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共享视角下的老旧社区更新研究
——以广州员村四横路社区为例

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Research on the Old Community Regeneration from the Sharing Perspective
——A Case Study of Yuancun Siheng Road Community in Guangzhou

A Dissertation Submitted for the Degree of Master

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华南理工大学硕士学位论文

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摘　　要

"共享"是新时代城市发展的重要指导理念，从十八届五中全会将"共享"视为城市发展的根本目的，到第三次联合国住房和可持续发展大会核心文件《新城市议程》中提出"人人共享城市"的共同愿景，再到我国《中共中央国务院关于进一步加强城市规划建设管理工作的若干意见》中指出"坚持发展共享理念"，都蕴含了"共享"的价值取向。此外，在互联网技术快速发展和共享经济兴起的背景下，更加强调资源的优化配置，使得"共享"一词在社会的各个领域都产生了重大的影响。

在当前城市化背景下，中国许多大城市的空间结构都出现功能转型和空间重构，以广州为代表的城市化进程逐步进入中后期的大城市，面对日益紧缺的土地约束环境，较早的进入了城市存量更新的阶段。而社区作为城市建设的最小单元，老旧社区更新成为城市更新的重要一环。

在增量转存量的进程中，传统城市规划的物质更新方式很难应对老旧社区所面临的居民需求、使用效率、实施机制等一系列复杂问题。因此，目前国内外许多社区尝试将"共享"融入到不同类型的空间更新实践中，对老旧社区更新的复杂问题提出了新的解决方案。但这些解决方案仍处于探索阶段，系统性的研究还相对较少，出现了更新实践与理论发展不协调的现象。

本文从共享视角出发，梳理并总结现阶段我国社区更新所存在的问题，从理论层面探索"共享"内涵对老旧社区更新的意义。并解读剖析具有探索意义的共享视角下的老旧社区更新案例，在总结共享经验的基础上，提出共享视角下的老旧社区更新策略，其分为总体更新与详细营造两个层面，总体更新策略包括激活社区存量资源、营造社区共享空间、建立社区共享机制三个方面，详细营造策略将共享空间分为生活交往型共享空间、资源交换型共享空间、共建参与型共享空间及设施服务型共享空间四种类型，分别以不同的形式激活老旧社区，为新时代的老旧社区更新提供新的方法与思路。

本文共分为 5 个章节

第 1 章为绪论，介绍研究背景、国内外相关研究进展、研究目的与意义、研究对象与概念界定、研究方法与框架等。

第 2 章为共享视角下的老旧社区更新理论解析，首先对社区更新以及共享内涵进行理论研究，然后分析共享内涵对社区更新的意义。

第 3 章为共享视角下的老旧社区更新案例研究，选取上海贵州西里弄、北京地瓜社区及广州长兴生态园三个共享视角下的社区更新案例进行解读与剖析，并总结出其所蕴含的共享经验。

第 4 章为共享视角下的老旧社区更新策略研究，根据前文理论与案例的研究，从社区总体更新与空间详细营造两个层面进一步探讨如何实现共享视角下的老旧社区更新。

第 5 章为策略指导下的应用研究，对广州市员村四横路社区进行实地调研与分析，总结现状问题，并根据前文的研究成果，提出相应的更新策略，进行应用研究。

关键词：共享视角；存量资源利用；老旧社区更新；共享空间

Abstract

"Sharing" is an important guiding concept for urban development in the new era. From the Fifth Plenary Session of the 18th Central Committee of the Communist Party of China (CPC), which regarded sharing as the fundamental purpose of urban development, to the common vision of "cities for all" put forward in the Habitat III core document "New Urban Agenda", to the "Opinions of the Central Committee of the Communist Party of China (CPC) and the State Council on Further Strengthening the Management of Urban Planning, Construction and Management" which stated that The value of "sharing" is embedded in the concept of "adhering to the concept of sharing". In addition, in the context of the rapid development of Internet technology and the rise of the sharing economy , more emphasis has been placed on the optimal allocation of resources, which has led to a significant impact of the term "sharing" in all areas of society.

In the current context of urbanisation, the spatial structure of China's large cities has undergone functional transformation and spatial reconfiguration. Large cities, represented by Guangzhou, which are gradually entering the middle and late stages of urbanisation, have entered the phase of urban stock regeneration earlier in the face of the increasingly scarce land constraint context. As the smallest unit of urban construction, the regeneration of old community is becoming an important part of urban regeneration.

In the process of transferring incremental development to stock regeneration, the traditional urban planning approach to physical regeneration can hardly cope with a series of complex problems faced by old communities, such as the allocation of resources, the use efficiency, and the implementation mechanism. Therefore, many communities at home and abroad have tried to integrate "sharing" into different types of spatial regeneration practices, and have come up with new solutions to the complex problems of old community regeneration. However, these solutions are still in the exploratory stage, with relatively few systematic researches, resulting in an incongruity between regeneration practices and theoretical

development.

This thesis starts from the sharing perspective, and summarises the problems of community regeneration in China at the present stage, and explores the significance of the connotation of "sharing" for the old community regeneration from the theoretical level. It also explains and analyses the exploratory cases of old community regeneration from the sharing perspective, and on the basis of summarising their sharing experience, proposes that the strategy of old community regeneration from the sharing perspective should be divided into two levels, namely, overall regeneration and detailed creation. The overall regeneration strategy includes three aspects, namely, activating community stock resources, creating community sharing spaces and establishing a community sharing mechanism. The detailed creation strategy divides the sharing space into four types, namely, living interaction-type sharing space, resource exchange-type sharing space, co-construction and participation-type sharing space, and facility service-type sharing space, which activate the old community in different forms and provide new methods and ideas for the old community regeneration in the new era.

This thesis is divided into five chapters:

Chapter 1 is the introduction, which introduces the background of the research, the progress of related research at home and abroad, the purpose and significance of the research, the object of the research and the definition of concepts, and the research methodology and framework.

Chapter 2 is the theoretical analysis of old community regeneration from the sharing perspective, which firstly makes a theoretical research on community regeneration and the connotation of "Sharing", and then analyses the significance of "Sharing" to community regeneration.

Chapter 3 is the Case study of old community regeneration from the sharing perspective, It interprets and analyzes the three community regeneration cases in Shanghai Wset Guizhou Lilong, Beijing Digua Community and Guangzhou Changxing Eco-Garden, and summarizes

the practical experience of sharing.

Chapter 4 is the Research on old community regeneration strategy from the sharing perspective, based on the previous theories and case studies, it further discusses the old community regeneration strategy from the two levels of overall regeneration and detailed creation.

Chapter 5 is the strategy-guided design research, which conducts field research and analysis on Yuancun Siheng Road Community in Guangzhou, summarises the current situation problems, and proposes corresponding regeneration strategies based on the previous research results, and conducts the practical design research.

Keywords: Sharing perspective; Stock utilization; Old community regeneration; Sharing space

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Charpter 1 Introduction

1.1 Back ground of research

1.1.1 Urban development is shifting from incremental construction to stock regeneration

Under the new economic background, China has entered the stage of "stock" planning and updating for urban development, which emphasises the effective use of urban stock resources, and a shift towards high quality and sustainability[1].By the end of 2022, the urbanisation rate of China's resident population will have reached 65.2%[2]. However, the expandable land resources for urban development are becoming less and less, and the contradiction between the shortage of urban land resources and the increase of urban population has been further highlighted. In the new round of master plans of Beijing, Shanghai, Guangzhou and other cities, the planning idea of actively utilising the stock of land is put forward. The Beijing Urban Master Plan (2016-2035) clearly put forward the land planning principle of "revitalising stock and reducing development"[3]. "The Shanghai Urban Master Plan (2017-2035)" put forward the transformation of land use from incremental scale expansion to stock efficiency enhancement[4]. And the Guangzhou Urban Regeneration Special Plan (2021-2035 (Draft for Public Opinion)) stressed that "planning will lead the optimisation of the entire region's stock space" [5]. Since then, urban inventory planning has become an important issue in urban development and construction. As the smallest unit of social space, community is the foundation of stock regeneration, and is also the grassroots carrier of social conflicts, which plays a key role in the sustainable development of the city[6]. Therefore, stock regeneration at the community scale has become more and more urgent and meaningful.

1.1.2 "Sharing" is becoming an important concept in urban development

The communique of the Fifth Plenary Session of the 18th Central Committee put forward the five development concepts of "innovation, co-ordination, green, openness and sharing", the purpose of which is to enable the people to share the fruits of development, to perceive the

strength of the nation and unity in the sharing, and then move forward to the goals set out in the "13th Five-Year Plan". In 2016, the State Council pointed out in the Opinions on Further Strengthening the Management of Urban Planning and Construction that "the concept of shared development should be adhered to, so that the people can have a greater sense of access to shared development", which coincides with the "Cities for all" put forward by UN-HABITAT in the "Habitat III" conference [7]. So far, "sharing" has become an important concept of urban development. The connotation of "sharing" includes meeting the needs of diverse individuals, strengthening sustainable development, equal rights for all, people-centredness, and shared responsibility for urban construction[8]. Communities are the cells of cities, and the realisation of "Shared Cities for All" cannot be achieved without implementation at the community scale[9]. For communities that are built and have "non-sharing" problems, they can only be implemented by means of regeneration.

Urban development is closely related to the rapid development of science and technology and the economy, and the sharing economy is the most important product of the era of sharing civilisation, which has a far-reaching impact on the city, space and social activities, provides a new perspective for urban regeneration, and promotes the innovation and transformation of urban regeneration in the new era[10]. The rapid popularity of the Internet and mobile payment in China has promoted the rapid development of the sharing economy, as of December 2022, the size of China's Internet users reached 1.067 billion, ranking first in the world, an increase of 35.49 million compared with December 2021, the Internet penetration rate of 75.6%[11]. The rapid development of the sharing economy and the Internet has provided a technical basis for the promotion of the concept of "sharing", and the introduction of the concept of "sharing" into urban planning and construction can cater to the trend of the sharing economy and the "Internet +" era，making urban planning and construction follow the wave of the times and become more permeable.

1.1.3 Community regeneration needs more exploration and summary

(1) Stock utilisation level

In the process of urban construction moving from incremental expansion to stock regeneration, it is difficult for the traditional material regeneration approach to urban planning to cope with a series of complex problems facing urban stock communities, such as property rights, use efficiency, and institutions. The existing system brings huge transaction costs to land use change and housing property rights change, resulting in land locked in the hands of inefficient users for a long time[12]. The greater emphasis on the separation of the right to use in the era of sharing has led to new solutions to the property rights problems faced by urban community regeneration in existing planning and design solutions, but these solutions are still in the exploratory stage and require more research and summarisation.

(2) Physical space level

With the increasing diversification of urban life, the people's need for a better life has been strengthened, and the public's demand for urban development has shifted from focusing on "hard demand" to paying more attention to "soft demand", and from focusing on "survival" to paying more attention to "development". And the demand is more and more diversified, personalised[13]. The public space in urban established communities can no longer meet the needs of public life and residents' interaction, resulting in a overall lack of sense of community[14]. However the most important technological background of the sharing era is the rapid development of the Internet, especially the popularity of the mobile Internet to produce profound changes in the lives of community residents, resulting in corresponding changes in the demand for community space, the single function of the traditional community space is no longer adaptable to the demands of residents' lives and public activities, residents increasingly need diversified, experiential, interesting social and leisure space[15]. Therefore, establishing urban communities need to create new types of public spaces and diverse community activities through the means of community regeneration, in order to support the changing lifestyles of the city and its residents.

(3) Public participation level

With the transformation of China's development philosophy and approach, a new logic has emerged in the implementation and operation mechanism of community regeneration. During this period, the pattern of community regeneration has changed from a top-down government-led approach to the participation of a wide range of social forces, with community residents, social organisations, public welfare organisations, enterprises, universities, planning and design institutes, etc. actively participating in community regeneration practices, and making useful explorations for the regeneration of different levels of the community in terms of space, humanities, industry, and so on.

To sum up, community regeneration in China is still in its infancy, and there are still some difficult problems that remain unsolved, which still require active exploration from multiple angles and in an all-round manner.

1.2 Relevant research progress

1.2.1 Progress of research on community regeneration

The results of community regeneration in foreign countries are relatively rich. The United Kingdom's "self-help community" aims to reduce costs, encourage public participation, and include community construction in the Government's economic development plans[16]. Japan's "endogenous community" points out that an effective regeneration system should be established to promote good collaboration between multi-interest groups[17]. In addition, through the unused land and houses back into the natural green space and agricultural land micro-regeneration mode, through the reduction of the building plot ratio to achieve the micro-regeneration of the living environment. Korea's "community building" has increased residents' motivation to self-organise to create their own communities through artistic interventions in the design of community public spaces, and has led to community regeneration[18]. In the United States, the "social architecture" regeneration model implements community regeneration and development by adjusting planning roles, improving policies and systems, and constructing multiple organisations[19]. In Germany, community regeneration is

based on micro-regeneration of unused public space, and its implementation mechanism is flexible, either through government-led neighbourhood management planning, or through third-party-led implementation[20].

With the transformation of urban planning, China's research results on community regeneration are increasing, mainly including two parts, one is the experience of foreign developed countries, such as the United Kingdom's "self-help community", Japan's "endogenous community", Germany's "community garden" and so on, which provide a good reference for the improvement of China's community regeneration mechanism[21]. The second is the empirical and strategic research on specific communities in China, which has shifted from a single spatial improvement to the implementation of the main body, policies and systems, humanities, community building and other comprehensive aspects. In addition, the concept of regeneration has been constantly enriched, such as "Renovation and restoration" and " Micro-regeneration", "Community collaborative", "Cultural capital", "Global tourism", "Healthy city" and so on.

1.2.2 Progress of research on the concept of sharing

So far, relevant scholars in architecture and planning have covered three levels of cities, communities and spaces in their research fields from the sharing perspective. For the research on shared city, the scholars' viewpoints mainly focus on three aspects. Firstly, a shared city is a fair city[22]. Secondly, the information platform, sharing economy or social collaboration should be the dominant way of urban development[23], and then the urban space can effectively improve the utilisation efficiency and meet the diversified needs of the residents through sharing, and so on. Secondly, research on shared community mainly focuses on three aspects: co-housing model, exploration of shared community in China, and open block. The research on sharing space mainly focuses on the explanation of the sharing of urban public space, the impact of modern technology such as sharing economy on urban space change and planning response, and the research on the sharing of specific types of space as well as detailed design points.

Since the Fifth Plenary Session of the 18th Central Committee of the Communist Party of China (CPC) was held in 2015, "sharing" has officially become one of the five new concepts leading China's development, and the sharing economy has also emerged in this year. As an important feature of the new era, "sharing" needs to play a greater role in the level of community regeneration in China, but at present there are few related studies.

1.3 Purpose and significance of the research

1.3.1 Research purpose

Under the guidance of multidisciplinary theories of economics, sociology, architecture and planning, this thesis explores the connotation of "sharing" and its significance for community regeneration. Combined with the case studies on the community regeneration from the sharing perspective in the context of stock development in China, this thesis structures a community regeneration strategy system from the sharing perspective in terms of stock activation, space creation, and mechanism operation, and attempts to carry out shiring regeneration of Guangzhou's old communities with a view to providing a new way of thinking about the community regeneration in the new era. And in order to realise this research aim, the following four research questions are set to carry out investigations and reflections.

（1）How to understand the concept of "sharing" based on the professional perspective of architecture?

（2）What is the significance of the concept of "sharing" for community regeneration? How does it address the existing problems of community regeneration?

（3）What are the current cases of attempted exploratory practice in China? What are the common features and patterns?

（4）Through the existing relevant theories and cases, how is the system of community regeneration strategies constructed from the sharing perspective ?

1.3.2 Research significance

(1) Theoretical significance

At present, community regeneration from the sharing perspective is a new trend of urban regeneration, and many related practices have been carried out all over the world. However, there are few studies on the complete system of community regeneration in the context of "sharing" in the existing literature. This research integrates the concept of sharing into community regeneration, analyses cases and summarises practical experience from a theoretical perspective, with a view to becoming a means of solving the problems of community regeneration in the stage of stock development, and to make up for the insufficiency of the cross-study between the concept of sharing and community regeneration, which is of certain theoretical significance.

(2) Practical significance

In the era of sharing civilisation, many cities around the world have made attempts at community regeneration from the sharing perspective. This thesis collects and collates relevant cases and their characteristics, summarises relevant sharing experiences from three aspects: stock utilisation, space creation and mechanism operation, and summarise the strategies for old community regeneration from the sharing perspective, which is applied to Guangzhou's old community regeneration practice, in order to promote the application of the concept of sharing in community regeneration as well as to provide references for the practice of urban old community regeneration under the stock development of the country.

(3) Social significance

The exploration of regeneration and transformation of old communities from the sharing perspective provides new directions and possibilities for community regeneration. First of all, due to the age of the old community, with the migration of tenants, the land ownership is constantly changing, and the community is often accompanied by many property rights issues. From the perspective of sharing, focusing more on the right of use rather than ownership will avoid many of the difficulties caused by disputes over property rights in community

regeneration. Secondly, the regeneration of old communities from the perspective of sharing can not only integrate social resources at the material level, improve the quality of life in the community, but also solve the problems of energy consumption and waste of resources to a certain extent. Finally, from the perspective of sharing, it will give full play to the role of different stakeholders, promote the mode of social consultation and co-construction and governance, facilitate the repair of community neighbourhood relations, and improve the happiness of residents and social stability, which will be more conducive to the realization of the sustainable development of urban planning.

1.4 Definition of relevant concepts

1.4.1 Old community

"Community" is the main research object of this paper, the German sociologist Ferdinand Tönnies first proposed the concept of "Community" in 1887 in the book "Community and Society" . This concept, according to Tönnies, "Community is a social association formed by a homogeneous population with common customs and ideas"[24]. Fei Xiaotong, a sociologist in China, was deeply influenced by Tönnies, who believed that a community is a collective formed by the gathering of interrelated people, which include social organisations such as organs and groups or social groups such as families and clans, and that this group of people has certain commonalities: the geographical environment is common, the chemical background and lifestyle are similar, the living services and facilities are shared, and the management institutions and the system of life are formed and formulated, highlighting the elemental character of the community, which has had a great impact on Chinese academia[25]. At the end of 2000, the overall Office of the Central Committee of the Communist Party of China and the overall Office of the State Council issued the Opinions of the Ministry of Civil Affairs on Promoting the Construction of Urban Communities in the Nation [Zhongban Fa (2000) No. 23], in which it is clearly pointed out that, " community is a group of people living together within a certain geographical area"[26]. The old community discussed in this thesis mainly refers to a type of community that has been built for a long time, has a low

construction standard, serious aging of public facilities, incomplete supporting facilities, and is unable to meet the needs of people's daily or higher life, but is still inhabited today.

1.4.2 The concept of "sharing"

The core of 'sharing' is to separate ownership and usage rights of things, and to maximize the public interest of limited resources. The different fields it refers to are given different functional meanings[27]. In the context of economics, sharing emphasises the way in which scarce resources are organised and used, achieving ownership and sustaining different groups of people to maintain interaction[28]. In the context of sociology, sharing emphasises the ability of all members of society to have a fair right to enjoy the opportunities and fruits of social development[29]. In addition, when sharing emerges as a social construction model, it often reflects a social construction pattern of consultation, co-construction, and sharing[30]. Therefore, in this thesis, "sharing" is put in the context of community regeneration, and its connotation should include the "right to use" of community resources, "humanistic care" of community life and "multi-party participation" of community construction, and so on.

1.4.3 Community regeneration

The community space regeneration researched in this thesis focuses on the community's stock of spaces, including the community's underutilised public ownership spaces, such as indoor, outdoor, above ground and underground, and updates and reuses them. Due to the long history of the construction of old communities, many of the public ownership spaces are now ambiguous and controversial. From the sharing perspective, it is possible to separate the right of use from the right of ownership, which can effectively avoid disputes over the ownership of regeneration sites[31]. Therefore, the community regeneration researched in this thesis is to activate the stock space of the community by applying the concept of "sharing", and to improve the material, humanistic, and resource utilisation of the community, so as to enhance the quality of the community space, improve the efficiency of the community resource utilisation, and to restore the community's humanistic and ecological aspects.

1.5 Methodology and framework of the research

1.5.1 Research methodology

(1) Literature research method

By reviewing literature on the concept of sharing and community regeneration, this thesis summarizes the development stages and current issues of community regeneration, analyzes the connotation of sharing, and explores the positive significance of sharing concept in community regeneration, providing a theoretical basis and framework for integrating sharing concept into community regeneration.

(2) Case study method

The case study method is the most important method of this paper. Through the network and literature retrieval, select community regeneration practice cases from the perspective of sharing that took the lead in entering the stock regeneration in China, study from three aspects of stock utilisation and activation, space design and creation and mechanism for implementation and operation, and analyze the sharing practice experience of different cases.

(3) Summary induction method

By summarising the research of related literature and summarising the analysis of related sharing practices, the concept and practical experience of sharing are converted into a methodology to summarise a set of strategies for regeneration of old communities from the sharing perspective, with a view to providing new construction guidance for community regeneration.

(4) Investigation and research method

From the perspective of quantitative and qualitative research, in terms of macro-research, investigate the current situation of Yuancun Siheng Road Community in Guangzhou. In terms of micro-study, objective observe and examine the social pattern of community life in Yuancun Siheng Road Community, analyse the current situation and problems of the site, and solve the problems in a targeted way in the applied research.

