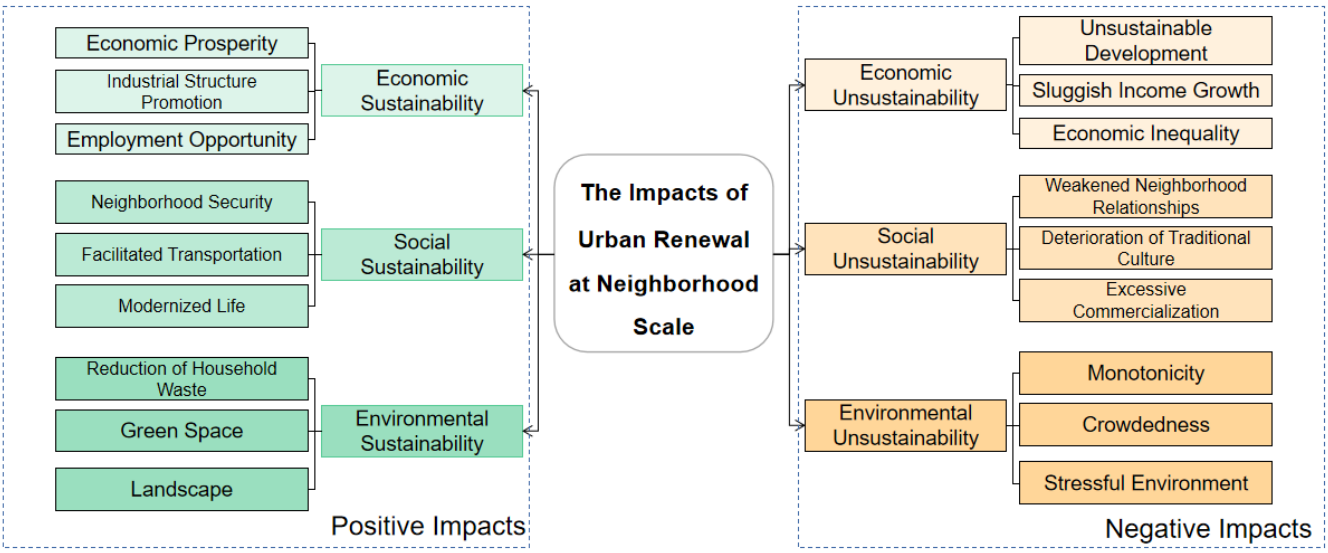

Figure 2. Framework of the analysis.

Table 1 provides the quantitative results of the 18 types of impacts. In terms of the positive impacts, aside from facilitated transportation, the mean values of the other eight types of impacts exceeded 3.500, suggesting that the respondents generally agreed that Banan's urban renewal has had positive impacts on economic prosperity, industrial structure, employment, neighborhood security, facilitated transportation, reduction of household wastes, green space, and landscape. The mean value of modernized life was only 3.301, suggesting that the respondents generally held a neutral attitude toward the impact of Banan's urban renewal on modernized life.

In terms of the negative impacts, the mean values of unsustainable growth, sluggish income growth, weakened neighborhood relationships, deterioration of traditional culture, and excessive commercialization exceeded 3.500, suggesting that Banan's urban renewal led to the above five types of negative consequences. The mean values of economic inequality, monotonicity, crowdedness, and stressful environment were 3.469, 3.462, 3.322, and 3.343, respectively, suggesting that the respondents' attitudes toward the above four types of negative impacts were neutral.

To sum up, the quantitative results implied that Banan's urban renewal has had both positive and negative impacts on its sustainable neighborhood. However, the positive impacts perceived by residents were greater than the negative impacts (Table 1).

Table 1. Descriptive analysis of the impacts of Banan's urban renewal on sustainable neighborhoods.

Items	Min	Max	Mean	Std. Deviation
Positive Impacts				
Economic Prosperity	1.0	5.0	3.713	0.7375
Industrial Structure	1.0	5.0	3.951	0.9738
Employment	1.0	5.0	3.755	1.1083
Neighborhood Security	1.0	5.0	3.769	1.2316
Facilitated Transportation	1.0	5.0	3.783	1.2455
Modernized Life	1.0	5.0	3.301	1.2562
Reduction of Household Wastes	2.0	5.0	3.944	0.8288
Green Space	1.0	5.0	3.524	1.2606
Landscape	1.0	5.0	3.713	1.2482
Negative Impacts				
Unsustainable Growth	1.0	5.0	3.902	1.1707
Sluggish Income Growth	1.0	5.0	3.748	1.2246
Economic Inequality	1.0	5.0	3.469	1.2150
Weakened Neighborhood Relationships	1.0	5.0	3.531	1.2771
Deterioration of Traditional Culture	1.0	5.0	3.517	1.1436
Excessive Commercialization	1.0	5.0	3.671	1.2206
Monotonicity	1.0	5.0	3.462	1.3362
Crowdedness	1.0	5.0	3.322	1.2705
Stressful Environment	1.0	5.0	3.343	1.2897

5. Discussion

5.1. The Impacts of Urban Renewal in Banan from the Perspective of Sustainability

Sustainability has long been an essential theme in urban renewal [1,2,10,26]. In China, sustainable development is also viewed as a key concept in designing and implementing the government's policies relevant to urban development and planning [31,32]. From the perspective of sustainability, the impacts of urban renewal in Banan could be discussed in three dimensions.