1.5.2 Research framework
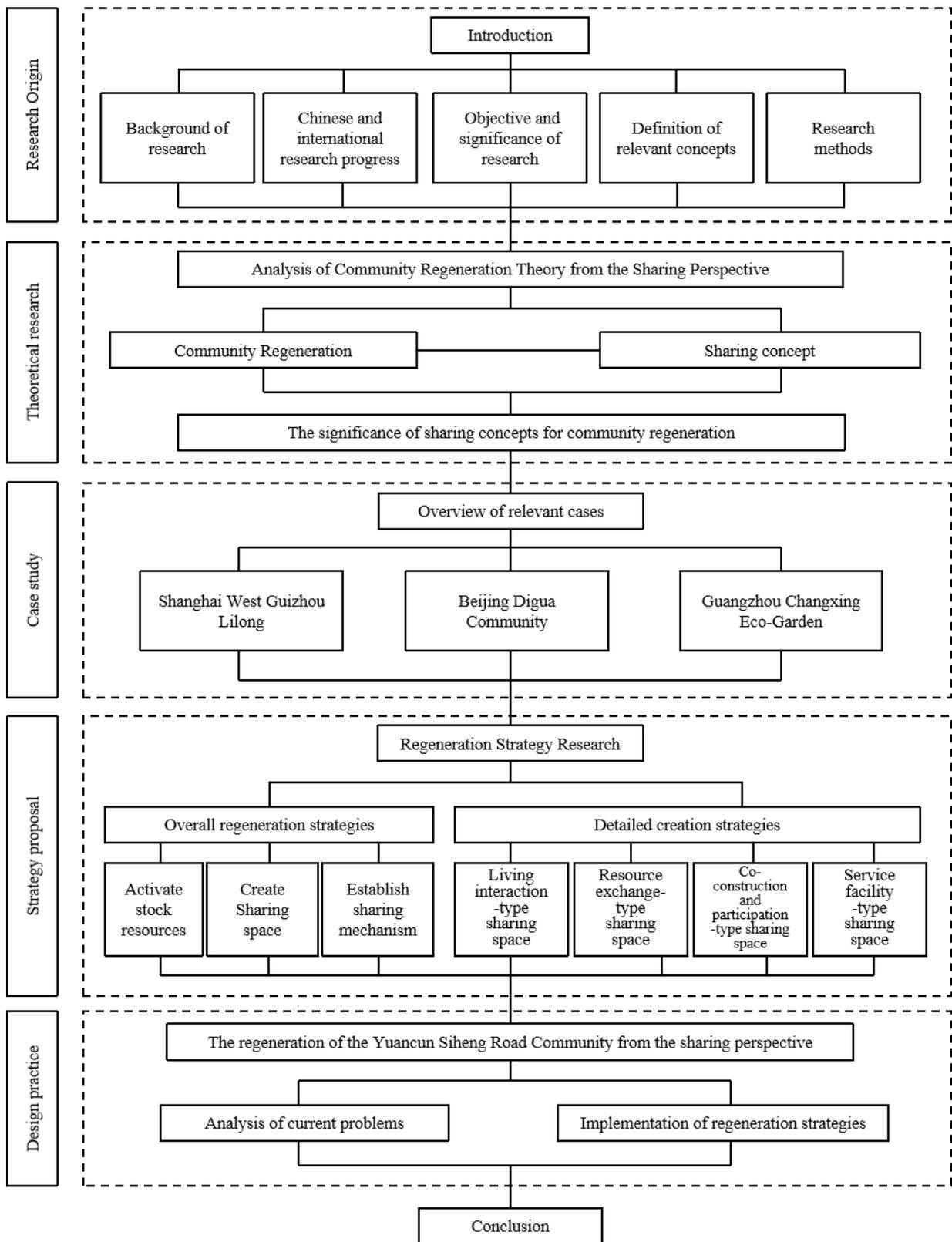
Figure 1-1 Rsearch framework of thesis

Source: Completed by author

Chrapter 2 Theoretical research of old community regeneration from the sharing perspective

As an important feature of the new era, community regeneration should actively respond to the background of "sharing". However, there is currently relatively little research on this topic, and a systematic theory has not been proposed to solve community regeneration problems from the sharing perspective. This chapter first sorts out the development process of community regeneration, aiming to identify the main problems and contradictions in current community regeneration in China. Then, by systematically elaborating on the concept of "sharing" from the perspectives of economics, sociology, architecture and planning, summarizing the connotation of "sharing". Finally, analyze the significance of the concept of "sharing" in promoting community regeneration, providing theoretical support for the entire thesis.

2.1 The development process of community regeneration

2.1.1 Development process of community regeneration abroad

The development process of community regeneration in foreign countries can be roughly divided into three stages (Table 2-1)[32-34]. The first stage was from the late 19th century to the 1940s: The shift of focus from large-scale urban planning to micro communities. From the Charitable Autonomous Society of London in 1869 to Howard's Garden city in 1898 to Perry's introduction of the idea of Neighbourhood Units in 1929, the scope has become more focused. The second stage is the post-World War II period to the 1980s: the construction of community development worldwide. Community planning strategies in developing countries and developed countries in Europe and the United States integrated with each other to form a worldwide community model. The third phase is from the 1980s to the present: the formation of a pluralistic and sustainable community.

Table 2-1 Development process of community regeneration abroad

Stage	Stage background	Stage characteristics	
		Relevant practices	Relevant theory
From the late 19th century to the 1940s	Deterioration of urban living environment, disparity between rich and poor and class opposition	Governments have put in place corresponding safeguard policies: The Charity Organization Society of London, the Good Neighbour Movement and the Chicago Plan in Europe and the United States, and so on.	Focus on upgrading the physical space environment of settlement. Howard's "Garden City", Le corbusier's "Radiant City" and Wright's "Broadacre City" gradually started the process of planning thought. Perry's "Neighbourhood Units" and the Redburn system focus on small-scale regeneration of micro-communities.
After World War II until the 1980s	Central districts are decaying, crime is breeding, urban poverty, citizens are rights awareness, widespread social movements	The United Nations has promoted the Community Development Movement, the New Towns Movement in the United Kingdom, Community Action Plans and Community Development Corporations in the United States.	Focus on humanism, public participation, and improved service levels. Jacobs'idea of urban diversity. The rise of communitarianism
From the 1980s to the present	Social segregation, Society is becoming increasingly diverse and complex	Community participatory design, co-production, Japanese "community building", British "localism" and neighbourhood planning, etc.	The focus is on decentralisation, collaborative consultation; local culture, resilient communities, and so on.Theories such as new urbanism, polycentric governance and corporatism became guiding concepts for community regeneration

Source: Completed by author from references[32-34]

Starting from the post-World War II period, Western countries have gone through stages of slum cleansing, neighbourhood redevelopment and old city development, and have gradually realized that community regeneration focusing on the human environment and neighbourhood relations is the right direction for urban regeneration. Community regeneration takes the community as the basic scale and focuses on enhancing the human environment. Its main contents include building neighbourhoods, protecting historical buildings and maintaining

community texture, etc. It emphasizes the multi-party participation and multi-party cooperation of government departments, social capital, community residents and the overall public, and it is a combination of top-down and bottom-up management of comprehensive urban issues from multiple perspectives, including the community's social, economic and spatial environments. In practice, more emphasis has also been placed on improving the physical spatial environment of the community through a small-scale and gradual approach, and fostering community cohesion on the basis of comprehensive social and humanistic care, so as to promote the self-regeneration and revival of decaying communities.

2.1.2 Development process of community regeneration in China

The real sense of community regeneration in China began in 1978 during the period of reform and opening up, because the mechanism of urban regeneration after the founding of the country in 1949 and before the reform and opening up in 1978 was simpler, the content was more homogeneous, the participating subjects were relatively few, and the characteristics of community regeneration were not prominent, so it is not included in the scope of this thesis. The scope of this paper is from the reform and opening up in 1978 to the present. From the reform and opening-up in 1978 to the present, community regeneration has experienced three stages: comprehensive exploration, deepening exploration, and transformation exploration (Table2-2)[32,35]. After the reform and opening up to the end of the 90s, it is the exploration stage of community regeneration during the economic transition. Foreign community regeneration concept began to influence China, with academician Wu Liangyong as the representative, many domestic scholars launched the theory and practice of urban "organic regeneration" research, and gradually launched a national exploration of community regeneration during the economic transition. Entering the new century after 2000, an in-depth exploration phase of multifaceted and comprehensive community regeneration began in 2014. However, the large-scale development and construction of real estate oriented to economic development in the previous stage led to the imbalance of urban functions and the outflow of resources, and other problems have not been completely solved. From 2014 to the present,

China's economy has entered a new normal, and community micro-regeneration has begun to pay attention to the diversified development of the non-material spatial level, advocating the promotion of social integration and historical and cultural preservation through diversified participation, and presenting the demand for "bottom-up" regeneration.

Table 2-2 Development process of community regeneration in China

Stage	Stage background	Stage characteristics	
		Relevant practices	Relevant theory
1949 to 1978: Stage of enlightenment exploration	The productivity of society is limited, everything must be reconstructed	The main focus of work was on the refurbishment and maintenance of local residential units and infrastructure improvements	The main focus is on the technical aspects of reinforcement, maintenance, additions and repairs of residential units
1978 to 2000: Stage of comprehensive exploration	With the recovery of the economy and the introduction of national policies and norms on the regeneration of old urban areas, the scale and technology of community regeneration have entered a stage of comprehensive development	Driven by the commercialisation of housing, community regeneration has been dominated by large-scale demolition and construction, which has played a positive role in the improvement of the living environment, but has also given rise to negative problems such as the loss of urban characteristics, the destruction of historical landscapes, and the fragmentation of social ecology	In response to the drawbacks arising from large-scale construction, experts and scholars actively explore new theories of community regeneration.Such as Wu Liangyong creatively put forward the " Organic regeneration " theory, which has become the main basis for community regeneration in the future
2000 to 2014: Stage of deepening exploration	With the rapid economic development and increasing economic volume, real estate has become an important growth point for economic development	Practice and theory are more closely integrated, community regeneration not only focuses on the beautification of physical space, but also begins to pay attention to the adjustment of urban functional structure, historical and cultural preservation, and optimisation of humanities and ecology, etc. Communities built after the founding of the State have become the key targets for	Experts and scholars have deepened their research on community regeneration from the perspectives of space creation, culture, public participation, energy saving, low carbon, ageing, industry, policy mechanism, etc. In addition, the theoretical research on community regeneration has shown a trend of cross-fertilisation of disciplines, such as planning, architecture, sociology and management

		regeneration, but there still exists the phenomenon of large-scale demolition and construction	
2014 to present: Stage of transformation exploration	Economic development has entered a new normal, the state put forward five new development concepts, the development trend of transformation is obvious	Small-scale, innovative, progressive and sustainable community micro-regeneration models are becoming more and more mainstream, and the implementation entities are showing diversified characteristics	Experts and scholars are conducting theoretical studies on community regeneration from a more comprehensive, refined and diversified perspective, and auxiliary analysis technologies such as GIS are gradually being applied.

Source: Completed by author from references[32,35]

At present, China's economic development has entered a new normal, all aspects of construction are in a new period of upgrading, and urban and community regeneration is also in a stage of transformation and exploration. Compared with the previous model of "large-scale demolition and construction", the community regeneration in the transition stage places more emphasis on micro-scale, innovation and sustainability; the construction mode has also changed from government-led in the past to a new model in which the government establishes a platform for the broad participation of social forces and residents. The form of organisation is also becoming more and more social, such as organising various activities such as design weeks, design competitions, design workshops, proposal selection, residents' feedback, etc., so as to fully mobilise the enthusiasm of all parties in the community and ensure the quality and sustainability of community regeneration. Some megacities in China have already started active exploration, such as "Interesting City-Community Micro-Regeneration Programme (2014)" in Shenzhen, "White Pagoda Temple Regeneration Programme (2015)" and "Meet Shichahai (2016)" in Beijing, "Walking Shanghai - Community Space Micro-Regeneration Programme (2016)" in Shanghai, "Triangle and Four Gardens (2019)" in Nanjing, "Future Community (2021)" in Hangzhou, "Park Community(2022)" in Chengdu, and so on. At the present stage, the concept of community regeneration is also more and more creative and interesting, with the economic background, the level of science and technology, and the continuous integration of lifestyle, which also

reflects that community regeneration is a dynamic process, still need to be multi-faceted, all-round continuous research and exploration.

2.1.3 Main problems of community regeneration in China

The main problems of China's old community regeneration have been summarised in the relevant literature published by many scholars, which are mainly manifested in the inadequacy of resource integration and utilisation, neglect of humanistic care for the residents and imperfection of multi-party participation mechanism. According to Zhang Hengyu et al. (2022), there is still a large amount of public space in old communities that is subject to the limitations of space and design concepts, and there is also a waste of space resources. The limited public space is not fully utilised, and there is a large amount of uneven distribution of public space resources[36]. According to Li Feng (2015), the current value orientation of urban and community regeneration is more out of shape, lacks attention to diversity of life, and neglects residents' life experience[37]. Jia Mengyuan (2016) proposed that the mechanism for residents and social organisations to participate in community regeneration, as well as policies and regulations, are not yet sound, resulting in poor sustainability of community regeneration projects[38]. Therefore, in order to solve the existing problems at this stage and better promote sustainable community regeneration, new regeneration concepts and strategies need to be explored.

2.2 Interpretation of the connotation of "sharing"

"Sharing" is a development concept with a deep theoretical foundation and long-term practical significance. Currently, scholars have been interpreting the connotation of "sharing" from a variety of disciplines and fields, such as philosophy, economics, sociology and architecture and planning.

2.2.1 Philosophical perspective

(1) Western philosophy

The recognition of "sharing" in Western philosophy has basically centred on the core issue of

whether the fruits of social development are to be enjoyed by the few or by the many, and has gone through three periods, namely, the period of Enlightenment, the period of controversy, and the period of change[39]. The earliest Western philosopher to address the concept of "sharing" was Plato, who put forward the ideal of "common wives and common children" in his Ideal State. Later, Aristotle, Cicero and Aquinas put forward their views on the topic of "sharing". In the 18th century, the idea of private ownership of property dominated, and the perception of "sharing" went from strength to strength. In the 9th century, the Marxist concept of sharing appeared, proposing the sharing of the means of production, the sharing of the means of subsistence, the sharing of benefits, and the sharing of political rights, which pushed the development of the theory of sharing to its peak.

(2) Ancient Chinese philosophy

Since ancient times, China has been a nation with a culture of "sharing" in its genes. The term "sharing" has long been reflected in tribal and clan life in China, with people sharing economy and space in primitive societies and clans gathering to form villages in agricultural societies. Compared with the West, Chinese philosophers emphasise the value of "sharing" in social development, which involves many aspects such as property distribution, the gap between the rich and the poor, political treatment, ethics, etc., and the value of "sharing" has been passed down to the present day.

2.2.2 Sociological perspective

Research on "sharing" from a sociological perspective focuses on the discussion of social justice, including human rights, opportunities, and welfare, as well as the concept of sharing as a reflection of new social relations and urban governance strategies in urban spaces.

Belk (2007) argued that sharing, unlike private ownership, is a process of interpersonal communication and interaction, determined by socio-cultural[40]. Norris P (2008) argued that sharing implies equal opportunities for diverse groups in political decision-making and implementation, leading to power sharing and social win-win situations[41]. Alejandro Toledo(2017) proposed the concept of a "shared society", in which the human rights,

opportunities and well-being of each individual should be respected[42]. According to Liu Zhanyong (2017), sociology considered "sharing" as a strategic way to promote benign and coordinated social development. The meaning of "sharing" in sociology is that the economic, political, cultural, social and other subsystems of the social system should create more resources and distribute them well, reflecting the comprehensive and systemic nature of shared social development[43].

In addition, French sociologist Henri Lefebvre's theory of spatial production criticizes the perception of space as a mere container and sees it as an essential component of social relations. He proposes to replace individual rights and private property rights with equal collective rights in order to construct a different kind of urban everyday life. Thus, the sharing of urban space can also be seen as a reproduction of collective rights[44]. David Harvey argues that shared resources are not a specific thing or asset, but are created as social relations by a social practice, and emphasizes that there is also a greater respect for citizen subjectivity in terms of rights in the city[45].

2.2.3 Economic perspective

The study of "sharing" from the perspective of economics has mainly appeared in the form of "sharing economy", and the understanding of the sharing economy in academia is constantly deepening and improving.

(1) Connotation and development of sharing economy

Western scholars have defined the "sharing economy" from different perspectives, derived theoretical models with different emphases, and summarised the general characteristics of sharing economy behaviours in practice. In 1978, Marcus Felson and Joel Spaeth introduced the term "collaborative consumption" in their paper "Community Structure and Collaborative Consumption: Based on the Theory of Everyday Activity", based on Hawley's 1950 theory of the "ecology of human community structure"[46]. The two scholars believe that collaborative consumption is the result of a shift in the individual's perception of exclusive access to resources, and that the joint consumption of valuable goods or services by multiple people

falls under the category of collaborative consumption. In 1990，Based on his experience with Zipcar and Buzzcar, Robin Chase presented the theoretical foundations of sharing economy platform building in "Peers Inc: How People and Platforms Are Inventing the Collaborative Economy and Reinventing Capitalism". She believed that sharing platforms should utilise excess capacity in three ways: "segmentation", "consolidation" and "openness"[47]. In 2010, Rachel Botsman and Roo Rogers elaborated on the theory of collaborative consumption in their book "What's mine is yours - The rise of Collaborative Consumption". Both argue that the core of collaborative consumption is sharing, transforming a "point-to-point" act of mutual fulfilment into a "many-to-many" platform that cuts across the ideologies of capitalism and socialism to find a common way of distributing social resources[48]. In 2014, Jeremy Rifkin pointed out in "The Zero Marginal Cost Society" that continuous technological innovation will accelerate the interaction of the three fundamentals of energy, communications and transport, and that ultimately the human community will form an Internet of Things (IoT) platform where everything is interconnected, where resources are exchanged freely, and where the marginal cost is drastically reduced, or even tends to be close to zero[49].

The wave of sharing economy has developed rapidly since its influx into China, and seven reports on the development of China's sharing and enjoyment economy have been released since 2016, and the understanding of the sharing economy is gradually deepening. One of the latest explanations of the connotation of the sharing economy was given in the "China Sharing and Enjoyment Economy Development Report 2023", saying: The sharing economy is a new industry and new model that uses the Internet platform to optimise the allocation of dispersed resources, improve the efficiency of resource utilisation and facilitate people's lives by promoting innovations in asset ownership, organisational forms, employment models and consumption patterns. The sharing economy emphasises the relative separation of ownership and use, and advocates the advanced concepts of shared use, intensive development and flexible innovation. Emphasis is placed on the flexible matching of the supply side with the demand side, promoting the deep integration of consumption and use with production services,

and achieving dynamic and timely, accurate and efficient matching of supply and demand. The sharing economy is a new type of economic form that has emerged after the information revolution has widely penetrated all areas of production and life, and it is a new concept of consumption and development that emphasises people-centred and sustainable development, and advocates the best experience and the best use of resources[50].

(2) Characteristics of the sharing economy

The sharing economy is generally characterised by three main features: first, the separation of ownership and use rights as the core link of the sharing economy, which is the most essential difference between the sharing economy and the traditional economy. Through the temporary transfer of the right to use the stock of resources to meet the experiential and low-cost needs of consumers, the ownership of the stock of resources can be given greater value, so as to achieve a win-win situation for both the supply and demand sides. Secondly, the third-party platform intermediated by modern information technology, such as the Internet, can quickly and accurately match the supply and demand sides of the market and efficiently allocate market resources. Third, the social stock or idle resources as one of the important supply sources of the sharing economy, through the repeated and efficient use of stock resources, releasing more value of stock resources, reducing the pressure on the supply of social resources and easing the contradiction between supply and demand in the market.

(3) Impact of the sharing economy on China

Since its introduction from abroad, the sharing economy has gradually taken a localised and innovative development path in China, and has formed an important economic growth point. This process can be divided into three stages: germination, start-up and growth, each of which presents a different mode of operation and evolving spatial forms[51] (Table2-3).

Table 2-3 Stages of China's Sharing Economy

Stage of development	The economic model	The spatial model
The germination stage: Introduction of	Around 2000, sharing economy business models such as ZipCar and Napster appeared in the United States and gradually spread outward.	During this period, China's sharing economy is in the exploratory phase of imitating and learning from foreign models, and is dominated by virtual

foreign models	Influenced by this, some interactive Q&A-based knowledge sharing websites, crowdsourcing platforms and other platform models emerged in China	network communities in terms of spatial form.The main focus is on the virtual network community in spatial form.
The start-up Stage: Shared businesses emerge	The continuous fermentation of the sharing economy wave eventually gave birth to local sharing companies. 2012 saw the emergence of many iconic sharing companies, such as DDT, Ant Short Rental and Pig Short Rental, which opened up the sharing economy business model driven by the mobile internet	At this stage, China's sharing economy model has gradually evolved from online sharing to offline sharing and sharing, the sharing of physical space has received more and more attention, and the spatial organisation of the sharing economy has been enriched
The growth Stage: Local model innovation	At this stage, China's sharing economy model has been widely carried out in more fields on the one hand, and models such as sharing space, shared knowledge and shared services have continued to emerge	China's sharing economy model has been upgraded to an economic model driven by shallow IoT technology + mobile payment technology. With the development of artificial intelligence, big data and IoT technology, it has comprehensively penetrated into all aspects of life from consumption to production, and has had a greater impact on the traditional forms of urban space and social organisation

Source: Completed by author

The rapid development of China's sharing economy is mainly due to four reasons. First, the development concept of "innovation, coordination, green, openness and sharing" has triggered profound economic and social changes. Second, economic development has entered a new normal and industrial upgrading led by supply-side structural reform. Third, the information technology revolution guided by the rapid development of Internet+ and third-party payment technology. And fourth, the potential of social innovation and entrepreneurship is stimulated by "mass entrepreneurship and innovation". The combination of these four aspects has become the catalyst for the development of China's sharing economy. And in 2022, the market turnover of China's sharing economy had reached 3832 billion yuan[50], which presents the characteristics of sustained and stable growth, extensive penetration of the field, the promotion of employment and "double creation", and the leading trend in the world.

2.2.4 Architectural and planning perspective

"The attention of the architectural and planning community to "sharing" comes from three

backgrounds. Firstly, from an international perspective, Habitat III puts forward the vision of "Shared City for All", which promotes the discussion and research on shared development of cities on an international scale. Firstly, from the international perspective, the vision of "Shared City for All" put forward by Habitat III has promoted the discussion and research on shared development of cities in the international arena. Thirdly, from the perspective of technological development and economic innovation, "Internet Plus" and the rapid rise of the sharing economy have profoundly affected people's concepts and lives.

Li Yong (2016) in "On the Background, Connotation and Meaning of Contemporary Sharing" suggested that sharing is a new way of resource allocation, a new form of economy and society, and a new concept of daily life[52].

Tang Hairu in (2016) "Open Block: The Future Direction of Urban Public Space Sharing" argued that "sharing" is an important concept in the allocation of urban planning resources. In addition to the original meaning of resource sharing, "sharing" should also expand the concept of "common meeting", "common construction", "common governance". The term "co-consultation" refers to the full consultation of the implementation body, "co-construction" refers to the joint construction by social forces, and "co-governance" refers to the participation of the public in the decision-making process of urban management[30].

After Habitat III put forward the vision of "cities for all", Shi Nan made an in-depth study on the impact of the concept of sharing on cities. In "Habitat III, the New Urban Agenda and its Implications for China", 2017, it is argued that the essence of "cities for all" is to put inclusive development at the centre. The term "cities for all" has five meanings: Firstly, "all people" refers to diversified individual needs rather than a collection of "people" in the traditional sense, i.e., urban development should meet the needs of diversified individuals. Secondly, "people" refers not only to the current generation, but also to future and future generations, reflecting the concept of sustainable development. Thirdly, all people have equal rights, and more attention should be paid to the disadvantaged groups, avoiding any discrimination and spatial differentiation and reflecting the social equity of urban development. Fourthly, the

emphasis is on "people-centredness". Fifthly, "enjoyment" also implies the responsibility of "building" the human environment[8]. In 2018, he mentioned in "Sharing" that from an international perspective, Habitat III advocates "cities for all", which means that all people have equal rights to live in cities and pursue a quality life, as well as equal opportunities to participate in urban construction and economic development. From a domestic perspective, the concept of shared development emphasises sharing for all, comprehensive sharing, and progressive sharing, and focuses on addressing issues of social justice and equity[53].

Based on the above background, the perception of "sharing" in architecture and planning mainly focuses on the three aspects of inclusive and fair urban planning concepts, efficient and precise resource allocation methods, and the urban construction model of joint consultation and governance.

2.2.5 Summary of the connotation of "sharing"

Different disciplines have different understandings of the concept of "sharing". From a philosophical point of view, "sharing" embodies the development values of equality and fairness. From a sociological point of view, "sharing" embodies the way of mutual assistance and coordinated development of society. And from an economic point of view, "sharing" embodies the way of efficient and precise resource allocation.

From the perspective of architecture and planning, the connotation of "sharing" includes three aspects: firstly, it is a mode of resource sharing based on the transfer of the right of use, reflecting the intensive orientation of urban design. Secondly, it is a humanistic value of equality and inclusion, which emphasises the needs of diversified people and reflects the humanistic concern of urban design. Then it is a social collaboration mode of consultation and governance, emphasising the participation of all members of the society and reflecting the public attributes of urban design. As mentioned above, the current problems and contradictions of community regeneration in China are mainly manifested in the insufficient integration and utilisation of resources, the neglect of humanistic care in the community, and the imperfection of the mechanism of multi-party participation, etc. So the connotation of

"Sharing" provides a new way of solving the problems faced by community regeneration.

2.3 "Sharing" as a new approach to community regeneration

Based on the interpretation of the meaning of "sharing", "sharing" can be understood as a new function with social attributes and can be used as a approach of community regeneration. The practice of sharing community first started in Europe as "co-housing community", developed globally, and has inspired community construction in China. In the context of the new era, combined with the practice of co-housing community and the development of Internet technology and sharing economy, "sharing" has more significance for community regeneration, which is mainly manifested in the use of resources, the creation of space, and public participation and other aspects of the impact.

2.3.1   Development and impact of sharing community

(1) Sharing communities originated with the co-housing community model

It is widely recognised that the practice of sharing communities originated in Northern Europe in the second half of the 20th century. In the 1960s, the industrialisation process in the Nordic region had a great impact on the lifestyle of the local people, and the number of dual income professional families increased, and under the pressure of busy work and closed family life, people began to seek a community-based collective lifestyle, i.e. the "co-housing" model, to meet the needs of life, such as child care and building a sense of community belonging[54]. In 1967, Bjerg and Dyreborg established the first modern co-housing community in Denmark, Saettedammen. Since then, the model has since been refined and developed, and the wave of co-housing community has quickly spread from Northern Europe to the world.

(2) Basic characteristics of co-housing community

Constructing sharing spaces and facilities, creating shared community activities and encouraging residents to participate in community building and community activities are the most important characteristics of co-housing community practice. The space of the co-housing community consists of two major parts: the private house and the common house.

The common house is the core area of the community and contains a communal kitchen and dining room, recreational facilities, children's entertainment facilities, a living room, a workshop and a laundry room, which are jointly owned by all residents of the community. Residents organise cyclical and daily activities in the common house. In addition, the co-housing community has a considerable area of outdoor space such as gardens and plazas that serve as shared extension spaces.

Sharing is the core feature and behaviour of a co- housing community. Residents not only share the resources of their home living space, but also borrow books, videos, lawnmowers, tents and other daily necessities from each other. Sharing lifestyles through centralised shopping, centralised meals, sharing household chores and taking turns to look after children not only saves time but also reduces living expenses. Compared with the traditional community model, the co-housing community will have significantly lower operating costs in terms of heating, cooling, lighting, etc., which will reduce the energy consumption of the building and allow for large-scale recycling of resources[55].

(3) Development of the co-housing Community

① Northern Europe:

The co-housing community, which has evolved over many generations since it was first established in Denmark, has been characterised by a gradual reduction in the size of private units and an increase in the number of sharing spaces or houses, and to date covers approximately 1% of the Danish population[56]. In 1977, living patterns similar to the Danish co-housing community began to appear in the Netherlands and Sweden. Regarding the significance of co-housing community building in Scandinavia, Dr. Anne Kopp Hyman (2005) argued that it is an innovative strategy to create a sense of neighbourhood community[57]. Franck, K (1989) argued that co-housing community combined with the theory of New Urbanism makes communities more sustainable by creating mutual aid, shared social networks[58]. Jo Williams (2005) argued that co-housing community residents not only share community resources and bring positive environmental benefits, but also reduce the burden of

residents' living, care for the disadvantaged and enhance the humanistic benefits[59].

② United States:

At the theoretical level, research on the co-housing community in the United States mainly involves two works, the earliest of which is "Co-housing: A Contemporary Approach to Housing" published by McCamant and Durrett in 1988. Ourselves". The authors examined Nordic cases and summarised common characteristics, including shared facilities, neighbourhood design, resident participation, resident self-management, etc[60]. Since then, the co-housing community model has begun to spread widely in North America. In 2005, Chris Scotthanson and Kelly Scotthanson published the book "The Co-housing Handbook: Building a Place for Community", which summarised the theory and practice of the previous work, and refined the planning and construction characteristics of co-housing communities, such as residents' participation in the whole process of construction and management decision-making, neighbourhood-friendly space design and separation of people and vehicles, shared public implementation, appropriate community scale, and shared dinners[61].

At the practical level, Muir Commons, the first co-housing community in the United States, was built in Davis in 1991[62]. Fred-A Stitt (2008) summarised the characteristics of the construction as the participation of residents in the community design and construction process, and their mutual understanding and familiarity with the community environment[63]. In addition, some scholars have studied the relevant practice cases in the U.S. Raines Cohen (2005) argues that the U.S. co-housing community programme is innovative in terms of development and management, environmental protection, and dissemination channels, etc[64]. Brian Bell (2007) highlighted that architects or planners in the process of co-housing community building are not only engaged in planning and design work, but also in community organisation and social interaction to facilitate the process of resident engagement[65].

③ Asia:

The co-housing community has been further developed in Asia, represented by Japan and Korea, with innovations in both connotation and form. Unlike Europe and the United States, where "sharing" is an extension of individualism and the market economy, Asia's co-housing community is a return to the cultural tradition of valuing the community, and is the result of a convergence of social development trends[66].

The structure and shape of Japanese families changed dramatically after the "economic bubble", with the proportion of young people who are not married continuing to rise, the number of people living alone increasing year by year, and the trend of an aging population producing more elderly people living alone. Young people cannot afford the high cost of housing and have no choice but to rent, while older people find it difficult to overcome the loneliness and constancy that comes with living alone. This has given rise to new models of sharing communities, such as the "Share House", which is an entrepreneurial shared community for young people, and the "Home Share", which is a multi-generational shared residence. Japanese scholar Kagami Sotaro (2016) argued that sharing communities not only reduces the economic pressure on residents, but also increases mutual communication and a sense of community solidarity among residents[66]. Satoko Shinohara (2016) analysed the research and concluded that the expectation of neighbourliness and more community activities are important factors for Japanese residents to choose to sharing community and house, and that the emergence of sharing house can activate the urban stock of space and bring economic and social benefits[67,68].

Rapid urbanisation in Korea has also brought about the problem of community segregation, with the expansion of anonymity of community residents, the weakening of connections between residents, the reduction of public space for residents, and the decline of spatially based communities, and this negative trend of modernisation has come to the forefront in all areas of the city, affecting the sustainability of the city. With this in mind, the Seoul Metropolitan Government (SMG) established the Seoul Sharing Promotion Committee in 2013 and issued the Seoul Sharing City Declaration, proposing a programme to build a

"sharing city" that aims to make effective use of unused resources, revitalise the local economy, and reconstruct relationships of trust while protecting the environment and reducing waste. Sharing communities form an important part of the Sharing Cities Programme, with four sub-directions: space sharing, goods sharing, skills, experience, time sharing and content sharing. There are further action plans for each of these categories, as well as government-accredited Sharing Groups and Sharing Enterprises as partners[69,70].

(4) Inspiration of the co-housing community for community building in China

Wang Jing (2016) suggested that the co-housing community model has the significance of reducing social costs, promoting social integration, and facilitating urban regeneration, and has a certain value for solving the problems of indifference and alienation of the current closed community and the increasing degree of aging in China, and catering for the development needs of the sharing economy. The practice of co-housing community in community construction includes three levels, encouraging shared housing at the family unit level, implanting "shared public housing" at the neighbourhood level, and guiding community participation at the community level[71].

Ji Qianyun et al. (2018), on the basis of summarising the co-housing community model, proposed that China's sharing community should realise multi-dimensional and open sharing of space, facilities, economy, management, technology, information, etc. so that residents can freely organise their activities within the sharing space[72].

(5) Exploration of sharing communities in China

Chang Mingwei, Yuan Dachang (2017) suggested that China's sharing residence model should reconfigure privacy and public reconfiguration, drawing on the spatial form of the traditional courtyard, and configuring the function through the internet[73].

Yang Xinwei and Chen Yunxia (2018) analysed a sharing community case study, Shenzhen Jiyue City, whose main feature is the complementarity between private and sharing spaces, and the sharing space includes public facilities such as a shared kitchen, a shared laundry room, a shared recreation room, and a shared study room, in addition to the richness of the

sharing spaces based on the community activities[74].

Wang Daren and Li Zhenyu (2021) have compiled a review of sharing-oriented design trends in Shanghai's community regeneration, which present a reorganisation of space and function, as well as new ways of spatial interaction. He summarised three scenarios in which the concept of sharing has been expressed in community regeneration: the sharing of boundary places, the sharing of pathway spaces and the sharing of supporting facilities. And argued that sharing has become a new way of creating community space. The concept of sharing generates formal dynamics of community regeneration through new demands on how space is organised, how it is used, how it is interacted with and how community spaces are created. The social attribute of sharing fits the nature of community regeneration, which requires the creation of community spaces that balance efficiency of use and humanistic care[75].

2.3.2 Resource utilisation models from the sharing perspective

The resource utilisation mode from the sharing perspective is mainly reflected in the fact that the development of modern information technology and the emergence of the sharing economy have had a significant impact on the redistribution and integration of various types of resources in the city, with a particular emphasis on the spatial mode of operation that separates the right of use from the right of ownership.

Fu Taotao (2016) summarised four "new ways" of playing with public space according to the process of the sharing economy model, namely separation, decomposition, co-frequency and win-win. Separation means separating the right to use the space from the right to use and manage it, emphasising the value of urban private public space and the need for social forces to participate in the management of public space. Decomposition means reducing public space to zero, enriching the supply of public space through refinement of the theme or presetting of activities, forming a vibrant system of micro-public space, and attracting the public. Co-frequency means building a networked database of urban public space to enable the public to easily and timely learn about the location of the space, the activities, and the public's needs. And the win-win situation is to have multiple social forces participate in the design,

construction and management of the public space, so as to reduce the cost and achieve a win-win situation[76].

Qin Jing (2017) suggested that the development of the sharing economy has a positive impact on urban renewal activities. Firstly, there are more idle or inefficient spatial resources in urban regeneration areas, while the main target point of the sharing economy is idle and inefficient resources, and the combination of the two will enhance the efficiency of space utilisation. Secondly, due to historical reasons, urban regeneration areas often have complex property rights, while the biggest feature of the sharing economy is the separation of ownership and use rights, which can effectively cater for the problem of complex property rights in urban regeneration areas. Finally, urban regeneration areas often have a large number of innovative talents who are eager for self-realisation, and the sharing skills platform provides opportunities for innovative talents to display their talents. In addition, the sharing economy promotes a "bottom-up" urban renewal mechanism[10].

Wang Jing (2017) suggested that the emergence of urban sharing space is mainly based on the following three factors: firstly, at the level of the technological background, modern information technology extends the scope of dissemination of information on resource sharing, and realises the rapid and accurate matching between the supply side and the demand side of resources through sharing platforms such as the Internet, so that the transaction cost tends to be close to zero. Secondly, at the level of residents' needs, urban geo-information technology can make it easier and more widely accessible to citizens, but in the context of the Internet, residents are more in need of experiential, diversified and decentralised urban spaces. Then there is the demand for equal rights in the city. By reducing the focus on the ownership of urban space, sharing space enables the use of urban space to be distributed more equitably to urban residents, mitigating the alienation of rights to urban space due to the market economy[77].

2.3.3 Space creation forms from the sharing perspective

The creation of space from the sharing perspective firstly focuses on the perception of sharing

space, in addition, the development of the sharing economy has had a significant impact on the planning and design of urban space.

(1) Interpretation of sharing space

According to scholars' research on sharing space, urban sharing space is not exactly the same as general urban public space, or there is a judgement of "authenticity" of urban public space, and in reality, there is a problem of "public but not shared" or "shared but not shared" in urban public space.

Tang Hairu (2017), in "Sharing and Living Community Creation in Spatial Perspective", proposed that the sharing of space should be embodied in five aspects: fairness, reciprocity, efficiency, emotion and art. Fairness is reflected in the fact that public space should be shared by all people; reciprocity refers to achieving mutual benefits through the sharing of the right of use; efficiency refers to enhancing the accessibility of space in both planes and three dimensions, enriching the function of space, and strengthening the time-sharing use of space; and artistry refers to improving the artistry of the space that can be experienced[78].

Zhang Xin (2018) in "Exploration of the Value of Urban Public Space under the Concept of Shared Development" put forward that the sharing subject of urban public space is the people, with the characteristics of equality for all, but it should be presented with a differentiated scale to respect the development of human personality. The sharing value of urban public space lies in its public nature, inclusiveness, equality, and the protection of citizens' right to voice and participation[79].

In addition, on the issue of the relationship between public space and sharing space, Liu Wan (2019) has researched this issue, and through the research on the public space around the Wudaokou City Railway Station, it is argued that public space may not necessarily be sharing space, and that sharing space requires not only material openness, but also the spirit of richness and diversity of place, which makes the different groups, interests, and time relatively equal in spatial opportunities[80].

(2) Impact of the Sharing Economy on Urban Space and Planning Response

Wang Jing (2017) suggested that in the context of "sharing", spaces such as parking spaces, classrooms, meeting rooms and multi-functional halls can be utilised in a "staggered" manner to improve the efficiency of space use. Spaces that were once more private can also be expanded into public spaces to a certain extent by sharing the right to use them, making the urban public space system richer and more diversified. More people with the same hobbies and interests can gather in the space and enhance its vitality. The sharing of space can also promote exchanges between residents and revitalise the community. At the planning level, it is important to create flexible spaces that are "activity" orientated and inclusive of a wide range of activities. Coordinate space resources from "public" to "private", and increase the provision of space for the disadvantaged. Strengthen the institutional design of public participation and guide residents to take the initiative to provide services for the city[77].

Nie Jingxin et al. (2018) proposed that the sharing economy has both positive and negative benefits for urban space, with the positive benefits reflected in the sharing economy improving the city's public service facility system and promoting the high efficiency and quality of urban space, while the negative benefits are reflected in the disruption of the spatial order, the reduction of the operational efficiency, and the dysfunction of spatial management. In order to better make the sharing economy work for the city, its spatial development rights and interests need to be clarified, and problems arising from its development need to be circumvented. The sharing economy requires an active response to urban spatial claims, with spatial rules manifesting themselves in a trend towards multi-scale and decentralised layouts, forms that promote mixed and diverse land uses, and spatial controls that emphasise rules based on mutual trust. In response, the "behaviour-space-planning" model should be followed in urban planning, with a rational spatial layout. Reshape the spatial provision of services and integrate shared resources using the community as a platform. Integrate credit-based spatial control tools to build a comprehensive spatial governance system for the new era. Spatial planning strategies from the sharing perspective focus on reconfiguring spatial order, including dynamically regulating the allocation and use of urban space based on the data base

of public sharing behaviours, arranging shared microspaces in a more refined manner, and strengthening the construction of communication facilities. Build a shared community platform, increase the openness of community spaces by promoting the "neighbourhood system", incentivise residents to serve their communities, and create a community intelligent cloud platform to facilitate the sharing of community resources. Establish a consultative mechanism involving multiple parties, including the Government, the market and the public, as well as a cross-border portfolio among the Government, enterprises and preparation units, to strengthen the management of credit access to space and to constrain the behaviour of space users, so as to avoid causing damage to the order of space[51].

2.3.4 Public participation methods from the sharing perspective

Scholarly research on public participation in the context of "sharing" focuses on two aspects, namely "co-construction", which guides the public to actively participate in urban construction, and the sharing economy, which provides more opportunities for public participation.

(1) Co-construction as a prerequisite for sharing

The concept of "shared" development advocates that "development relies on the people", which means that while the public enjoys its rights, it also has to assume a certain degree of responsibility for construction. Public participation in the context of "sharing" no longer stops at the stage of public participation in consultation and decision-making, but more importantly guides the public to actively participate in urban construction and to take the initiative to provide more services for urban development. "Co-construction" should become an expanded meaning of "sharing" and a new dimension of public participation[30]. For example, in Germany, at a time of financial constraints leading to high administrative pressure, the leading role in community regeneration was gradually shifted to third parties such as community workers, creatives and local organisations, forming a pattern of co-construction by the public, the private sector and the community, as well as promoting the creative revitalisation of unused community space and community neighbourhood friendliness[20]. In the context of

shared development in the country, some cities are also actively exploring the mode of "co-construction" by multiple subjects. For example, Shanghai's community micro-regeneration programme, Chengdu's (Tianfu New District) community building project, and Xiamen's "Beautiful Xiamen, Building Together" programme are all gradually lowering the government's management stance, and actively guiding the enthusiasm of residents and social forces[81].

(2) Impact of the Sharing Economy on Public Participation

In addition, the rapid development of the sharing economy also has a positive impact on public participation, Shen Jie et al. (2018) suggest that the platformisation, openness, and distributed nature of the sharing economy provide new opportunities and challenges for public participation in urban planning. Opportunities in the sense that the sharing economy promotes residents' awareness of participation in urban affairs and sharing and opens up avenues for participation, and challenges in the sense that it is more difficult to reconcile interests due to the diversity of interests[82].The sharing economy has revolutionised public participation, urban land use, urban sharing spaces and urban service capacity. In addition, data sharing, VR, and the Internet provide new ways for public participation in community regeneration.

2.4 Charpter summary

（1）China's community regeneration has entered a stage of transformation and exploration, and the main problems and contradictions at this stage are the insufficient use of community resources, the neglect of humanistic care for the community, and the imperfection of the mechanism of multi-party participation in the process of community construction.

（2）From the perspective of architecture, the connotation of "sharing" includes three aspects:firstly, a resource-sharing mode based on the transfer of the right of use, reflecting the intensive orientation of urban planning. Secondly, it is a humanistic value of equality and inclusion, reflecting the humanistic care of urban design. Then it is a social collaboration model of co-consultation and co-construction, reflecting the public attributes of urban

planning(Figure2-1).
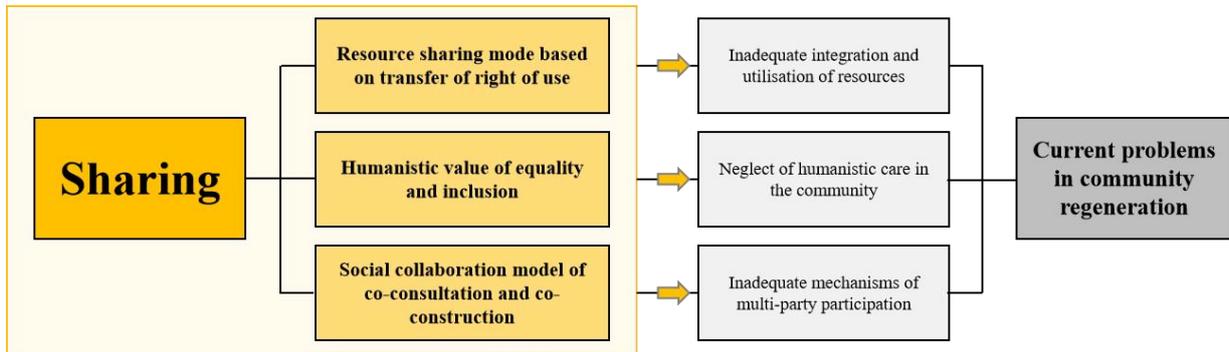
Figure 2-1 Connotations of sharing in architectural and planning perspectives

Source: Completed by author

（3） Starting from the connotation of "sharing", this chapter studies the development of sharing communities around the world, and argues that in the context of the new era, sharing needs to pay more attention to "resource utilisation", "space creation" and "public participation". The resource utilisation model from the sharing perspective focuses on the separation of the right of use and ownership of space, the utilisation of stock and the impact of information technology and the development of the sharing economy on the allocation of resources. The form of space creation from the sharing perspective focuses on the equality and inclusiveness of the sharing space as well as the activity orientation of the space. The public participation method from the sharing perspective emphasises the relationship between sharing and co-construction as well as the impact of the sharing economy and technological advances on the participation method. The above researches provide relevant theoretical guidance for community regeneration strategies from the sharing perspective.

Charpter 3 Case study of old community regeneration from the sharing perspective

Based on the connotation of "sharing" summarised in the previous charpter, this chapter selects cases of community regeneration from the sharing perspective, and analyses and researches the relevant practice cases from the aspects of "stock utilisation and activation", "space design and creation" and "mechanism for implementation and operation ", and then summarises the sharing experience embedded in the projects. This chapter provides practical support for the theoretical research in the previous chapter, and serves as a reference for the strategy in the next chapter.

3.1 Basis of case selection

3.1.1 Overview

Since 2016, with the continuous popularity of the sharing concept and the rapid development of the sharing economy, some communities in cities such as Beijing, Shanghai and Guangzhou in China have attempted to carry out spatial regeneration practices from the sharing perspective, interpreting the sharing concept from different perspectives and generating different types of community sharing spaces. According to case statistics, the spaces generated by community regeneration based on the sharing concept in China are relatively abundant, including community shared living rooms, shared bookstores, shared kitchens, resource sharing spaces, shared green spaces, community wall paintings, shared laundries, shared fitness warehouses, and shared recreation centres, and so on[31]. When these spaces are summarised, it can be seen that different functions of sharing spaces do not have the same emphasis on the connotation of sharing. Some cases focus on caring for the diversity of people in the community and reflecting the connotation of equality and inclusion, such as community shared living rooms, shared green spaces and shared kitchens. Some cases focus on the connotation of sharing unused resources in the community, such as community

resource sharing spaces, shared library and shared public service facilities. And some cases focus on the connotation of co-construction and public participation, such as community shared green spaces and community wall-painting spaces, and so on. These sharing spaces not only improve the quality of the space, but also meet the living habits of the residents in the new era, and trigger new ways of interaction, promote residents' participation in community building, and stimulate a variety of community public activities. The most notable feature of the source of space regeneration is "stock activation". Most of the cases involve the regeneration and reuse of unused, abandoned or inefficiently utilised stock of space in the community, and some of the cases further activate the community's unused resources through the activation of unused space.

3.1.2 Case selection

Although there are abundant cases of community regeneration from the sharing perspective in China, on the whole, the overall operation time of regeneration projects is relatively short, and the whole is still in the initial cognitive and exploratory stage. In order to better summarise the experience of community regeneration from the sharing perspective, the selected case practices need to be more mature and of academic value, and also need to cover different types of sharing spaces. Therefore, this thesis respectively selects "Shanghai West Guizhou Lilong", "Beijing Digua Community" and "Guangzhou Changxing Community Eco-Garden" from among the cities that have entered into the stock regeneration stage earlier in China for the research. Each of the three cases embodies the connotation of "sharing" in terms of resource sharing, humanistic care, co-construction and public participation at different levels. Shanghai West Guizhou Lilong highlights the humanistic care and co-construction in the connotation of "sharing", Beijing Digua Community mainly embodies the humanistic care and resource sharing in the connotation of "sharing", and Guangzhou Changxing Eco-Garden fully expresses the co-construction and public participation as well as humanistic care in the connotation of "sharing".

3.2 Shared-Living Space of Shanghai West Guizhou Lilong

3.2.1 Background and overview of the project

Shanghai West Guizhou Lilong is located on East Nanjing Road in Huangpu District, Shanghai(Figure3-1), and is a typical traditional Shanghai lilong community. At present, it still maintains a relatively complete lilong pattern and typical Shikumen architectural features. There are about 730 households, most of which are elderly people, accounting for about 60 percent of the total population of the community, and the demographic structure shows the characteristics of aging.