5.1.1. Economic Impacts

Banan's urban renewal has produced three types of positive economic impacts, including economic prosperity, industrial structure, and employment, as well as three types of negative impacts, including unsustainable growth, sluggish income growth, and economic inequality. Although the economic objective is crucial in urban renewal and is fundamental to achieving the social objective [26,36], it is not an easy task to make economic growth sustainable [36].

In the past decades, Banan's spectacular economic success was primarily attributed to land development, or more specifically, to real estate development. According to the land economy theory, land use is fundamental to the regional economy, and the effective allocation or re-allocation creates economic benefits [45]. The real estate value increases when the surrounding land and supporting facilities are well-developed [28]. However, land resources still have an upper limit, so the real estate development in Banan is not sustainable.

Likewise, infrastructure construction is not endless. According to the welfare economic theory, infrastructure construction creates economic values for society because it

satisfies residents' needs, promotes social harmony and urban functions, and increases core competitiveness [3,13]. However, after infrastructure construction, the source of Banan's future economic growth is questionable.

Industrial transformation via urban renewal is certainly a source of economic sustainability [3,28]. The current Banan has successfully transferred its semi-agricultural economy into a service economy. However, such a transformation was driven and dominated by policy intervention rather than technological progress. It seems that innovation was overlooked in Banan's urban renewal planning. Consequently, this study did not identify Banan's advantages in terms of education, innovation, technology, and creativity industries. Meanwhile, residents' income growth lagged behind the economic growth because productivity was not substantially improved. In view of this, Banan should shape its sustainable competitiveness through innovation.

5.1.2. Social Impacts

This paper has identified two types of positive social impacts caused by Banan's urban renewal, including neighborhood security and facilitated transportation, but found three types of negative social impacts, including weakened neighborhood relationships, deterioration of traditional culture, and excessive commercialization. Hence, it can be argued that improper urban renewal may lead to the social unsustainability of the neighborhood. Previous scholars have highlighted the role of urban renewal in improving social environments [8], reducing the waste of resources and energy [9], mitigating economic loss [16], addressing potential social conflicts, and saving urban culture [17]. Urban renewal is a potential way to realize the social sustainability of the neighborhood.

Evert et al. and Mumford emphasized the role of interpersonal relationships in the neighborhood, and it is a fundamental element of urban life where residents live independently but are connected [6,7]. This study indicated that Banan's urban renewal weakened neighborhood relationships. This finding supported Topalov in that urban renewal, particularly in the form of redevelopment, may destroy the existing social fabric and the social networks of long-established communities, leading to social isolation [46].

The deterioration of traditional culture and the excessive commercialization caused by Banan's urban renewal can be viewed as the outcome of solely pursuing economic benefits and the ignoring the of culture and residents' social needs. Although these activities lead to short-term economic benefits, they are harmful to residents' well-being and result in the social unsustainability of the neighborhood.

5.1.3. Environmental Impacts

Overall, Banan's urban renewal created three types of positive environmental impacts, including reduction of household wastes, green space, and landscape.

In view of this, we hold that Banan's urban renewal is successful in terms of achieving the environmental sustainability of the neighborhood. Previous scholars have also indicated the positive environmental impacts of urban renewal. Chan and Lee [18] pointed out that urban renewal is helpful for solving urban decay, enhancing land values, and improving the environment; Liu et al. [21] held that comprehensive urban renewal is effective in improving the living conditions of citizens and creating a positive urban environment.

The environmental sustainability of the neighborhood is essential. Yildiz et al. [11] averred that a deteriorating environment could impede the development of sustainable neighborhoods because it damages the wellbeing of neighborhood residents. Cheung and Leung [47] also noted that urban renewal projects should facilitate good quality housing, reduce health risks to the community, and promote the repair of dilapidated buildings in order to promote the sustainable neighborhood renewal. The results of the interviews also implied that the environmental impacts of Banan's urban renewal were closely associated with residents' satisfaction.

5.2. Implications for Realizing Sustainable Neighborhoods in Urban Renewal

According to the literature and impact analysis, this paper proposed potential strategies for realizing sustainable neighborhoods in urban renewal as follows.

5.2.1. The Balance of Economic, Social, and Environmental Interests

A successful urban renewal plan should consider the interests of multiple stakeholders and balance economic, social, and environmental interests [36]. Indeed, these three objectives are complementary and inter-supportive rather than incompatible [14]. For example, Banan's economic growth provides a foundation for its social development and environmental investment; the environmental quality is attractive to external investment and is beneficial to residents' satisfaction.