Figure 3-1 Project Location of Shanghai West Guizhou Lilong

Source: Completed by author

3.2.2 Stock utilisation and activation

The most important type of stock space in the community is the lilong, which consists of three main lilongs and several side lilongs. For a long time, they have been important places for residents' public life. However, due to the inappropriate layout of some public facilities and the degradation of the outdoor public environment in recent years as a result of demographic changes and the increase in the number of rented premises, the lilong space has become a

negative space lacking a meaningful definition. The project aims to create more collective and shared living spaces by improving and upgrading scattered lilongs, entrances of lilong, and some of the community's unsused public house, providing more options for residents who live in confined environments within their homes, and turning it into a 1,800m² public living space(Figure3-2), which will lead to active participation by the residents, and enhance the opportunities for interactions among them.

Beforer stock activation   After stock activation

Figure 3-2 Before and after stock activation of West Guizhou Lilong

Source: Completed by author

3.2.3 Space design and creation

(1) Design of sharing spaces

① Entrance space regeneration of lilong

Regenerate the entrance space of lilong and add of new functions. Regenerate interior space at the entrance of Hongxingli on East Beijing Road, as a security service room and information board(Figure 3-3a). Regenerate interior space at the entrance of Ruikangli on East Beijing Road, as a show case and activity space(Figure 3-3b). Regenerate interior space at the entrance of Yongkangli on East Beijing Road, as a ironmongery(Figure3-3c). Regenerate

interior space at the entrance of Ruikangli on Xiamen Road, as a barbershop(Figure3-3d).
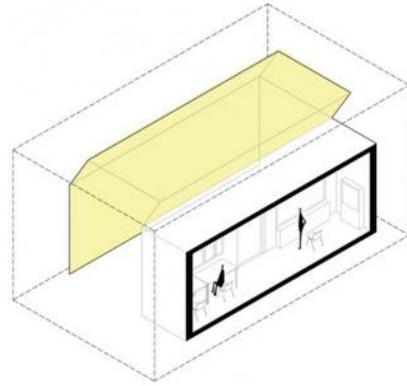
Figure 3-3a Security service room and information board at the entrance of Hongxingli on East Beijing Road
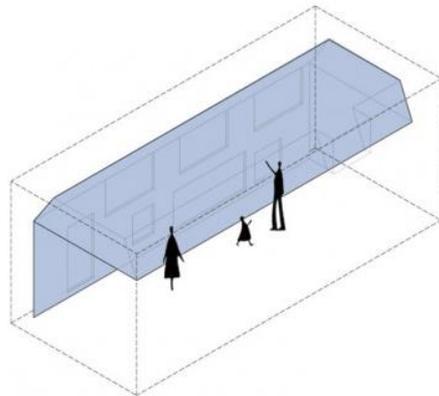
Figure 3-3b Show case and activity space at the entrance of Ruikangli on East Beijing Road
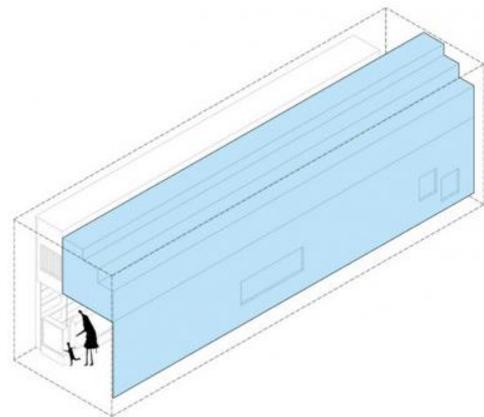
Figure 3-3c Ironmongery at the entrance of Yongkangli on East Beijing Road
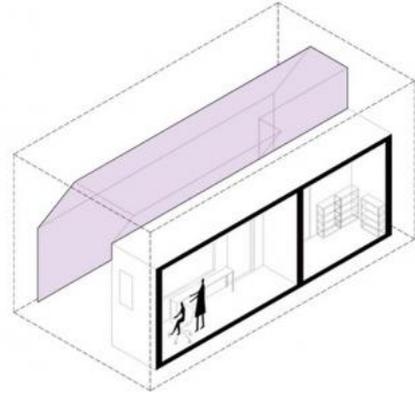
Figure 3-3d Barbershop at the entrance of Ruikangli on East Xiamen Road

Figure 3-3 Entrance space regeneration of lilong

Source: **https://www.gooood.cn/micro-regeneration-projects-in-west-guizhou-lilong-china-by-tm-studio.htm**

② Shared Square and Green Pergola

Transforming the relatively complete unused land in the community into a shared square, introducing the concept of a green pergola, providing residents with shared planting and greening space, allowing them to orderly beautify the community's public space. At the same time, the square also serves as a drying and parking space for residents, supplementing the community's living and public service facilities（Figure 3-4）.
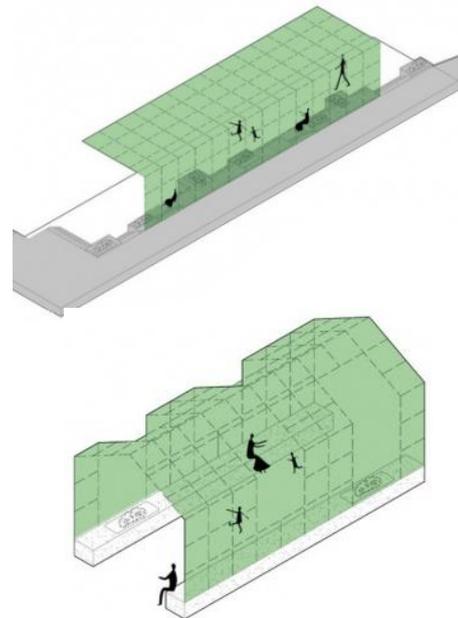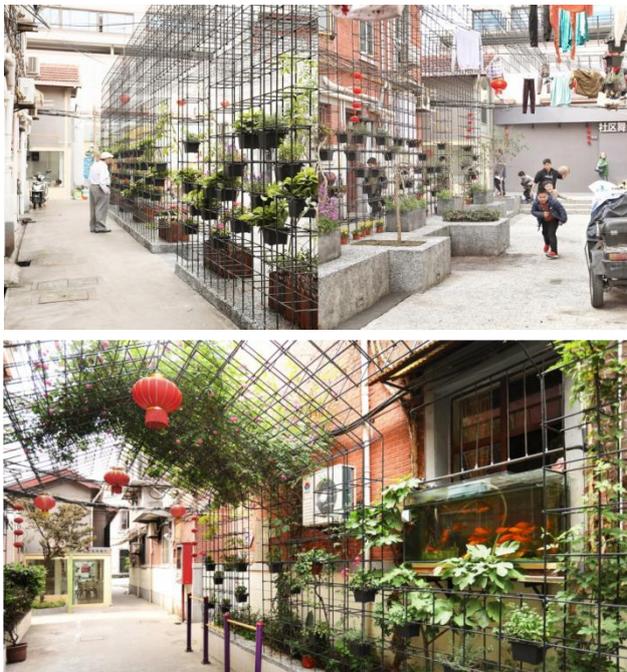
Figure 3-4 Shared Square and Green Pergola

Source:https://www.gooood.cn/micro-regeneration-projects-in-west-guizhou-lilong-china-by-tm-studio.htm

③   Shared Library and Shared Living Room

Converting an unused overstorey at the entrance of a lilong into a shared library (Figure 3-5a). Converting one of the community's closest unused buildings to the downtown area into a community shared living room(Figure 3-5b), and a new community shared stage was placed using the height difference in front of the shared living room.
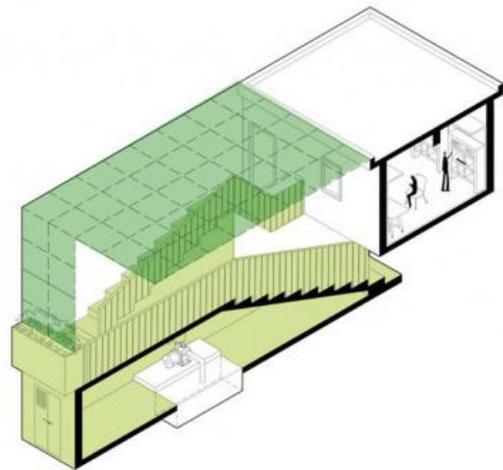
Figure 3-5a Community shared library
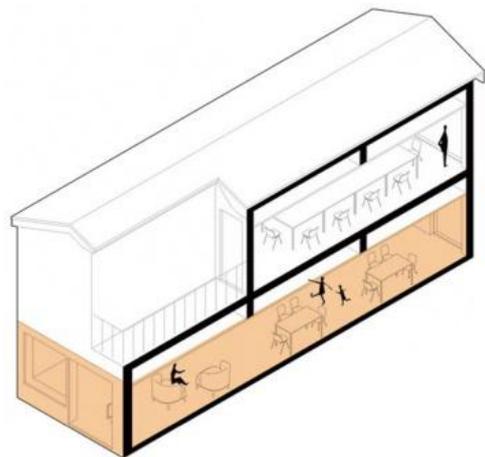
Figure 3-5b Community shared living room

Figure 3-5 Shared Library and Shared Living Room

(2) Creation of sharing activities

Using the regenerated green pergola, shared square and shared living room as a spatial carrier, various types of thematic community activities such as "Welcoming the National Day, Celebrating the Chung Yeung Festival" symposiums, lantern riddles, ublic service haircuts, shared dinners and community art exhibitions were held during holidays, attracting the participation of many residents, and expanding new forms of life-sharing and activities for the residents（Figure3-6）.

Figure 3-6 Sharing activities in Wset Guizhou Lilong

Source: https://arch.seu.edu.cn/2022/1204/c9122a430460/page.htm

3.2.4 Mechanisms for implementation and operation

(1) Government level

The Shanghai Municipal Government launched the "Walking Shanghai" micro-regeneration initiative in 2017, and it was in this context that the West Guizhou Lilong was carried out. The government allocated a total of RMB 3 million to the micro-regeneration of the lilong, with streets and community committees taking the lead in organising and regenerating 13 small projects, including entrances and exits, toilets, rubbish chambers, activity rooms, pergola, and tree pools.

(2) Resident level

Community residents have spontaneously formed a new model of self-management and

self-maintenance. Shared kitchens and living rooms are equipped with all kinds of basic furniture and kitchen utensils, and the community committee, as the main manager of the space, organises special groups responsible for daily maintenance and management. Residents book the space in advance, bring their own food and tableware, clean the space themselves and return it to the community committee, which collects fees for daily use and normal maintenance, forming a sustainable operation mechanism. The community shared library is open to residents free of charge, and the books in the library are made up of voluntary donations from community residents, corporate sponsorships, and sponsorships from the community neighbourhood committee. The use and maintenance of the space is managed by a team of community volunteers on duty.

(3) Third-party level

As the main third party of the project, community planners lead the design and construction. During the process, listen to the opinions of residents from multiple aspects, and adjust while constructing. The only principle is to integrate resources and transform the environment through minimal intervention in a limited space, forming a new pattern and driving new functions. The three main alleys have been transformed and upgraded into community public living rooms, creating a collective and shared living space, and expanding the communication and interaction space for residents. According to the wishes of residents, the planner team injected the concept of "sharing" into some idle and passive spaces, promoting the development of shared community living spaces such as alleys and entrances. As a result of the series of construction achievements, standardized maintenance and management systems were developed.

3.2.5 "Sharing" experience of Shanghai West Guizhou Lilong

From the perspective of sharing, West Guizhou Lilong creates a good sharing space for residents to communicate and conduct public activities, brings neighbourhood relationship closer and enhances the humanistic care of West Guizhou Lilong area through the creation of community living service facilities(Figure 3-7).
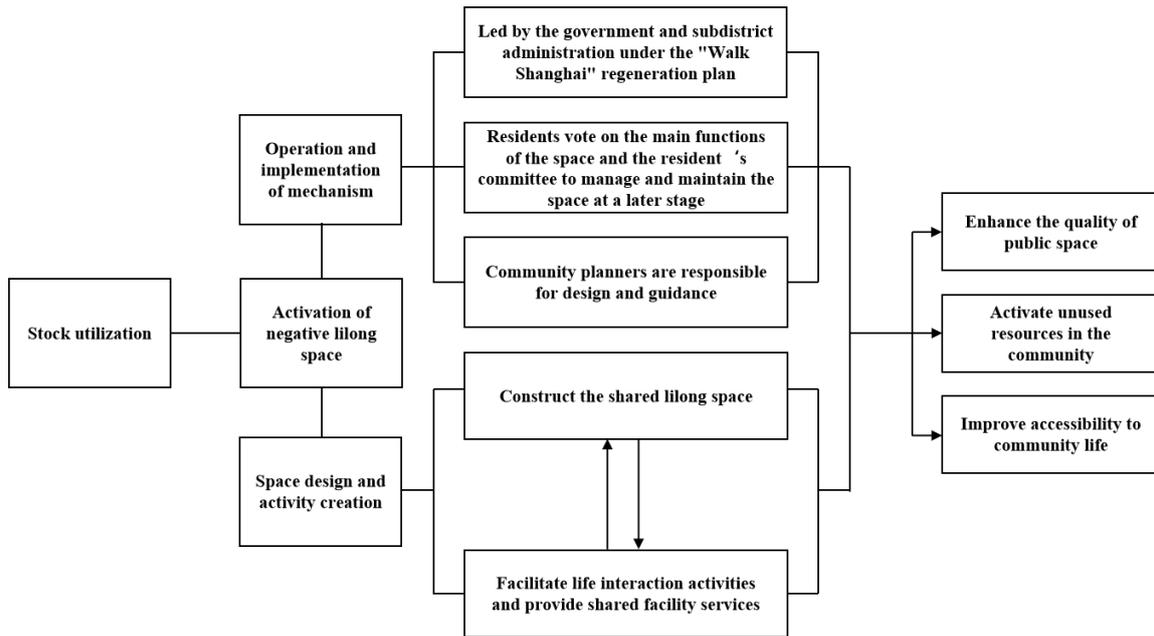
Figure 3-7 Sharing experience of Shanghai West Guizhou Lilong

Source：completed by author

(1) Create a shared life through shared facilities

In Shanghai's traditional lilong lifestyle, neighbours often cook in public kitchens or share food with neighbours, and this is one of the most memorable scenes expressed by residents in the interviews, as neighbours get along with each other like family members. The biggest difference between the shared living room of West Guizhou Lilong community and the overall living room is that the public space of the whole lilong is regarded as a sharing space, and in this "special" space, residents can enjoy the living service facilities while experiencing the joy of life interactions. And at the same time, the shared living room also provides space for neighbours to get together and receive visitors, etc., which can bring people closer to each other, and the service facilities can link more residents to participate in them. It can be seen that the sharing of living facilities not only reduces the cost of living, but also promotes the emotional warming between residents, reproducing the traditional sharing and mutual support mode of life.

(2) Space usage rights are allocated as needed

The biggest innovation of the sharing economy model is the separation of ownership and use

of social resources, so that the right of use can be distributed according to demand, thus making social resources available to more people and promoting social equality and fairness, which is also one of the connotations of "sharing". In order to allow more residents to use the community sharing space in West Guizhou Lilong, the community sharing space does not set fixed functions and use of the population, but adopts the method of distribution according to demand, i.e., by means of advance booking, pre-set activities, and free use of the space to provide more residents or communities with opportunities to use the space, which not only improves the efficiency of the use of the space, but also allows for the continuous growth of the type and scale of community activities. The unchanging space can carry ever-changing community cultural activities, and the ever-changing community cultural activities can attract diversified community residents.

(3) Energise the spaces through shared community activities

In the era of shared civilisation, it is easier for people with similar interests to gather in a space and enhance its vitality. The West Guizhou lilong sharing space has become an incubator for associations due to its open and shared characteristics. Since its operation, several associations have organised regular activities here, and the types and number of associations have been increasing, and each resident can participate in a number of associations, which enriches the community life and at the same time promotes mutual exchanges and understanding among the residents. This enriches community life and promotes mutual communication and understanding among residents. The operation team also regularly organises cultural sharing sessions on handicrafts, poetry, movies and holiday celebrations to further enhance the cultural appeal of the space. In addition, the sharing space in West Guizhou lilong also provides a space for community self-organisation, with community art exhibitions under the pergola and shared dinners in the shared living room. The redevelopment and regeneration of the public space can support and positively influence the endogenous regeneration of the neighbourhood and the enhancement of the community's self-organisation capacity.

3.3 Beijing Digua Community

3.3.1 Background and overview of the project

Digua Community is located in the underground space of Building 19 in Beijing's Anyuan Beili District(Figure3-8), and it is not a community in the traditional sense, but a community welfare project in Beijing exploring the reuse of unused underground civil defence works. The community in which the project is located was built in the 1990s, and suffers from a lack of public space, insufficient supporting facilities, and indifference to the neighbourhood, especially among young people such as Beiyou drifters, entrepreneurs, and newly graduated college students, who rely heavily on the Internet for virtual social interaction, resulting in a lack of a sense of integration into the community. The underground space, which was originally used for civil defence works, was once contracted by private individuals for housing rentals, hotels and other commercial activities, with rudimentary construction quality and high crowd density, posing a major safety hazard, and thus the community regeneration of the site has been highly valued by the government.

Figure 3-8 Project Location of Beijing Diagua community

Source: Completed by author

3.3.2 Stock utilisation and activation

Underground civil defence works are unused space during non-war time, and private contractors operate in a profit-seeking manner, making the functions and activities singular, and the public attributes of the space are not fully utilised, and giving rise to a series of environmental and safety issues. The project "Digua community" transforms the 560m² of underground air defence space into a multi-functional sharing space and creates a community sharing culture of equality, warmth and fun(Figure3-9).

Beforer stock activation

After stock activation

Figure 3-9   Before and after stock activation of Beijing Digua Community

Completed by author

3.3.3 Space design and creation

(1) Design of sharing spaces

The Digua Community follows the original grid-based spatial layout, with a shared living room at the centre of the space for residents to meet, communicate, rest and so on. And a series of small spatial sequences with different functions are developed around the shared living room (Figure3-10).
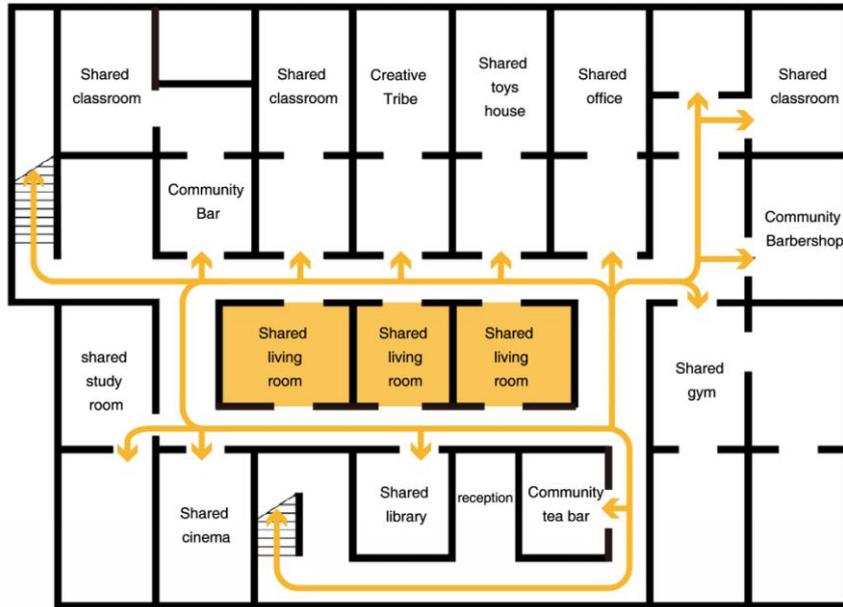
Figure 3-10 Plan of "Digua Community No. 1"

Source: Completed by author

Depending on the function of the space, Digua Community adopts three models of operation: free of charge, "Free with a donation", and inexpensive fee. As a public welfare project, most of the functions of Digua Community are free and do not charge any fees, such as the shared living room and shared reading room in the centre (Figure 3-11a,b); some of the projects are "Free with a donation", which encourages residents to donate unused resources in their homes and share them with other residents, such as the shared tea room and the shared toy house (Figure3-11c,d); and the remaining projects charge a lower fee than those charged out the community such as private cinema and gym (Figure3-11e,f). Since its operation for some time, Digua Community has basically balanced between income and expenditure.

Figure 3-11a Shared living room

Figure 3-11b Shared library

Figure 3-11c Shared tea room

Figure 3-11d Shared toy house

Figure 3-11e Private cinema

Figure 3-11f Community gym

Figure 3-11 Sharing space of Digua community

Source: https://weibo.com/Diguashequ

(2) Creation of sharing activities

Based on sociology and through research and analysis of residents, the Digua Team adopts different working models and organises diverse activities, such as sharing community stories, organising creative festivals, art training, organising residents to make dumplings and mooncakes, and celebrating the birthdays of children in the community, etc.(Figure3-12), so as to provide good platforms for neighbourhood interactions and to continuously stimulate the vitality of the community .

Figure 3-12 Sharing activities in Digua Community

Source: https://arch.seu.edu.cn/2022/1204/c9122a430460/page.htm

3.3.4 Mechanisms for implementation and operation

(1) Government level

The Beijing Chaoyang District Yayuncun Subdistrict Administration took the initiative to contact the Digua Team, and together with the District Civil Defence Bureau, provided a lot of support to the Digua community's preliminary preparations in terms of policy, funding, usage procedures, and infrastructure improvements. In the early stages, the government charged the team a symbolic rent at a relatively cheap price, and the project was supported by various social forces.

(2) Resident level

Resident participation in the Digua Community is mainly reflected in the decision-making aspect of the main functions of the space and the self-governance and operation in the later stage. In the preliminary stage, a total of 187 votes from residents in 4 rounds were cast to select the top 10 features of the Digua Community, such as a living room, library, children's activity space, fitness space, and so on. During the operational satge of the project, the Digua Team organised community activities and passed on their professional knowledge to the resident representatives in the community, so that the management and operation of the Digua community could be gradually taken over by the residents themselves, and the Digua community is now managed by three full-time mothers in the local community.

(3) Third-party level

The Digua community is operated by the Digua Team, which consists of teachers, students and resident volunteers from the Central University of Fine Arts (CUFA). The team has explored many new approaches to community regeneration using "sharing" thinking. As a third-party team, the Digua Team has played a pivotal role in designing the space, guiding residents' participation, organising activities, balancing income and expenditure, and managing the day-to-day management of the Digua community. For example, the team has transformed a used tricycle into a mobile voting van, attracting residents to come and vote for the most in-demand features, ensuring the project's maximum benefit reach.