This study found that Banan has not adequately balanced economic and social interests, resulting in the deterioration of traditional culture and excessive commercialization. Previous Chinese scholars have noticed this problem. Yi et al. [5] argued that although long-term objectives are emphasized in China's urban renewal planning, the government's actual implementations commonly involve short-term objectives. Zheng et al. [13] also critiqued that the majority of Chinese urban development projects have placed emphasis on economic regeneration instead of regeneration in society and the environment. This study further argues that social interests are critical to creating long-term economic benefits. A city's culture is the source of its competitiveness, because it is closely associated with city image, creativity, and social norms. Based on this, we suggest that social and environmental interests can be viewed as potential and long-term economic interests, and the three objectives are compatible in a holistic framework of urban renewal.

5.2.2. Satisfying Residents' Needs

Macro objectives, such as the GDP, industrial structure, and green rate, are inherently important, but micro-objectives, such as residents' satisfaction and well-being are also crucial. A successful and sustainable city should satisfy the residents' various needs [2,18]. This study found that Banan's residents' needs were not fully met by its urban renewal projects. For example, they questioned the excessive commercialization, critiqued the economic inequity, and complained about the monotonous urban landscape. Moreover, the weakened neighborhood relationships were key problems in realizing a sustainable neighborhood.

Residents' satisfaction is a key driver of social harmony and stability and is crucial to attracting population inflow [48]. Consequently, satisfying residents' needs is important to improving the sustainable competitiveness of a city. Hence, this study argues that planners should fully consider residents' various needs and the government should attach more importance to micro-objectives in urban renewal projects.

5.2.3. Encouraging Innovation

The importance of innovation in shaping a city's competitiveness and sustainable development is well-documented in the literature [49]. This study suggests that Banan's economic prosperity is somewhat unsustainable because the driving forces of economic growth are policy intervention, land economy, infrastructure construction, and real estate development, rather than technological progress. In the long run, Banan will lose its competitiveness because the present development pattern is unsustainable.

In view of this, it is important for Banan to enhance its innovation, and we have the following recommendations. First, Banan should attach more importance to innovation, culture, technology, and creativity industries, such as software, digital technology, and value-added manufacturing. To this end, the government should provide policy supports, such as R&D (research and development) funds, subsidies, and preferential loans. Second, Banan should try to retain and attract talents because human resources are the key to shaping innovation [50]. To do this, the government should implement talent programs, such as providing subsidies, houses, and special treatments for talents. Third, the govern-

ment should also stress the protection of traditional culture, because culture is a source of creativity [51].

6. Conclusions

This study comprehensively evaluated the impacts of urban renewal on the economic, social, and environmental sustainability of neighborhoods via a case study of Banan, Chongqing, China. Empirical data were collected from an in-depth interview and the questionnaire survey. The results indicated that the urban renewal in Banan has both positive and negative impacts on the residents in terms of economic, social, and environmental sustainability at the neighborhood scale. Overall, residents' attitudes toward urban regeneration were receptive, but the current strategy had disadvantages. The residents were satisfied with the improvement of the neighborhood, but they doubted the sustainability. Although Banan has achieved spectacular economic success, its economic growth heavily depends on policy intervention, land economy, infrastructure construction, and real estate development rather than technological progress. Moreover, improper urban renewal may lead to the social unsustainability of neighborhoods, and Banan has not adequately balanced economic and social interests. Economic, social, and environmental sustainability in urban renewal is not isolated. Balancing these impacts is beneficial to residents' well-being.

Based on the empirical results, discussion, and previous literature, this study identified the implications of the strategic approaches to realize sustainable neighborhood in urban renewal. First, a successful urban renewal master plan should consider the interests of multiple stakeholders and balance economic, social, and environmental interests. Second, urban planners should fully consider residents' various needs and the government should attach more importance to micro-objectives in urban renewal projects. Finally, it is important to encourage the innovation of a city in order to gain sustainable competitiveness.

This study has the following limitations. First, the sampling process was designed to avoid biases. It used the online platform to recruit participants. However, it is not likely that everyone in Banan frequently uses the Internet, especially older people. Second, investigating residents' perceptions has inherent limitations. On the one hand, residents may have misunderstandings about urban renewal policies and practices and may hold biased attitudes. On the other hand, it is likely that residents are primarily concerned about their self-interests, ignoring other critical objectivities of sustainability. For example, none of the interviewees mentioned the protection of natural resources. Third, the impacts of urban renewal in China could be evaluated from a gender perspective. Since females identified more social security impacts, it would be meaningful to investigate impacts on different genders, such as income growth, economic equality, neighborhood security, or community relationships. Consequently, future studies could consider a sample size based on the research scale and balance the types of samples to gain more comprehensive insights.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su15043515/s1, Table S1. The profile of the 13 interviewees. Table S2. A list of survey questions.

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