3.3.5 "Sharing" experience of Beijing Digua Community

Digua Community was founded with the intention to break down the cold interpersonal relationships in the community, to cultivate a community culture of equality, warmth and sharing, and to create a community collaboration network using the community's own human resources through the creation of a shared underground space and a community platform with a sharing economy mindset (Figure3-13).
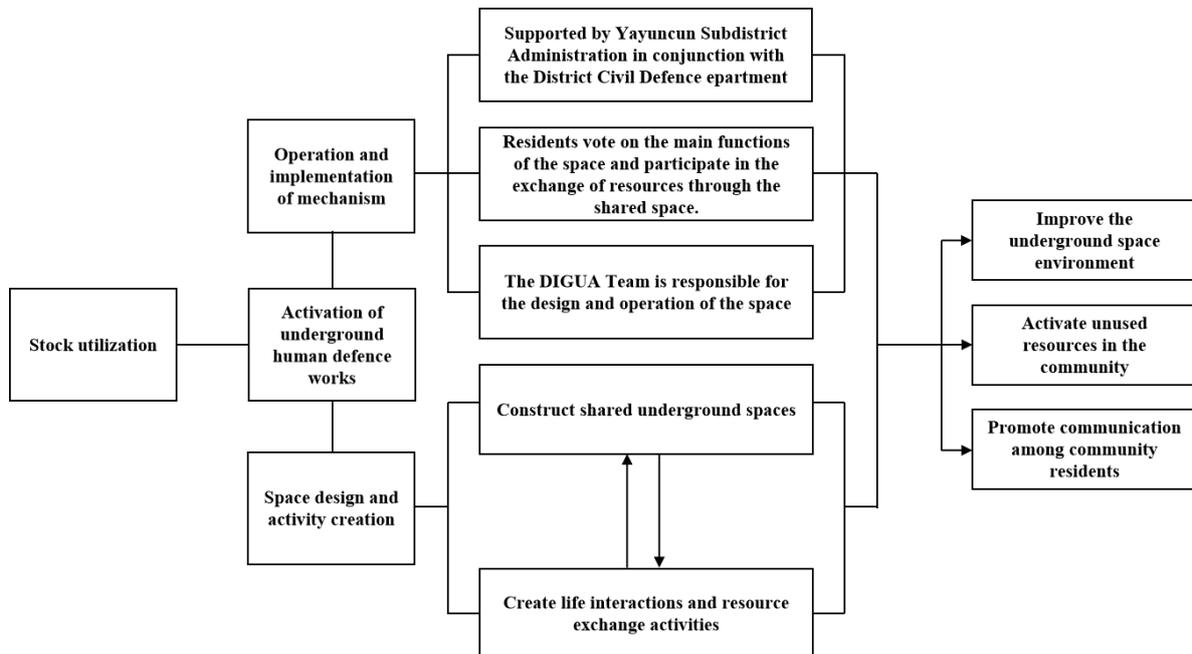
Figure 3-13 Sharing experience of Beijing Digua Community

Source：completed by author

(1) Community resource sharing space

The supply of the sharing economy focuses on idle resources. In order to encourage residents to share their idle resources, the Digua Team has adopted a "Free with a donation" mechanism. For example, if you donate tea to the Neighbourhood Tea Bar, you can taste other people's tea for free and get the opportunity to get to know other people; if you donate books to the library, you can become a member and borrow them for free. At present, the community has received a total of more than 40 donations of tea from residents, more than 200 books. This practice has successfully mobilised the idle resources in the hands of the residents to gather strength for the construction of community culture.

(2) Community shared hourly rental space

The sharing economy lowers the threshold of consumption through the sharing of the right to use, giving members of the community greater access to resources and, to a certain extent, promoting social justice. There are a number of small spaces with hourly rates in the Digua community, which can be rented by community members at a lower cost for various activities, such as birthday parties, festive gatherings, meeting friends, and so on. For example, the shared toy house has attracted many children and parents in the community and has been used as an opportunity to increase their mutual acquaintance. The creative classroom provides a good space for community residents to hold training and cultural activities. By charging a certain fee on time, the Digua Community avoids the privatisation of space and enables more residents to have equal opportunities to use the space and achieve space sharing.

(3) Community skills sharing platform

The sharing economy efficiently links supply and demand through some kind of intermediary platform, reconfiguring the structure of social interaction. Operator of Digua community collects community residents' specialities and contact information in the information board and encourages community leaders to use their skills to provide relevant training or services for community residents. Through such a platform, on the one hand, it can provide part-time jobs for community leaders, and on the other hand, it can also provide ordinary residents with

opportunities to upgrade their skills or obtain services at a low cost. For example, there are two full-time mothers in the community who, through the platform set up by the Digua Team, give interest classes at 5pm every day in the hourly rented space for children who come home early from school and have no parents to look after them. Since they are both residents of the same community, the price is relatively low. This not only improves the income of full-time mothers, but also allows them to take care of their own children while taking care of the children of other parents, achieving a win-win situation for all parties.

3.4 Guangzhou Changxing Community Eco-Garden

3.4.1 Background and overview of the project

Guangzhou Changxing Community Eco-Garden is located in the Party Service Centre of Changxing Street, Tianhe District, Guangzhou City(Figure3-14), belonging to the ancillary land in the residential area, which is jointly constructed by the Changxing Street Office of Tianhe District, a number of social organisations, and South China Agricultural University, with the project's original intention of building an edible landscape and community garden. Led by the government, funded by social enterprises and caring people, designed by South China Agricultural University (SCUA) and the community building and nature education team, with operation and management support from social welfare organisations, the project was completed with the participation of residents in the construction.

Figure 3-14   Project Location of Guangzhou Changxing Eco-Garden

Source: Completed by author

3.4.2 Stock utilisation and activation

The total population of Changxing Street community reaches 150,000 people, with a high proportion of elderly people, of which 20% are over 60 years old, and most of them are small households rented by migrant workers. As a daily leisure place for the residents of Changxing Street, the comprehensive utilisation rate of the Party Service Centre is not high, and the public activity space is idle and wasteful, and the quality is poor. The lack of activity space in the centre square has caused the green space to be trampled and damaged, and the maintenance status is poor. The project is to transform the 400m^2 unused green space in the service centre into a community shared Eco-Garden(Figure3-15). During the construction of the Eco-Garden, waste tyres and wooden boards were used to make seats, flower pots, fences and other park facilities, while the leaves swept out by sanitation workers and the fruit peels and vegetable leaves from the nearby market were used as soil fertiliser, saving maintenance expenses in the later stages.

Beforer stock activation

After stock activation

Figure 3-15 Before and after stock activation of Changxing Eco-Garden

Source: Completed by author

3.4.3 Space design and creation

(1) Design of sharing spaces

The design team took the lead in solving technical problems such as drainage in the park. On this basis, the design team gave full consideration to the needs of the residents and designed a living and humanised ecological landscape space (Figure3-16), The Community Eco-Garden is divided into five public areas, namely the fruit and vegetable area, the ornamental flower area, the herb area, the nature observation area and the composting area.

Figure 3-16 Plan of Guangzhou Changxing Community Eco-Garden

Source：Completed by author

The fruit and vegetable area in the centre is planted with edible fruit and vegetable seedlings in wooden boxes to beautify the environment, while the fruits and vegetables can be distributed to the elderly in the community as care materials after maturity(Figure3-17a). The surrounding area is an ornamental flower area, where ornamental plants such as green roses and sunflowers are planted, and dragon fruits and grapes are planted against the corners of the walls(Figure3-17b). The spiral garden is planted with herbaceous plants as the herb area(Figure3-17c). The nature observation area has been set up with soil improvement modules to enhance the ornamental effect as well as to serve as a demonstration and education(Figure3-17d). The composting area is used to pile up fallen leaves from the community and fruit peels and vegetable leaves from the nearby market(Figure3-17e). Zigzagging walkways have been planned in the Eco-Garden, seating has been added to the public square to provide a sitting-out function for the site, a number of planters and chairs made of tyres have been placed, as well as repainting of the wall at the edge of the green space to serve as an area for children's painting(Figure3-17f). The whole design is based on the theme of "reuse of waste", and all the landscapes and nodes of the facilities are simplified, so that the community residents can actively participate under the leadership of the professional team, and the residents and the parent-child families can not only design, beautify the garden, plant and pick their own crops. In addition, the design leaves more room for residents' autonomy and future changes, allowing them to create their own beautiful home in a sustainable manner.

Figure3-17a Fruit and vegetable area

Figure3-17b Ornamental flower area

Figure3-17c Herb area

Figure3-17d Nature observation area

Figure3-17e Composting area

Figure3-17f Children's wall painting

Figure 3-17 Sharing space of Guangzhou Changxing Community Eco-Garden

Source：Completed by author

(2) Creation of sharing activities

The activities of the Changxing Community Eco-Garden are created throughout the project. During the construction stage of the Eco-Garden, the social work station plans projects such as parent-child farmland experience, and organises residents, volunteers and parent-child families to participate in the creation of the Eco-Garden in small groups(Figure3-18). The social work station counted everyone's free time, combined their respective interests and strengths as well as the main abilities needed for each construction stage, and created a flow Table and division of labour, forming a garden path group, a composting group, a carpentry group, a leaf picking group, a planting group, and so on. The construction process took the form of intensive workshops with a focus on community participation in tidying up, soil preparation, planting, composting and paving garden paths. The launch of the Community Eco-Garden brought more children and adults together. Over 100 residents with no

construction experience participated in the creation of the garden, which took two weeks to complete.

Figure 3-18 Co-construction activities in Changxing Community Eco-Garden

Source: https://www.sohu.com/a/327732208_717159

After the construction of the Eco-Garden is completed, autonomous interest groups formed by residents under the leadership of the social work station share conservation and management experience in the community and organise related thematic activities. The Foundation's project management teacher then guides the organisation of community activities such as book clubs, concerts and bazaars. At the same time, the Community Eco-Garden has also reached a preliminary cooperation agreement with a nearby primary school to use the Community Eco-Garden as the school's nature education base, and to share activities and resources with the nearby community, bringing neighbourhood interaction closer. In the process of organising activities, residents and children can learn basic gardening skills, and

small volunteers and parents actively participate in the management and beautification of the ecological garden.

In the future, the Community Eco-Garden will combine four categories of activities, including farming, environmental education, nature education and food education, with the community service model of the Changxing Street Social Work Station, so that the participants can acquire basic ecological knowledge and practical skills, and realise the educational function of the Community Eco-Garden.

3.4.4 Mechanisms for implementation and operation

(1) Government level

The construction of the Changxing Community Eco-Garden was led by the Tianhe District Government, which acquired the land title owned by the Changban Joint Stock Co-operative Economic Union at a relatively low price, and handed it over to the Street Office for implementation and promotion.

(2) Resident level

Community residents provided effective feedback on the design of the Eco-Garden in the pre-construction stage and actively participated in the entire construction process of the Changxing Eco-Garden under the leadership of the social work station. And a spontaneous team of volunteers has been formed in many Eco-Garden creation activities, and a public WeChat group has been set up to discuss the daily management and maintenance of the Changxing Eco-Garden, rotating shifts, community activities and other issues. The volunteer team currently consists of more than 60 members who are able to independently perform daily management and maintenance activities such as watering, fertilising, sowing seeds and erecting shelves.

(3) Third-party level

The third parties in the Changxing Community Eco-Garden are mainly businesses, universities and social welfare organisations. The Lingnan Education Charity Foundation of Guangdong Province was responsible for raising funds for the Eco-Garden project, and the

Foundation's project managers were also responsible for guiding the organisation and planning of professional activities. In terms of design, a team of teachers and students from SCAU specialising in Landscape Architecture, and a team from Community Creation and Nature Education (CCE) developed the final creation plan through detailed research. The public welfare organisation Changxing Street Social Work Station has played the most crucial role in the creation of the community Eco-Garden. From the construction stage of the project, the Social Work Station has been responsible for the planning and organisation of various activities for the residents to participate in, and after the completion of the project, the Social Work Station has led the residents to share their experience of maintenance and management in the community and organised relevant thematic activities. In the management and maintenance of the Eco-Garden, the social work station is still responsible for the daily maintenance of the garden plants in the morning and evening to ensure that the community Eco-Garden is in the best condition.

3.4.5 "Sharing" experience of Guangzhou Changxing Eco-Garden

The Changxing Community Eco-Garden is the result of social participation. Through the construction of the Eco-Garden and the development of activities, the project team found that the simpler the content of the activities, the higher the participation of the residents. Changes to the community environment and the building of community groups require participation and integration into the creation of the community from the outset under professional guidance and counselling. As a place for public participation in recreational and horticultural activities, community Eco-Gardens are based on space creation to establish a harmonious relationship between people and nature, and people and people. Community Eco-Gardens are the most direct carrier for the realisation of sharing in the city(Figure3-19).
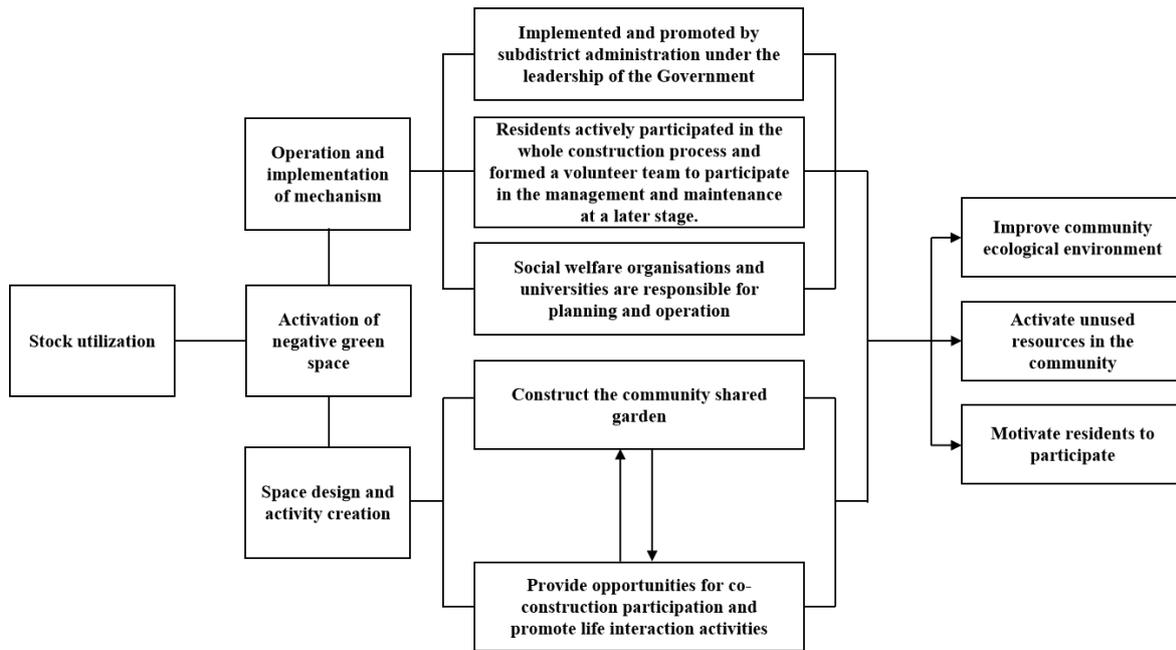
Figure 3-19 Sharing experience of Guangzhou Changxing Community Eco-Garden

Source：completed by author

(1) Guide residents to build space together

A city of shared civilisation should be a society of co-construction, with all members of society actively contributing to the construction of the city and the production of space, so that "sharing" can be achieved through "co-construction". In the case of Guangzhou Changxing Eco-Garden, multiple forces such as the government, enterprises, community residents, schools, and the design and operation team are all involved in the production of the garden space at different levels. The government provides policy and material support for the construction of the gardens, enterprises provide funding and organise regular community activities, and university students and the design and operation team provide technical services for the design, operation and management of the gardens. The most important thing is that the residents of the community not only stop at the stage of consultation and decision-making as in the case of overall community regeneration, but also participate in the construction of the space. Parent-child families among the residents paint some of the walls together, children and teenagers plant and maintain plants in the tyre garden, and planting enthusiasts adopt crops in the fruit and vegetable planting boxes, which are all the

embodiments of residents' participation in the construction of the space. As the builder of the space is not fixed and can be replaced, the Changxing Community Eco-Garden is always "under construction". Therefore, Changxing Ecological Park not only has landscape appreciation value, but also provides opportunities for members of the community to collaborate with each other and interact with natural spaces.

(2) Shared landscapes and educational science

A shared community environment should be reflected in the sharing of community resources and skills, through the sharing of living resources or professional skills among residents, increasing opportunities for communication among residents and enhancing community cohesion and a sense of belonging. The "sharing" of the Changxing Community Eco-Garden is mainly embodied in the two levels of botanical landscaping and education and science popularisation. At the landscape level, the Changxing Eco-Garden's operations team encourages residents to transplant their own plants into the ornamental flower area to become part of the landscape and to share with other residents. The planting boxes in the Fruit and Vegetable Area provide an opportunity for residents to experience farming in depth, and serve as a "testing ground" for residents to share their plantings. The herb area is a "happy field" for children to share their joy by guiding them in the planting and maintenance of the herb area. At the level of education and popularisation of science, the operation team of the Eco-Garden shares the professional techniques of planting with the residents, instructs them on how to compost in the composting area, the nature observation area shows the growth of plants as well as garden insects, and regularly organises activities such as nature popularisation courses, professional salons, and professional trainings, so as to enable the residents to participate in the construction and management of the Community Eco-Garden in a more active and effective way.

(3) Activities planning and internet plus

In order to achieve the sustainable development of Changxing Community Eco-Garden, the operation team plans a variety of activities to expand the influence of the farm garden and

achieve multi-level resource sharing. For example, it organises nature classes, community open lectures, vegetable picking for the elderly, public welfare activities, and Mapping workshops to meet the multicultural needs of the residents and to attract people from the wider region to gather in the space, thus enhancing the shared value of the garden. In addition, the operation team of the Changxing Community Eco-Garden makes full use of the Internet+ to further break the spatial and temporal limitations of the space and expand the scope of sharing of the farm garden. At present, Changxing Community Eco-Garden has made use of WeChat public account, WeChat group and other Internet means to promote the activities, and the adoption of plants in the garden is registered through the network platform, providing a platform for a wider range of citizens to constructe and share green space.

3.5 Summary of sharing experiences

By analysing the three more mature cases of Shared Living space of Shanghai West Guizhou Lilong, Beijing Digua Community, and Guangzhou Changxing Community Eco-Garden, their fundamental goal is to achieve the activation of the use of the community's stock of resources. The activity-orientated trend at the level of sharing space creation reflects humanistic care for diverse individuals. And at the level of the sharing implementation mechanism presents the characteristics of multi-party participation, i.e. activating community stock space on the basis of multi-party participation from the government, residents, social teams, etc., and combining the activity management and Internet platforms to create community sharing spaces, realizing the goals of activating idle resources in the community, improving the quality of community space, and repairing community neighborhoods, providing useful experience for solving the current problems of community regeneration in China(Figure3-20).
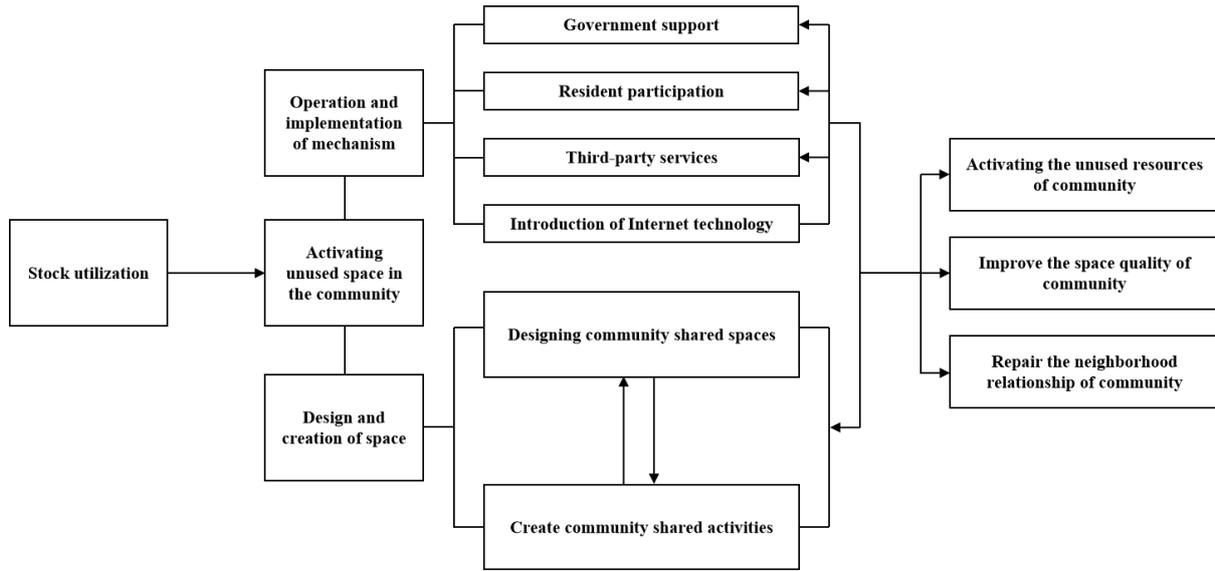
Figure 3-20 Experience summary of old community regeneration from the sharing

Source: Completed by author

Charpter 4 Regeneration strategies for old community from the sharing perspective

Based on the previous case study, this chapter further explores the community regeneration strategy from the sharing perspective at two levels: overall regeneration and detailed creation, to provide reference for the applied research in the next chapter. The overall regeneration level is based on the sharing experience embodied in the three previous cases of shared community regeneration, and is elaborated in conjunction with relevant theories. The detailed creation level first proposes four types of community sharing space based on the activity orientation of the space, and then combines each type of community sharing space with specific design.

4.1 Overall community regeneration strategies

According to the theoretical research in the previous section (Chapter 2), community regeneration practices from the sharing perspective are mostly concerned with the activation of community stock resources, the creation of community sharing spaces, the establishment of community sharing mechanisms, and so on. Through the analysis of the three community regeneration cases from the sharing perspective in the previous chapter (Chapter 3), the regeneration experience of stock utilisation, space regeneration and shareing mechanism are also presented. So this thesis argues that the overall strategy of community regeneration from the sharing perspective should also respond to the above instruments.

4.1.1 Activate community stock resources

(1) Theoretical basis

The first and foremost task of community regeneration is to activate the existing stock community resources. According to the previous theoretical study, "sharing" and "stock" are closely related. The sharing economy model is to use the social stock of resources as an important supply base, and through the separation of ownership and use rights, to promote the efficient use of resources, becoming one of the characteristics of the sharing economy

significantly different from other economic models. For example, in the United Kingdom, the development of the sharing economy has promoted the efficient use of stock of spatial resources, such as factories, warehouses, old buildings and parking spaces in the East End of London, and enhanced the comprehensive value of land resources[10]. Then, for example, the construction of a sharing city in Seoul, South Korea, has made the activation of unused space in public facilities an important element[68].

(2) Strategies for activate community stock resource

① Explore community stock resources

Due to the long period of time since the construction of the old community, there are many physically deteriorated and inefficiently used spaces in the community. These are the most valuable and potentially regenerative points of interest in old community. Including under-utilised public spaces such as indoor, outdoor, above ground, underground, buildings and open spaces in the community can be regenerated. In addition, the activation of stock space also provides a platform for the activation of unused material living resources or knowledge and skill resources in the community, linking a wider range of idle resources in the community through the activation of stock space, expanding the scope and breadth of regeneration, and improving the overall impact on the community resource utilisation system. Therefore, fully exploring the community's stock resources is an important prerequisite for the subsequent creation of sharing spaces(Table4-1).

Table 4-1 Classification of community stock resources

Type of stock resources	Stock resource elements		Characteristics
Space resources	Stock of green and square spaces	Unused green space	Decaying plants, insufficient space to move around, low environmental quality
		Architectural corners Space	Building corners, aisles and other spaces are used for stacking debris and are inefficiently used
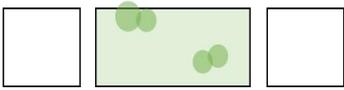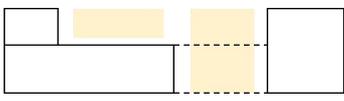
	Community boundary space		Hardened fences impede communication within clusters of community as well as between the community and the city
Stock of building spaces	Unused public buildings		Abandoned and dilapidated, unattended and underutilised on a daily basis
	Unused building underground space		Unused civil defence works or unauthorized underground construction, with prominent safety hazards
	Unused building roof space		Large, under-utilised on a daily basis and a safety hazard
	Public facilities inside and outside the community	Public facilities, including car parks, sports grounds, etc., for schools, institutions, etc., in and around the community	Public facilities are often enclosed within institutions, resulting in a waste of resources
Material living resources	Unused Furniture	Tables, chairs, cabinets, cutlery, etc.	Unused household goods that do not have full use value for the resource owner
	Unused electrical appliances	Projector, stereo, juicer, microwave, etc.	
	Others	Fitness equipment, books, etc.	
Knowledge and skills resources	Temporary community doctors, electricians, tutors for young children, hobby training, etc.		Ability to provide professional knowledge and skills training as well as short-term, temporary emergency services to community residents
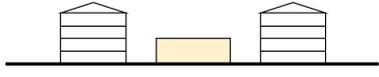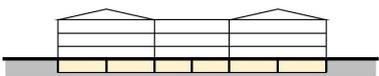
Source : Completed by author

② Activate community stock resources

Activating community stock resources should be the primary goal of community regeneration from the sharing perspective, and idle, abandoned, poor quality, inefficiently utilised and under-utilised stock spaces in the community are the main target spaces. In the face of different types of stock space, existing practices provide a wealth of activation strategies, and the activation of stock space provides a spatial carrier for the utilisation of other stock

resources in the community and the development of shared activities(Table 4-2).

Table 4-2 The cases of stock space activation

Types of stock activation	Stock activation feature	Project examples
Sharing of unused green spaces and squares in the community	The activation and transformation of unused green spaces in the community into public ecological spaces, such as green spaces, parks and agricultural gardens, in which community residents can directly participate in planting, maintenance and management, is the physical embodiment of the combination of the connotation of "sharing" concepts of co-construction and participation with community ecological spaces	Shanghai Chuangzhi Agricultural Park Shanghai May Garden
Sharing of Building corners and aisles spaces in Community	The corners and aisles spaces of the buildings in the community become active sharing spaces that inspire and meet the needs of the community after acupuncture regeneration	Shanghai West Guizhou Lilong
Sharing of community boundary spaces	Sharing makes it possible for the boundaries of a community to no longer have to be rigid, but can be a place for events to be generated, providing space for people inside and outside the community to interact together.	Shnghai Changliyuan Community boundary-garden

Sharing of unused public buildings	Actively regenerate and transform unused office premises, storage premises and other stock-type spaces in the community into major sharing spaces for community living and interaction, culture and recreation	 Beijing Beijing White Pagoda Temple Shared Living Room
Sharing of unused underground space	Sharing underground space in the community refers to the regeneration and transformation of unused basements and civil defence works in the community for the public good, so as to form a public space shared by the residents. Regenerating and utilising unused underground space can alleviate the tension of aboveground space in the community, make up for the lack of supporting facilities, and improve the ecological environment of the community	 Beijing Digua community Shanghai Xianxialai community
Sharing of unused roof space	Community sharing roofs are a way of regenerating under-utilised building roofs in the community, providing residents with a place to plant, dry and socialise on the roof, and introducing devices such as solar panels to provide energy support to the community	 Shenzhen Nanyuanlvyun Roof garden

Source : Completed by author

4.1.2 Create activity-orientated community sharing spaces

(1) Theoretical basis

According to the previous research, the creation of community sharing activities is an important means of enabling spaces to serve more diverse populations and to achieve greater "sharing" of space. Based on this, the key point of sharing space planning and design is to

change from traditional function-oriented to activity-oriented, to create flexible space that can accommodate differentiated activities, which requires linking the sharing space with material living resources and knowledge and skill resources, and realising the refinement and diversification of spatial services in the existing sharing space through the pre-determination of activities and refinement of themes, so as to improve the efficiency of space use and enhance the charm and vitality of the space at the same time[74]. A typical feature of co-housing is the organisation of community events on the theme of "sharing", the most representative of which is the "Shared Dinners". The community's contribution to the preparation of food not only plays an important role in bringing the community together, but also cares for the low-income population. It is also a way of caring for the low-income group and lowering the cost of living for the residents[69]. It can be seen that the creation of "activities" has a positive significance in promoting the "sharing" of community and space. At present, with the improvement of living and technology, residents' demand for social and experiential community activities is rising, which puts higher demands on the planning, design and operation of community spaces.

(2) Strategies for create community sharing space

①   Planning of community sharing activities

The types of community activities include culture, art, socialising, popular science, education, public welfare and so on. Community activities based on the theme of "sharing" can provide opportunities for community residents to share material resources, knowledge and skills, which is conducive to stimulating community vitality and promoting mutual understanding and assistance among residents. Relying on community sharing space, regular sharing activities can also improve the efficiency of space utilisation and form spatial places with living attributes. At present, many communities in China have made useful attempts, and residents have gained convenience while enhancing neighbourhood sentiment. According to the types of sharing space summarized above(Chapter3) and the connotation of sharing(Chapter2), sharing activities can be classified as living interaction-type activities,

resource exchange-type activities, co-construction and participatory-type activities and facility service-type activities(Table4-3).

Table 4-3 Types of Community Sharing Activities

Types of activities	Main Contents	Activity Objectives
Living interaction-type activities	A range of activities related to daily life interactions such as chatting and gathering, eating and drinking, reading and relaxing, etc.	Attracte more residents to community sharing activities by mentioning daily interactions to achieve greater community sharing
Resource exchange-type activities	Activities such as flea markets for the exchange of unused goods and shared classrooms for the exchange of knowledge and skill resources.	Use of sharing spaces for the exchange of physical living resources, knowledge and skills resources, and for the full utilisation of stock resources
Co-construction and participatory-type activities	Activities such as planting in shared green spaces, wall painting, community building festivals, etc. that allow residents to participate directly in building and beautifying the community	Encourage residents to apply their knowledge and skills directly to the construction phase of the sharing space and play a greater role in the creation of the space
Facility service-type activities	Activities carried out by residents in living service facilities and public service facilities, such as laundry, parking, fitness and recreation, etc.	improve and supplement community services and facilities to enhance the convenience of community life and the diversity of community activities

Source : Completed by author

② Design of Community Sharing Space

Depending on the type of sharing activities, four types of sharing spaces can be proposed: living interaction-type sharing space, resource exchange-type sharing space, co-construction and participatory-type sharing space and facility service-type sharing space(Figure4-1). And community regeneration from the sharing perspective should not only consider the need for differentiated activities at the space planning and design stage, but also continue to operate activities based on the space after the completion of the space regeneration, in order to guarantee the lasting vitality of the regeneration results.

Figure 4-1 Activity-oriented sharing space

Source: Completed by author

4.1.3 Establish multi-participatory community sharing mechanism

(1) Theoretical basis

According to the previous theory, "sharing" and "co-construction" have a dialectical relationship, with "co-construction" being the prerequisite for "sharing" and "sharing" being the purpose of "co-construction", which corresponds to the relationship between "power" and "duty". While enjoying power, one should also fulfill corresponding duties. Therefore, based on the concept of sharing, community regeneration is a multi-party process that allows more groups to share the benefits of the community while contributing to the community[49](Figure4-2).
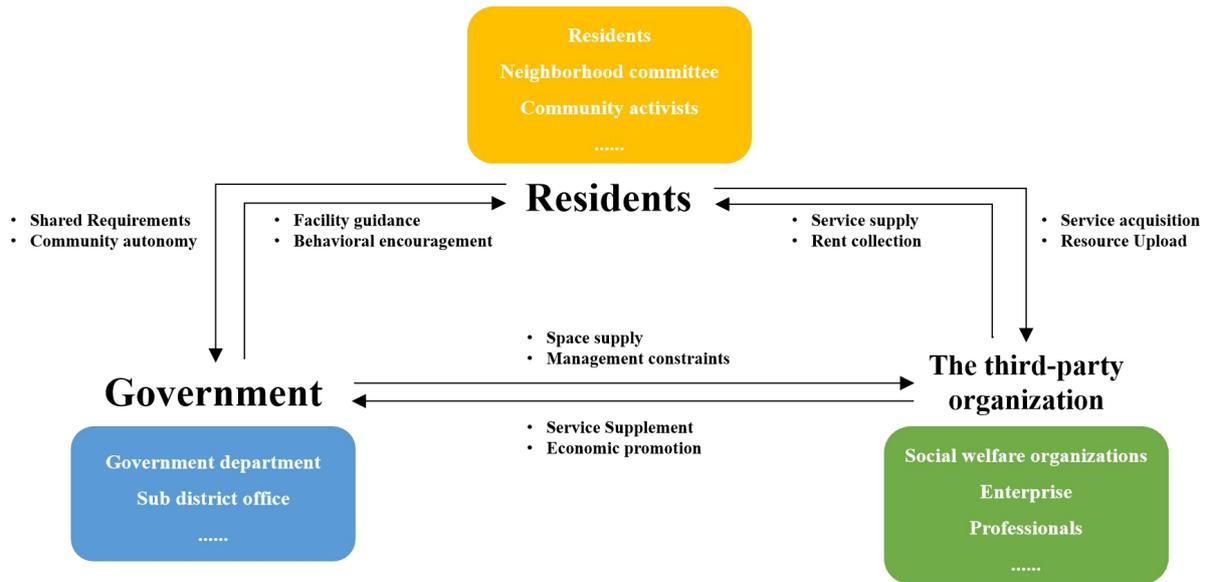
Figure 4-2 Community sharing and multi-party participation mechanism

Source: Completed by author

Similarly, the beneficiary groups of community regeneration should also be the main body of community regeneration, therefore, mobilising all stakeholders to participate in community regeneration is an important support condition for community regeneration from the sharing perspective. Among them, residents are the largest beneficiary group and should also be the important implementation subject, to fully awaken the role of residents as an important labour resource provider for community regeneration, rather than just staying in the process of regeneration decision-making and negotiation, which is also the difference compared with other types of regeneration models. The government would overallly take the most dominant position in the past community regeneration practices, putting greater pressure on management costs. In the era of sharing, the government should transfer more construction responsibilities to residents or other social forces. Social third-party teams, on the other hand, are a gradually emerging force for public good in community regeneration, and they play an increasingly important role in community regeneration, even though they do not have a direct stake in it.

In addition, according to the previous theoretical research, the Internet is an important

transformative force in urban development, with a profound impact on citizens, urban space and public life. "Sharing" is an important keyword in the Internet era, representing the social logic of justice, equality, individuality and an emphasis on connection[83]. The Internet has typical sharing characteristics, firstly, everyone is equal in the Internet world. Secondly, "Internet+" can effectively solve the problem of unreasonable and unequal distribution of social resources. And then the Internet redefines the relationship between space and time, weakening the concepts of "distance" and "location"[15]. The rapid development of the sharing economy has also benefited from the Internet's phase technology, which enables fast and accurate matching of supply and demand. In addition, in the creation of shared communities, "Internet+" is also used as an important means of integrating and distributing offline resources, such as community space, materials, knowledge and skills, in order to promote the sharing of community resources. Therefore, community regeneration from the sharing perspective should actively use "Internet+" as a technological tool to create a community-scale network sharing space.

(2) Strategies for establish community sharing mechanism

① Government level

City governments represent the broadest public interest and aim to enable all members of the city to share in the fruits of reform and development. Community regeneration is a key component of shared urban development, which aims to enable residents living in poor conditions to enjoy modern living and share a better urban living environment. City governments are the key drivers and platform builders of urban community regeneration, ensuring that social, economic and environmental benefits are maximised and that projects are fair, just and legal. At present, China's urban government is transforming itself into a modernised form of governance, and in the process of community regeneration, it has gradually changed its dominant position in the past and its over-encompassment of matters, gradually transferring to the market or to social organisations those responsibilities that should not be assumed by the government, while the government's function is more one of

service, guidance and supervision. The recommendations for implementation at the government level in the process of community regeneration from the sharing perspective are as follows(Table4-4):

Table 4-4 Government's role in community regeneration from the sharing perspective

Role of the Government	Main Contents
Provide policy support	Improve the policies and measures for providing financial, human resources, technical and information support for community regeneration, and guide more social forces to participate in community regeneration
Coordinate departments at all levels	Coordinate various departments involved in community regeneration, such as development and reform, natural resources and planning, housing, home affairs, greening, etc., to co-operate in resolving community regeneration issues
Purchase of social services	Handing over the operation of regeneration projects to professional social groups and organisations to enhance service quality, improve the governance of community regeneration and safeguard the diversified needs of residents
Integrate resources	Take advantage of the Government's comprehensive information platform to optimise the allocation and utilisation of public resources and maximise the benefits of public resources
Provide land support	Sorting out unused spatial resources in the community and providing services in terms of land and spatial functions, change of tenure, etc.

Source: Completed by author

② Resident level

According to the above, while enjoying the right to the city, residents should also bear the corresponding responsibility and obligation to build. Therefore, community regeneration based on the concept of sharing should not only involve residents in the decision-making phase of the space, but also guide them to participate in the design, construction and management of the space. Sharing of space is better realised when residents change their status from simple users of space to decision makers, builders and managers of space. At present, in the process of community regeneration in China, the role of the government is gradually weakening, the third-party power is gradually strengthening, while the power of the residents still has more potential for development and enhancement. Therefore, it is necessary to make full use of sociology, management and big data to improve the organisational level of

residents' participation, enrich the forms of residents' participation, expand the scope of residents' participation and strengthen the depth of residents' participation, so as to guide residents' participation in all stages of community regeneration.

Table 4-5 Forms of resident participation at various stages of community regeneration from the sharing perspective

Regeneration phase	Content	Forms of resident participation
Before regeneration	Project formation	Letters and visits, telephone or Internet applications, reflections by deputies to the National People's Congress, etc.
	Pre-investigation	Questionnaires, interviews, symposiums, etc.
	Programme design	Co-Creation Workshop, Live & Online Voting, Hearings, Design Consultation, etc.
In the process of regeneration	Space construction	Guide residents to participate in the interaction of space construction, such as painted walls, space decoration, plant space creation, etc.
	Construction supervision	On-site supervision by resident representatives
After regeneration	Operations and management	Raise residents' awareness of self-management, and provide a platform for residents to participate in space management by using WeChat groups, public numbers, APPs and other online spaces.
	Organisation of activities	Foster diversified associations to enhance residents' capacity for self-organisation of community activities
	Feedback of comments	Feedback counselling sessions, satisfaction surveys, etc.

Source: Completed by author

③ Third-party level

Third-party teams refer to social groups, civil society organisations, universities, design institutes and other non-governmental organisations (NGOs) with professional expertise and social welfare attributes, and serve as an important bridge of communication between the government and residents. And China's third-party teams are booming, the types of teams continue to be enriched, the members' academic background, professional skills, dedication and other service levels continue to improve, and the enthusiasm to participate in social

governance continues to rise, becoming a useful support condition for participation in community regeneration. According to the case analysis in the previous section (Chapter 3), third-party teams play an irreplaceable role in the design of space, planning of activities, venue services, operation and management of community regeneration projects, and it is easier for third-party organisations to stay close to the daily lives of residents and build up a good foundation of trust and communication. In Beijing Digua Community, the Diagua Team was not only involved in the design of the space, but also hosted or participated in the planning, management and operation of the project at a later stage, reflecting the increasing demand for the integrated services of the third-party team.

Table 4-6   Third-party's role in community regeneration from the sharing perspective

Role of the Third-party team	Team Type	Main contenrs
Space design	Community planners; planning, architectural, landscape, environmental, municipal and other design organisations; universities, etc.	Incorporate the diverse needs of residents into the space and organise their participation in the selection of proposals
Communication and coordination	Community-rooted civil society organisations, social groups, etc.	Extensively collect residents' views and pass them on to the Government; pass on information on government policies to residents
Activity organisation	Professional organisations, education and training organisations, arts teams, event planning companies, etc.	Organise community neighbourhood festivals, art exhibitions, professional talks, workshops, cultural and recreational activities, etc.
Place services	Volunteer service teams; public service organisations, etc.	Site hygiene, counselling and guidance, tenure management or reservation registration, etc;
Operation and management	Specialised operations team or organisation	Maintaining a relative balance between the project's income and expenditure. Guarantee long-term operation

Source: Completed by author

④   Establish community sharing cyberspace

Community Sharing Cyberspace refers to an online platform that uses Internet technology to provide diverse services, share life and resources for community residents in a specific area.

The difference between a community sharing cyberspace and the regeneration of other community spaces is that the creation of a virtual space serves the lives of residents in the real space. In community regeneration, residents within the regional scope of the district, block and community levels can all become the service subjects of cyberspace, and through cooperation between the Government and Internet companies, a cyberspace with interesting and beautiful interface design, easy and convenient operation, varied service content and information security can be created for shared use. In addition, it is necessary to strengthen the interactive links between cyberspace and offline space in the community, based on the advantages of the Internet, to break the time and space limitations of offline space, expand the radiation group of offline space, and enable residents to activate and use offline space in a more equitable, efficient and orderly manner.

Many communities in China have created a sharing cyberspace serving community life through WeChat groups, WeChat public accounts, APPs, community forums, and other forms to realise online and offline interactions in community life, providing support for community residents to do things online, enquire about community information, and share unused goods and skills services, and promoting the gradual cohesion of community emotions.

4.2 Detailed space creation strategy

4.2.1 Objectives, connotations and types of community sharing space creation

(1) Objectives of sharing space creation

The objectives of creating community sharing space is to enhance the quality of community space through the regeneration and reuse of community space, improve the efficiency of community resources and promote the establishment of a solid neighbourhood relationship in the community.

(2) Connotations of sharing space creation

According to the previous research on sharing space and the spatial problems existing in the current community construction, the essential connotation of community sharing space

creation should be embodied in the following aspects:

① Community sharing space pays more attention to the differences of residents, and meets the needs of multiple groups of people, such as children, youth, middle-aged and elderly people, as well as the needs of multiple time periods of use through a variety of means.

② The way to create sharing space is a bottom-up model with the participation of the government, residents, social forces and other parties, in which residents are important space builders and resource providers.

③ Similar to the sharing economy model, the right to use a sharing space can be distributed on demand through some kind of intermediary platform, or the resources hosted by the space can be shared among residents.

④ Community sharing space and community online platforms form a good interaction, linking a wider range of community resources through online platforms, breaking the time and space limitations of space use, and allowing more residents to have access to the space.

⑤ The function of the community sharing space is more flexible, accommodating a wealth of community activities and further enhancing the place appeal of the space through the creation of activities, providing a carrier for residents to share their lives.

(3) Types of sharing space

According to the previous research, community stock space is the carrier of sharing space, and the regeneration design needs to be orientated to sharing activities, different types of stock space and combinations of sharing activities will produce different operation models of sharing space. According to the operation mode, sharing spaces are classified into living interaction-type sharing space, resource exchange -type sharing Space, co-construction and participation-type sharing space, and facility service-type sharing space, and in order to better illustrate the creation strategies, this section introduces the different types of community sharing spaces separately.

4.2.2 Strategies for creating living interaction-type sharing space

(1) Overview

Living interaction-type sharing space mainly serve the exchanges and gatherings, cultural and recreational activities of diverse residents in the community, and are the spatial embodiment of the concept of equality, inclusiveness and openness of the concept of "sharing". Typical example is the community shared living room, which play an active role in bringing together community emotions. The community is a large family of residents, and should need a "living room" similar to the layout of the home for residents to communicate and meet guests, and the creation of the living interaction-type sharing spaces is an effective form of space to solve the problem of insufficient functional facilities for interaction in the community.

(2) Creation strategies

The main objective of the living interaction-type sharing space is to provide interaction and activity space for people of all ages in the community, to meet the needs of diversified individuals, and to enhance the humanistic care of the community(Figure 4-5).
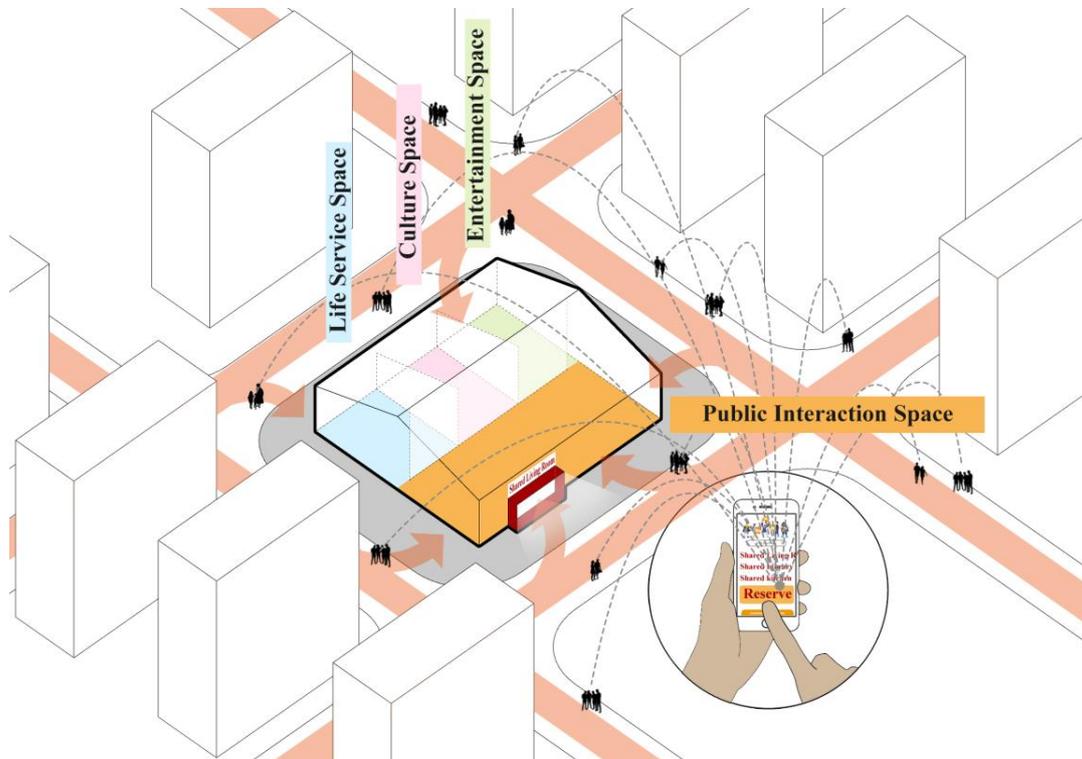
Figure 4-3 Living interaction-type sharing space

Source：Completed by author

① In terms of stock activation, unused office buildings, storage buildings, basements and other stock spaces in the community should be actively regenerated and transformed.

② In terms of spatial creation, living interaction-type sharing space can reflect the characteristics of inclusiveness and openness through the accessibility of the planning layout, the permeability of the building facade and the signage of the entrance, for example, the Beijing Digua Community and the Chengdu Digua Community have designed a unique signage entrance space (Figure 4-4). Functional settings should also fully reflect the demographic characteristics, cultural features and living habits of the community to which it belongs, such as the shared living room of the White Pagoda Temple in Beijing, which creates a space for interaction with historical memories through the display of old objects (Figures 4-5).

Figure 4-4 Entrance design of living interaction sharing space

Source: https://weibo.com/Diguashequ

Figure 4-5   Interior decoration of shared living room in Baita Temple

Source：https://www.thepaper.cn/newsDetail_forward_5118492

The main function should be to highlight "public interaction", which can be supplemented by cultural, recreational and life service functions(Table4-7). For example, the shared living room in Shanghai's Shouchangfang community combines a living space with a shared kitchen, a small clinic, a shared reading room, an activity room and a gym and so on (Figure 4-6).

Table 4-7 The main functions of living interaction-type sharing space

Type of function	Function Introduction
Pulic interaction	Diverse forms of leisure facilities such as tables and chairs, tea seats, sofas, etc
Life sercice	Stores, kitchens, restaurants, elderly care services, health services, express delivery services, etc
Culture	Community cultural display, shared bookstore, cultural classroom, printing, etc
Entertainment	Cinemas, children's toy houses, etc
Hardware facilities	WiFi, drinking water, leisure food, vending machine, self-service recharge payment machine, intelligent juice extractor, intelligent coffee machine, Public toilet, etc

Source: Completed by author
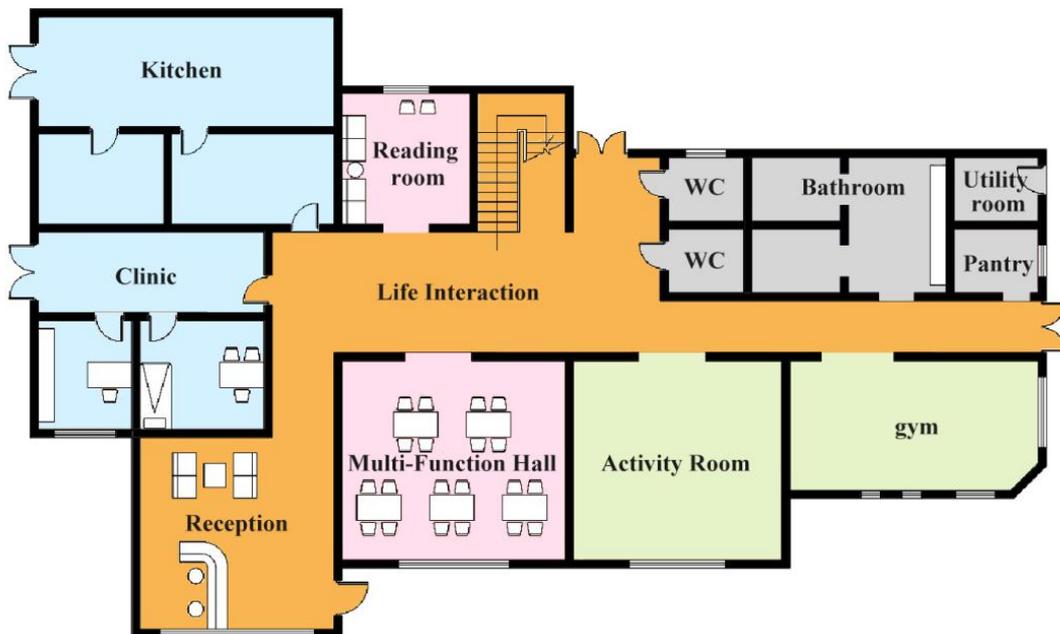
Figure 4-6 Floor plan of shared living room in Shanghai Shouchangfang Community

Source: Completed by author

③ In terms of the sharing mechanism, the living interaction-type sharing space should not only meet the daily interaction and living needs of community residents, but also provide services for residents' "private ordering", improve the flexibility of the space, and reserve the

right to use the space through the online platform or on-site booking, so that the right to use the space can be shared in a staggered manner and more residents can enjoy the space services. In addition, in order to achieve healthy and sustainable services for residents of the space and to develop a reasonable operation plan or profit model, third-party team should be actively introduced to participate in the operation and management of the living and interaction-type sharing space.

4.2.3 Strategies for creating resource exchange-type sharing space

(1) Overview

Resource exchange-type sharing space is a public welfare space that provides a centralised platform for community residents to share unused materials, living goods and knowledge and skills, and is the spatial embodiment of the concept of resource sharing. By sharing resources among residents, it guides residents to help each other, creates a community sharing ecosystem and an intensive lifestyle, promotes the optimal allocation of community resources, meets the needs of residents in their daily lives, improves neighbourhood relations and increases mutual trust among residents. The emergence and development of the sharing economy has prompted the society to change the traditional view of property rights, gradually reducing the attention to the ownership of resources and advocating a lifestyle oriented to the right to use resources. The community resource sharing space is the spatial embodiment of the concept of property right in the period of sharing civilisation, which reduces the cost of residents' access to "ownership" and provides support for residents to obtain more "use right", and through the sharing of "use right", it makes resources more accessible to residents. Through the sharing of the "right to use", the utilisation of resources can be maximised.

(2) Creation strategies

The main objective of the resource exchange-type sharing space is to achieve the exchange of material living resources and knowledge and skill resources of community residents, and to fully integrate and make use of various types of community resources through the transfer of the right to use them(Figure4-7).
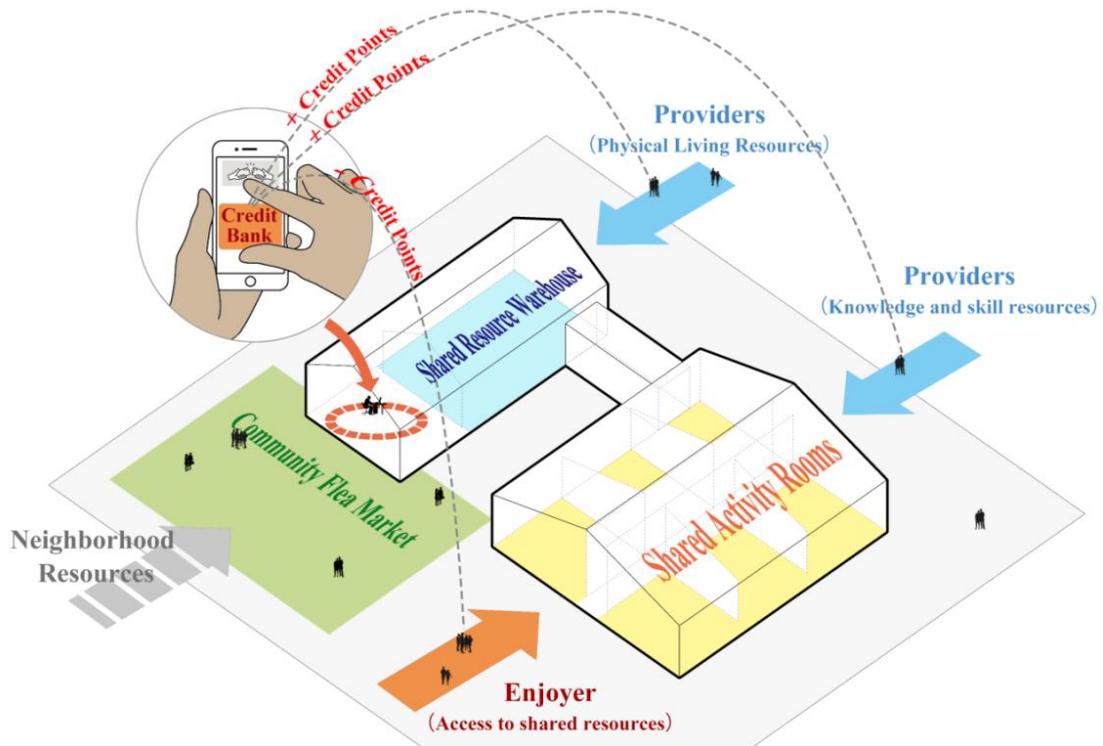
Figure 4-7 Resource exchange-type sharing space

Source: Completed by author

① In terms of stock activation, first of all, the location of resource-sharing spaces should be rationally selected in accordance with the current state of community space.Unused small houses in the community or small rooms in public buildings can be upgraded or implanted in the form of small-scale facilities in the community's public space.

② In terms of space creation, the resource exchange-type sharing space to display residents' unused items, skills information and public welfare activities, etc.. Its main functions should include shared material storage space and shared activity space, and can be supplemented with rest facilities and interaction space (Table4-8).

Table 4-8　The main functions of resource exchange-type sharing space

Resource Type	Example
Physical living resources	Idle household items such as books, maintenance tools, toys, furniture, medical equipment, etc
Knowledge and skills resource	Household appliance repairmen, textile workers, teachers, doctors, engineers, and other resident skill information
Activity	Mainly focusing on public welfare activities such as free clinics, free scissors, and donations

Source: Completed by author

③　In terms of the sharing mechanism, the concept of time banking has been introduced, i.e., residents can donate material living resources or knowledge and skills resources to gain community credits, and the accumulated credits can be used in different sharing spaces to participate in different resource-sharing activities. For example, the "Shared Toy House" in Beijing Digua community allows residents to donate unused toys from their homes to a shared toy warehouse, and parents who earn credit points can bring their children into the toy house to enjoy other recreational facilities (Figure 4-8). In the "Shared Classroom", residents can carry out training activities according to their own skills, and residents can be either teachers or students. The "teachers" earn credits or a certain amount of revenue by imparting knowledge and skills, while the "students" can acquire knowledge and skills at a price lower than that of the relevant institutions in the market(Figure4-8)

Figure 4-8 Shared Toy House and Shared Classroom in Beijing Digua Community

Source: https://weibo.com/Diguashequ

4.2.4 Strategies for creating co-construction and participation-type sharing space

(1) Overview

co-construction and participation-type sharing space is spatial type in which residents have the ability to directly participate in construction and management through their own knowledge and skills, and are the spatial embodiment of co-construction and participation in the connotation of "sharing". The typical representative of this is the community sharing green

space. From the perspective of the residents, as residents of different ages and statuses have the ability to participate in greening and planting, through the construction of the community sharing green space, the diversified residents can enjoy the green space in a fair manner, and the elderly people have a platform to spend their leisure time and show their horticultural ability. Children can have a better understanding of nature and cultivate their awareness of nature and environmental protection. Families in the community can also enhance their sense of well-being through group activities. Migrants can better integrate into the community environment and enhance their sense of belonging. And residents can also promote exchanges with each other by learning from each other's horticulture. From a community perspective, it not only reduces the cost of managing green space, but also stimulates the vitality of green space in the community. In addition,co-construction and participation-type sharing space need to simplify the way residents participate and tap into community members and enthusiasts who are able to participate directly in community construction activities through the use of skills such as painting and model building, and so on.

(2) Creation strategies

The main objective of co-construction and participation-type sharing space is to realise that residents of different ages and identities in the community can give full play to their own values and actively participate in the beautification and construction of the community. （Figure4-9）。
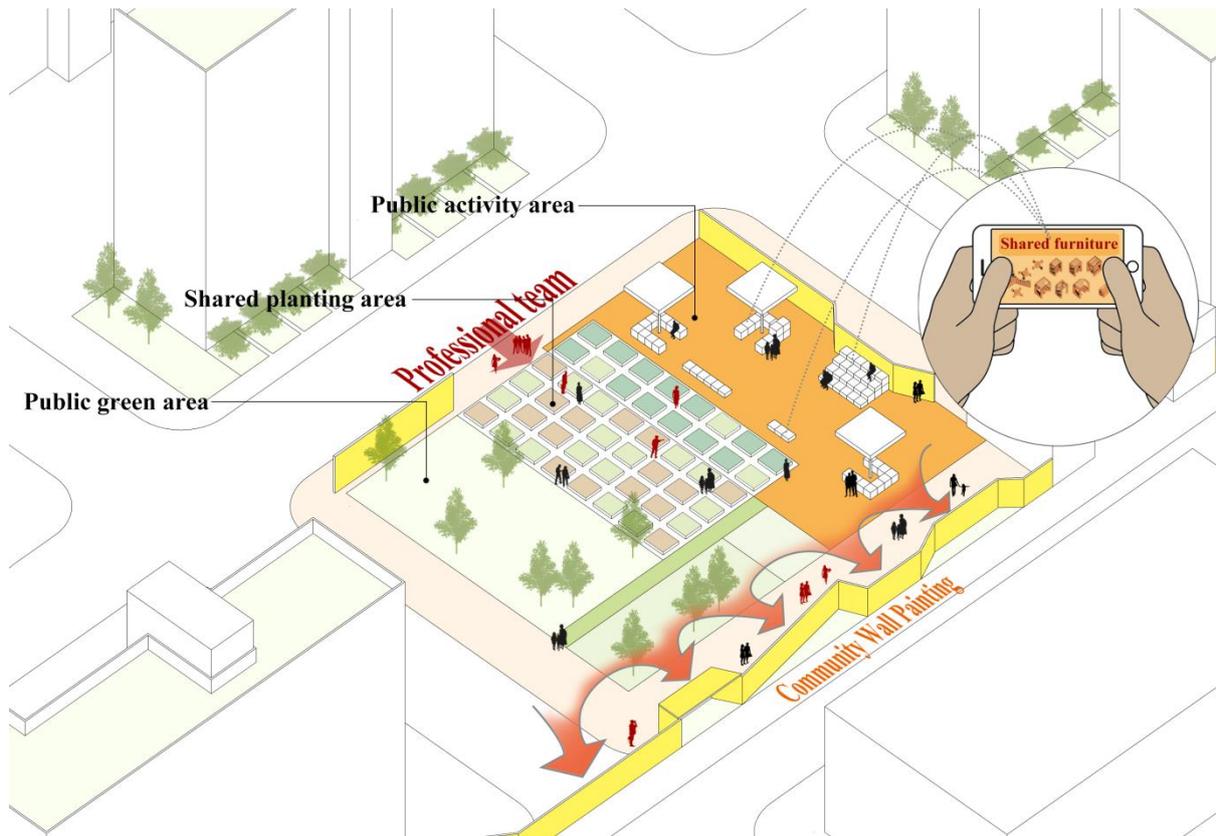
Figure 4-9 Co-construction and participation-type sharing space

Source: Completed by author

① In terms of stock activation, the main purpose is to actively utilise various green spaces in the community, including the corner spaces of buildings, unused small and micro-open spaces, deserted green spaces or green spaces with poor environmental quality, in addition to the roofs of buildings and the boundary spaces of the community, etc., all of which can be regenerated as co-construction and participation-type sharing space.

② In terms of spatial creation, sharing green space is the main co-construction and participation-type sharing space. Small community sharing green space should highlight the function of public planting, and improve the ecological environment of the community with the help of residents' power. The large-scale community shared green space mainly includes public planting area, public activity area, public green space and other functions. Not only can flowers and plants be planted in the shared green space, but also vegetables and fruits can be planted when conditions permit, so that urban residents can enjoy the fun of farming, or the

flowers and plants in residents' own homes can be transplanted to the shared green space, fully mobilising the plant resources in residents' homes. In addition, co-construction and participation-type sharing space can be built together, and colourful community activities can be carried out, such as food festivals, picking festivals, plant rafting, border painting, and shared furniture creativity competitions (Table4-9). Through the activation of unused green space, Shanghai Chuangzhi Farming Garden triggers the active participation of the overall public in community creation (Figure4-10). For community boundary spaces, including walls and bulletin boards, they can be used as places for residents to draw, and are excellent places for children's recreation and parent-child interactions, such as the white wall at the entrance of the Xianxialai Community in Changning District, Shanghai, which was transformed through the participation of parents in the community together with their children (Figure4-11). In addition, residents' motivation to participate in community building can be enhanced by introducing assembled and modular shared furniture components to simplify participation, such as in the "South Park Green Cloud" Rooftop Co-Construction Garden project, where modular components were designed to invite young people in the community to build the activity and communication installations of their own choice, and to explore the possibilities of community space together (Figure 4-12).

Table 4-9 The main functions of co-construction and participation-type sharing space

Co-construct type	activities
Shared green grass	Vegetable and fruit cultivation, picking festival, food festival, plant science lectures, etc.
Shared boundaries	Wall painting, children's graffiti, promotional exhibitions, etc
Shared furniture	Construct together shared furniture such as tables and chairs, stage, lightbox, canopy, fitness facilities, etc

Source: Completed by author

1.Facility service area   2.Public activity area   3.Vegetable growing area

4.One-meter vegetable garden   5.Public planting area   6.Interactive gardening area
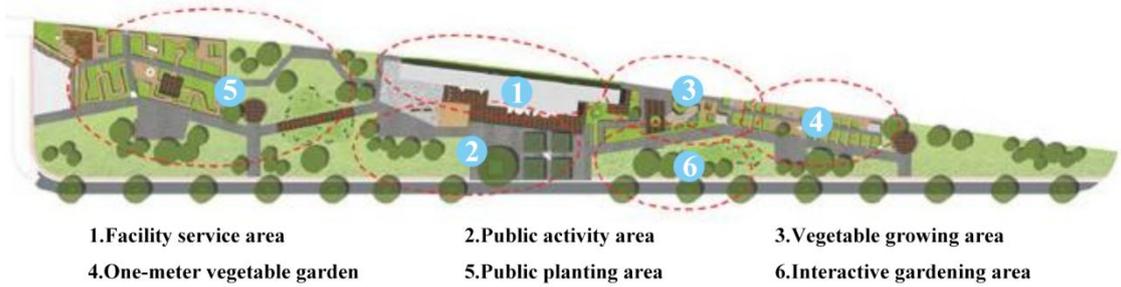
Figure 4-10 Plan of Shanghai Chuang Zhi Farm

Source: Completed by author

Figure 4-11 Community Wall Painting in Shanghai Changning Community

Source: https://m.weibo.cn/status/4652039983074024?sudaref=login.sina.com.cn

Figure 4-12 Modular Component of Shenzhen "South Park Green Cloud" Rooftop Garden

Source: https://www.archiposition.com/items/20220408104138

③ In terms of sharing mechanisms, the core of co-construction and participation-type sharing space is to encourage residents to participate in construction and management, and a variety of incentive mechanisms should be adopted to fully mobilise the enthusiasm of residents. In addition, professional enterprises and social organisations can be invited to guide the residents in their co-construction activities, so as to maintain the healthy order of the space. At the same time, with the support of virtual technology, residents can provide creative ideas and programmes for community building through simulated construction.

4.2.5 Strategies for creating facility service-type sharing space

(1) Overview

Facility service-type sharing space includes sharing living service facilities and sharing public service facilities. Sharing living facilities is one of the typical features of co-housing community, in which living facilities used by residents in their daily life are centrally located in public spaces or public buildings, such as shared laundry rooms, shared gyms, shared handicrafts workshops, shared photography studios, shared music studios, and so on. Through the sharing of living facilities, firstly, the cost of living of residents as well as the energy consumption of the community can be reduced, and secondly, the opportunities for residents to meet each other will be increased, thus creating better conditions for neighbourhood exchanges. Sharing public service facilities refers to the unused parking spaces, multi-purpose halls, activity rooms, sports venues, toilets and other spatial resources of public service facilities such as institutions, schools, cultural and sports venues and public welfare organisations within or around the community, which are opened and shared on a "staggered" basis, combining them with the daily needs of the residents, so as to enable the residents to better enjoy the convenience of urban life. Firstly, it can improve the efficiency of space utilisation and give full play to the maximum benefits of space. Secondly, it can increase the supply of public service facilities for the residents and meet their growing demand for public service facilities.

(2) Creation strategies

The main goal of facility service-type sharing space is to bring the lack of activity and living space that exists in the community to a larger area in an integrated way (Figure4-13).
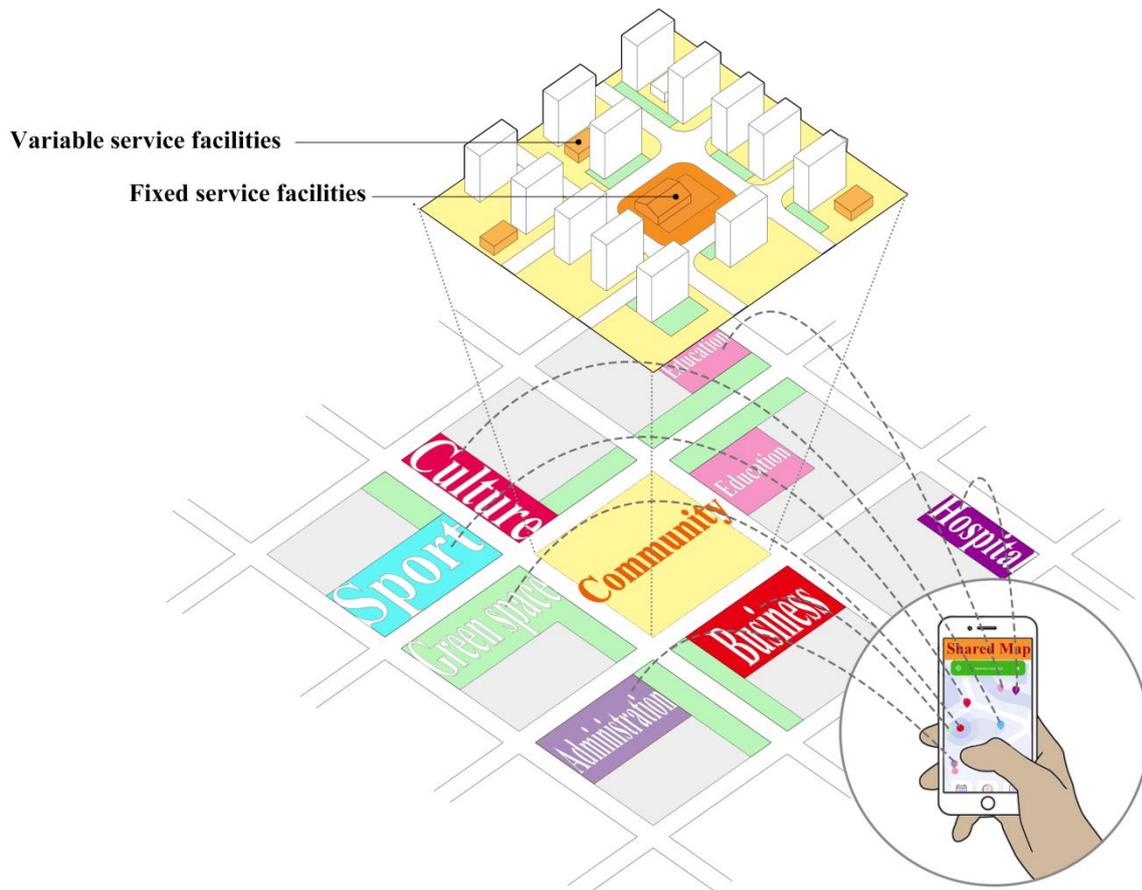
Figure 4-13 Facility service-type sharing space

Source: Completed by author

①　In terms of stock activation, first of all, it is necessary to make full use of the community's stock of space to supplement service facilities that are closely related to the lives of residents. Furthermore, since many public service facilities exist during "non-working" hours, resulting in a portion of the space resources being left unused, and since residents have a certain demand for such unused space, it is important to maximise the use of facility resources through the opening and sharing of public service facilities during non-working hours.(Table4-10)。

Table 4-10 Public service facilities that can be shared

Facility Type	Space that can be shared on a staggered basis
Educational facilities in schools	Sports halls, toilets, cultural classrooms, etc.
Office facilities in institutional units	Parking, canteen, offices, meeting rooms, function rooms, etc.
Cultural and exhibition facilities	Parking spaces, toilets, multi-purpose rooms, cultural spaces, etc.
Transport facilities	Parking, charging posts, etc.

Source: Completed by author

② In terms of spatial creation, it is mainly aimed at optimising and upgrading the environmental quality of the original service facilities in the community, and then, according to the needs of the residents, making full use of the community's stock of space and dispersing and placing in shared service facilities of different scales, so that the fixed public service facilities and the "mobile" multi-scale shared service scene can be combined with each other, and residents can enjoy all kinds of service facilities they need conveniently and quickly. The combination of fixed public service facilities and "mobile" multi-scale shared service scenarios will enable residents to enjoy the various service facilities they need conveniently and quickly. For example, the Eaton Community on Siping Road Street in Yangpu District, Shanghai, transformed a long unused slope site at the entrance of the community into a children's activity site. (Figure 4-14) The community regeneration of the new village of Yuancun placed fitness equipment on the corner plots along the streets of the buildings, making it easy for residents to reach and use them (Figure 4-15).

Figure 4-14 Children's Activity Space in Shanghai Eaton Community

Source: Completed by author

Figure 4-15 Fitness facilities in front of the house in the Yuancun Estate

Source: Completed by author

③   In terms of implementation and operation, for sharing service facilities, it is necessary to formulate a reasonable operation plan or profit model, so as to achieve the sustainable development of shared living facilities. For example, many cities in China have combined fitness equipment with intelligent systems to create shared fitness facilities. Shared fitness facilities can be scanned and paid for, saving fitness costs, and can also be used to record fitness plans and monitor physical status through APP, meeting the intelligent, diversified and convenient fitness needs of residents (Figure4-16). In addition, open-sharing plans should be reasonably determined in accordance with the needs of residents in the community and the types, sizes and hours of operation of neighbouring public facilities. Information technology such as "Internet+" should be actively used to record the type, scale, location, opening time and other detailed information of the shareable space within public service facilities into WeChat public number, mobile APP and other network platforms to create a network database of the sharing space, realise the orderly and informative management of the unused space, and further break the limitations on the use of space and time and space, so that residents can more easily and conveniently grasp the dynamic information of the unused space for residents' daily life.

Figure 4-16 Community Smart Fitness Facilities

Source: Completed by author

4.3 Charpter summary

The strategy systerm of old community regeneration from the sharing perspective should be divided into two levels: overall regeneration and detailed creation (Figure4-17).
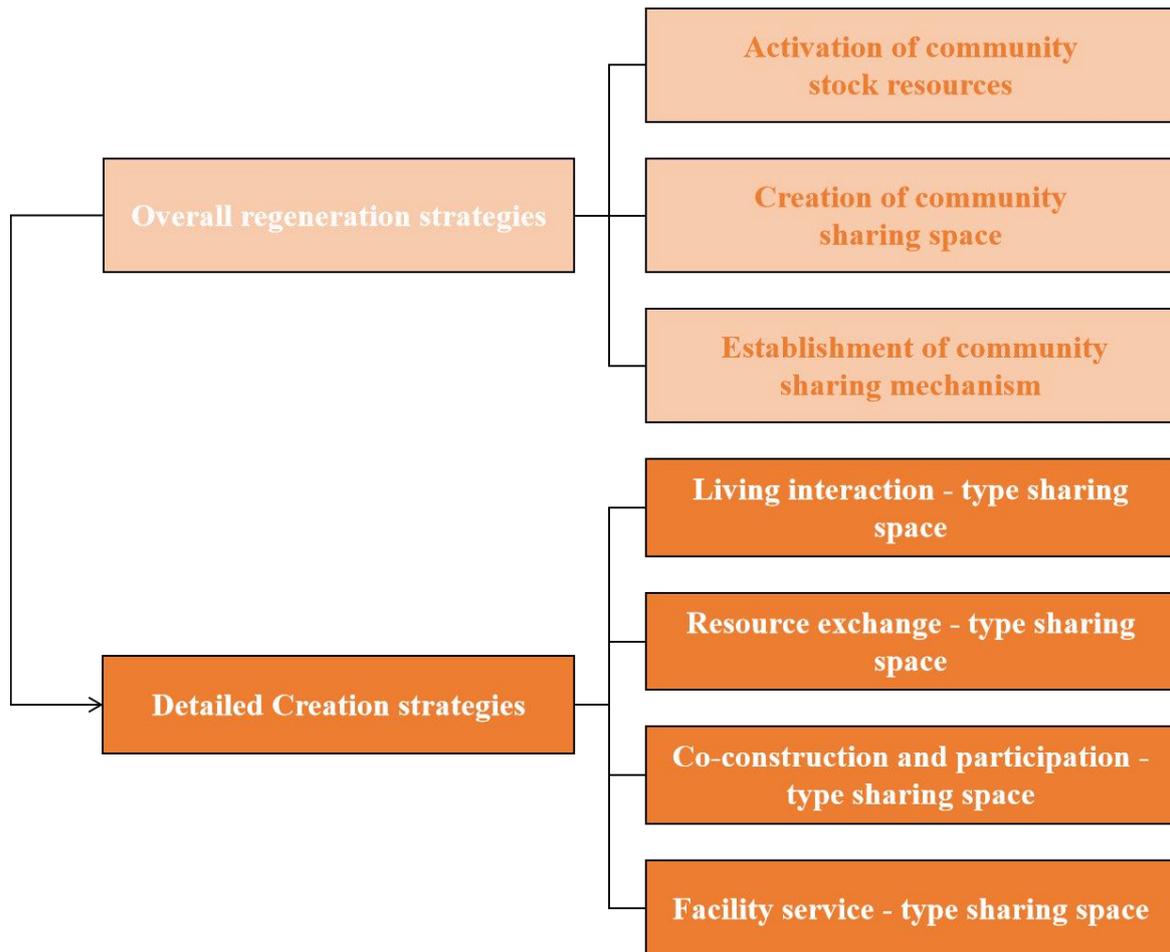
Figure 4-17 Regeneration strategies for old community from the sharing perspective

Source: Completed by author

（1） Through the case studies and theoretical research in the previous Tableer, the overall strategy of community regeneration from the sharing perspective involves the activation of stock resources, the creation of sharing spaces and the establishment of sharing mechanisms. At the stock activation level, the emphasis is on fully exploring different types of community stock space and using mature regeneration tools to activate them. At the sharing space creation level, the emphasis is on organising and planning community activities with the theme of sharing, and creating diversified sharing spaces oriented to activities. And at the sharing mechanism level, the emphasis is on creating a multi-party participation pattern including the government, residents, and third-party organisations, and making full use of technological advances to establish a community sharing cyberspace.

（2） The core of community regeneration is the creation of community sharing spaces. The creation of living interaction-type sharing space focuses on creating spaces for multiple residents to interact and exchange ideas. The creation of resource exchange sharing-type space focuses on providing a platform for residents to share unused resources. The creation of co-construction and participation-type sharing space focuses on highlighting the active participation of residents in the construction and management of community spaces. And the creation of facility service-type sharing space focuses on the use of a combination of fixed and decentralised facility layout patterns and the active use of time-sharing of public service facilities.

Chrapter 5 Regeneration strategies for Guangzhou Yuancun Siheng Road Community

Based on the previous research results, this chapter demonstrates how to carry out regeneration design in a specific community from the sharing perspective to further improve the practical significance. In this chapter, Guangzhou Yuancun Siheng Road Community is selected as the research object. Firstly, summarize the current situation and problems of the community, propose the applicability of connotation of sharing and then propose sharing regeneration strategies from two levels: overall regeneration and detailed creation.

5.1 Research on the current situation of the Yuancun Siheng Road Community

5.1.1 Overview of Yuancun Siheng Road Community

Yuancun Siheng Road Community is a typical old community, belonging to the Block of Yuancun, Tianhe District, Guangzhou City(Figure5-1), most of the buildings were built in the 1970s and 1980s, located in the northeast of the Yuancun Station of Guangzhou Metro Line5, occupying an area of about 8hm², with about 2,800 households and 7,000 permanent residents, of which the elderly account for one quarter. As a dormitory area of a former state-owned factory, the Siheng Road Community has been built for 40 to 50 years. In the planning layout of the Siheng Road Community, with the Tianhe District Qihui Primary School as the centre, around the distribution of the five residential compounds, compound buildings are arranged in rows and columns, and the spatial order is clear.

Siheng Road Community was awarded as the traditional style community of Guangzhou City in 2017, which has high historical and cultural value. In recent years, due to the lack of community support, old facilities, prominent safety hazards, and the absence of property management, the environment continues to decay, which has attracted extensive attention from all walks of society. Many experts and scholars have already conducted investigations

and studies on the Siheng Road Community from different perspectives, and have put forward ideas and suggestions for community regeneration at different levels.

The main research object of this chapter is the stock space within the five residential compound of Siheng Road Community. By combing the relevant studies on the Siheng Road Community and combining with field surveys, selecte appropriate community stock space, and propose overall regeneration and detailed design strategies.
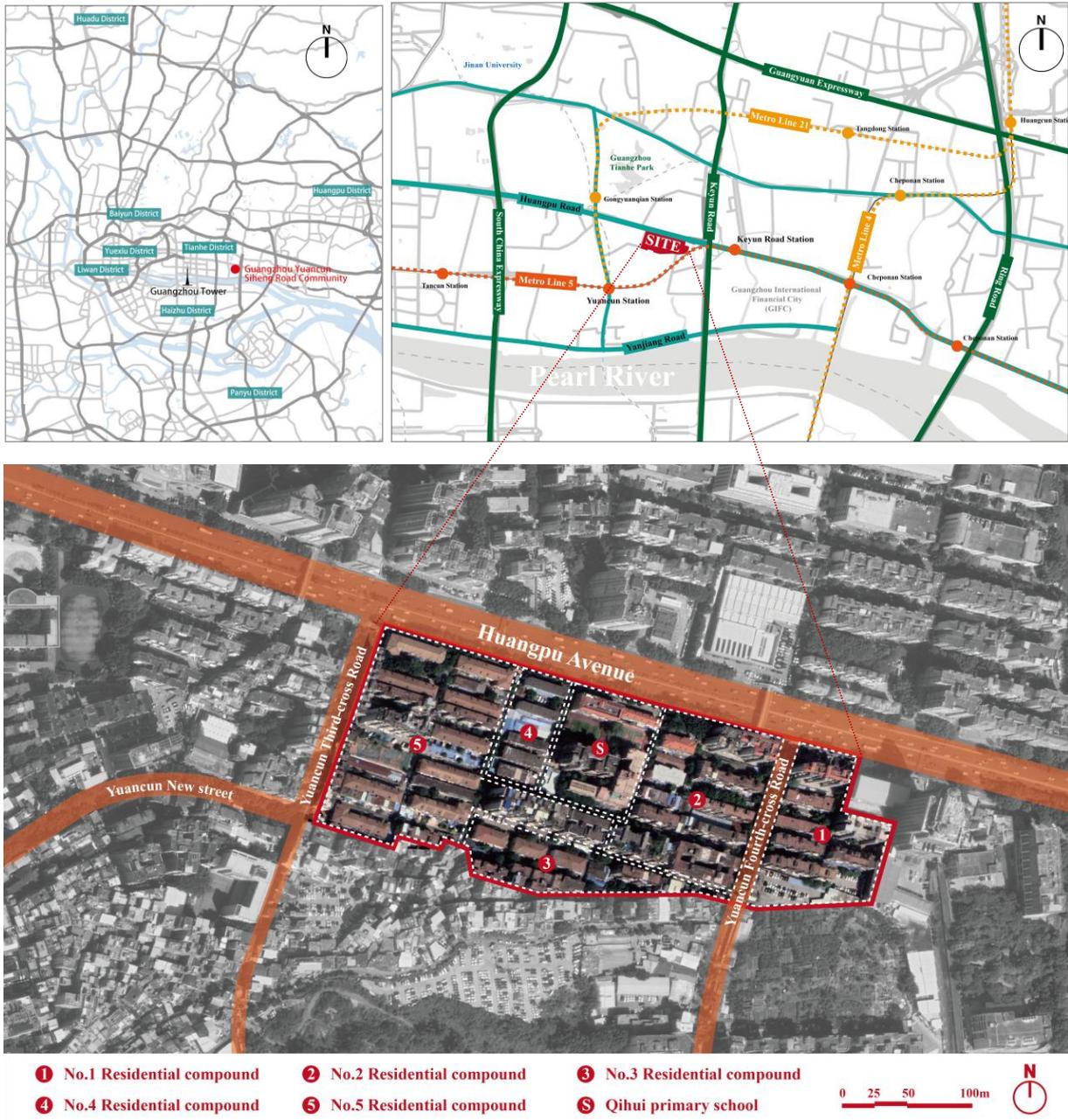
Figure 5-1 Location Map of Siheng Road Community

Source: Completed by author

5.1.2 Analysis of the current situation of Siheng Road Community

(1) Poor quality of the space environment

After nearly 50 years of erosion, Siheng Road Community has gradually become "old", with problems such as peeling walls and eaves, leaking roofs, lack of thermal insulation, old municipal wiring and pipelines, and poor environmental hygiene prevalent, which have become a major concern and worry for residents. The public space system of Siheng Road Community has been seriously damaged, for example, some clusters or green spaces in front of houses have been degraded and disappeared, or have been privately encircled by residents into small yards, with a more dirty and less orderly environment. Residents have erected temporary structures inside residential building clusters, which are not in harmony with the overall appearance of the neighbourhood, reducing the area of public space and posing a potential fire hazard. Due to the lack of consideration of parking space in the early stages of Siheng Road Community's construction, this has led to the current problem of difficult and chaotic parking, with on-street parking and parking within clusters being more prevalent, which has a detrimental impact on pedestrians and community life.

(2) Disintegration of traditional neighbourhood relations of community

Many residents of Siheng Road Community have been living there for a long time since the early days of its construction, and have developed stable social relationships with the surrounding neighbourhood. However, due to the continuous erosion of the building structure, the increasing inability of the size of the household to satisfy the demand for housing, and the continuous deterioration of the community's environment, many of the original residents, especially the young population, have moved out, and the problem of aging in the community has become more serious gradually. At the same time, the influx of new tenants into the neighbourhood has shaken the previously stable and harmonious humanistic ecology of the community. Some scholars have estimated the population of Siheng Road Community, and the proportion of mobile population in the community in 2022 has reached about 40 %, and the heterogeneous characteristics of the population have become very obvious. In addition, the proportion of resident elderly people in 2023 will have reached about 25 %, and the

population will be highly ageing.

Based on the above analysis of demographic data, in the practice of community regeneration. Firstly, new spatial forms and communication mechanisms should be created to promote the integration of original residents and new tenants, and to enhance the sense of community belonging of new tenants. Secondly, attention to the elderly population should be increased to meet the spatial needs of their activities and create a favourable atmosphere for mutual care. Then, more functions should be implanted in the community to increase the attractiveness to the young population, so that Siheng Road Community not only has a deep historical heritage, but also has the vigour and vitality of the new era.

(3) Inefficient use of community resources

At the level of spatial resources, Siheng Road Community has a large number of stock spaces such as abandoned vacant land, unused buildings, residents' privately-built houses, temporary structures, etc., and the efficiency and quality of space utilisation is relatively low. From the perspective of urban development, Siheng Road Community is located in the core area of Guangzhou, which has higher requirements for space utilisation, therefore, in the regeneration practice of Siheng Road Community, these stock spaces should be activated, space utilisation rate should be improved, and the stock spaces should be used to give greater value.

At the level of material living resources, many residents pile up their own unused items in the green space in front of their homes, which not only results in a waste of resources but also affects the public interest. But from another perspective, unused items may be a necessity for other residents, and the resources of unused items in residents' homes should be actively mobilised for the benefit of the community and to create a shared, green way of life.

At the level of knowledge and skill resources, there is currently no atmosphere of knowledge and skill sharing among residents within the community, but through the research and analysis, it was learnt that the overall quality of Siheng Road Community is relatively high, and if the residents can be actively guided to serve the community, it will reduce the management cost of the community, facilitate the daily life of the residents, enrich the types of activities in the

community, and enrich the spiritual life of the residents.

5.1.3 Analysis of the feasibility of "sharing" for regeneration

(1) Existence of a large stock resources

Community regeneration from the sharing perspective is mainly characterised by stock space regeneration, and through the previous survey, Siheng Road Community has a large number of stock spaces that are not actively utilised, such as private buildings, dilapidated and abandoned spaces, which provide a rich space for the application of the concept of "sharing" source. In addition, the phenomenon of residents piling up debris and other unused materials is relatively serious, which also provides a material basis for the use of "sharing".

(2) Complexity of property rights

Community regeneration involves some residents' property rights. Siheng Road Community is a compound-type community, which was built a long time ago, and the property rights have been changing with the development of the times and the migration of residents, and the property rights of many private and public lands have become more complicated and controversial. However, in the era of sharing civilisation, society places more emphasis on the right to use rather than ownership. Therefore, the concept of "sharing" will reduce the difficulty of regeneration due to the complexity of property rights.

(3) Decline of space and human ecology

Siheng Road Community is a typical old community with typical problems of spatial and human decay, and the goal of community regeneration from the sharing perspective is to revitalise the community space and revive the neighbourhood. Therefore, according to the previous theories and case studies, Siheng Road Community has a good coupling relationship with the objectives of the "sharing" concept.

(4) Stronger regeneration capacity of the residents

The focus of community regeneration from the sharing perspective is to guide the residents to participate in the construction. The private enclosure of the green space in front of Siheng Road Community proves from another angle that the residents have a strong ability to

self-organise the regeneration of the green space, which provides a good foundation for the application of the concept of "sharing" to the overall public.

(5) Broader call for regeneration

At present, the government, residents, social teams are highly concerned about the regeneration of Siheng Road Community, the block and community cadres visit the community, the National People's Congress (NPC) representatives have received the voters many times, to understand the collection of comprehensive transformation of the community's people's opinion, the NPC representatives have taken the initiative to propose their own funding for renovation and maintenance, in order to solve the residents of the diversified needs of life. At the same time, the residents of the community regeneration and transformation of the expectations of the growing, for the formation of the regeneration of the pattern of consensus building to provide a good guarantee.

5.2 Overall regeneration strategies for Siheng Road Community

The overall regeneration strategies for Siheng Road Community includes the activation of community stock resources, the creation of community sharing space and the establishment of community sharing mechanism, solving problems in the community and residents' lives from a sharing perspective, and creating a system of community sharing space.

5.2.1 Activate community stock resources

Community stock space refers to the abandoned, dilapidated, dirty and illegally built spaces in the community that are not utilised efficiently and of high quality, which overallly have adverse impacts on the community's appearance, functions, residents' lives and public interests, etc. The public space in Siheng Road Community has been gradually eroded, but from the perspective of future community regeneration, the eroded public space is in fact a kind of stock space.

Through the survey, the Siheng Road Community stock includes a variety of types including stock building space, stock green and square space, and stock public facilities (Figure5-2).

Residential buildings
Public buildings
Stock buildings
Parking area
Abandoned green spaces
Privately occupied green space
Better quality green space
Stock Service facilities

0 25 50 100M

N
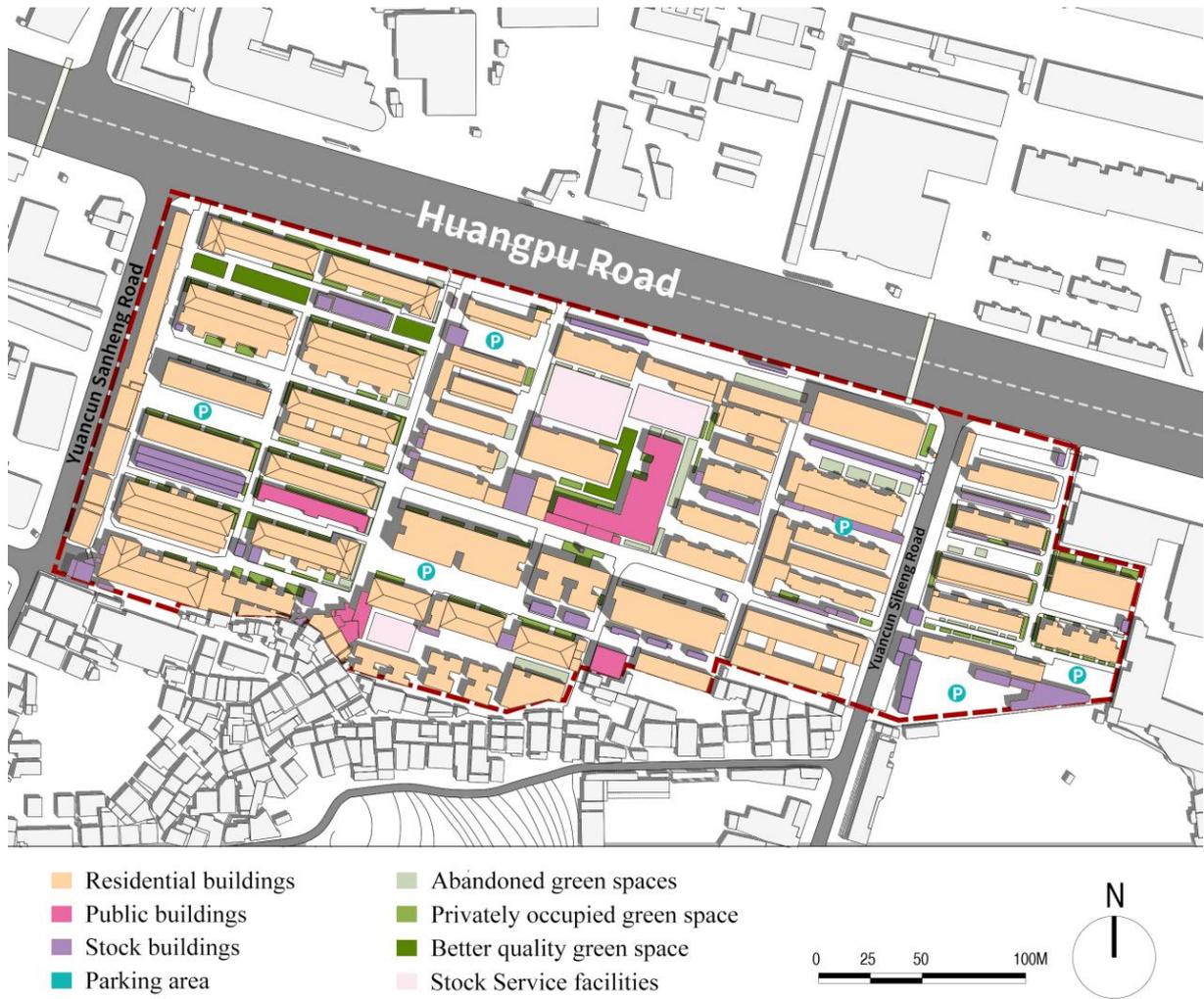
Figure 5-2 Distribution of stock space in Siheng Road Community

Source : Completed by author

Stock building space refers to unused buildings, privately-built residential buildings, under-utilised buildings, etc. that can be used for regeneration. With the further advancement of Guangzhou's population deconcentration as well as street and alley renovation, some of the population may be deconcentrated, which will lead to a number of buildings facing unused or demolition, and a large amount of stock building space will be released (Figure5-3). The stock of green space refers to the abandoned green space in the community or the green space in front of the house and the marginal land occupied by the residents, resulting in the overall poor quality of the community landscape, which needs to be renewed and guided (Figure5-4). Stock of public facilities refers to parking spaces, multi-functional halls, activity rooms, sports venues, toilets and other spatial resources of public service facilities such as institutions,

schools, cultural and sports venues, and public welfare organisations inside and outside the community that have been left unused for a period of time, which should be opened and shared in a staggered manner, and combined with the daily needs of the residents, so as to enable the residents to better enjoy the convenience of urban life (Figure5-5).

Figure 5-3 Stock building space in Siheng Road Community

Source : Completed by author

Figure 5-4 Stock green and square space Siheng Road Community

Source : Completed by author

Figure 5-5 Stock public facilities in Siheng Road Community

Source : Completed by author

In addition, in order to better understand the willingness of Siheng Road Community residents to share material resources and knowledge and skills, the author conducted a questionnaire survey on Siheng Road Community from April to June 2023 through field visits, which covered residents of different ages and statuses as far as possible (Figure5-6) to cover a diversity of perceptions. A total of 220 questionnaires were distributed and 205 questionnaires were returned, with a recovery rate of 93.18%.

a) Sex Ratio

b) Age structure

c) Career structure
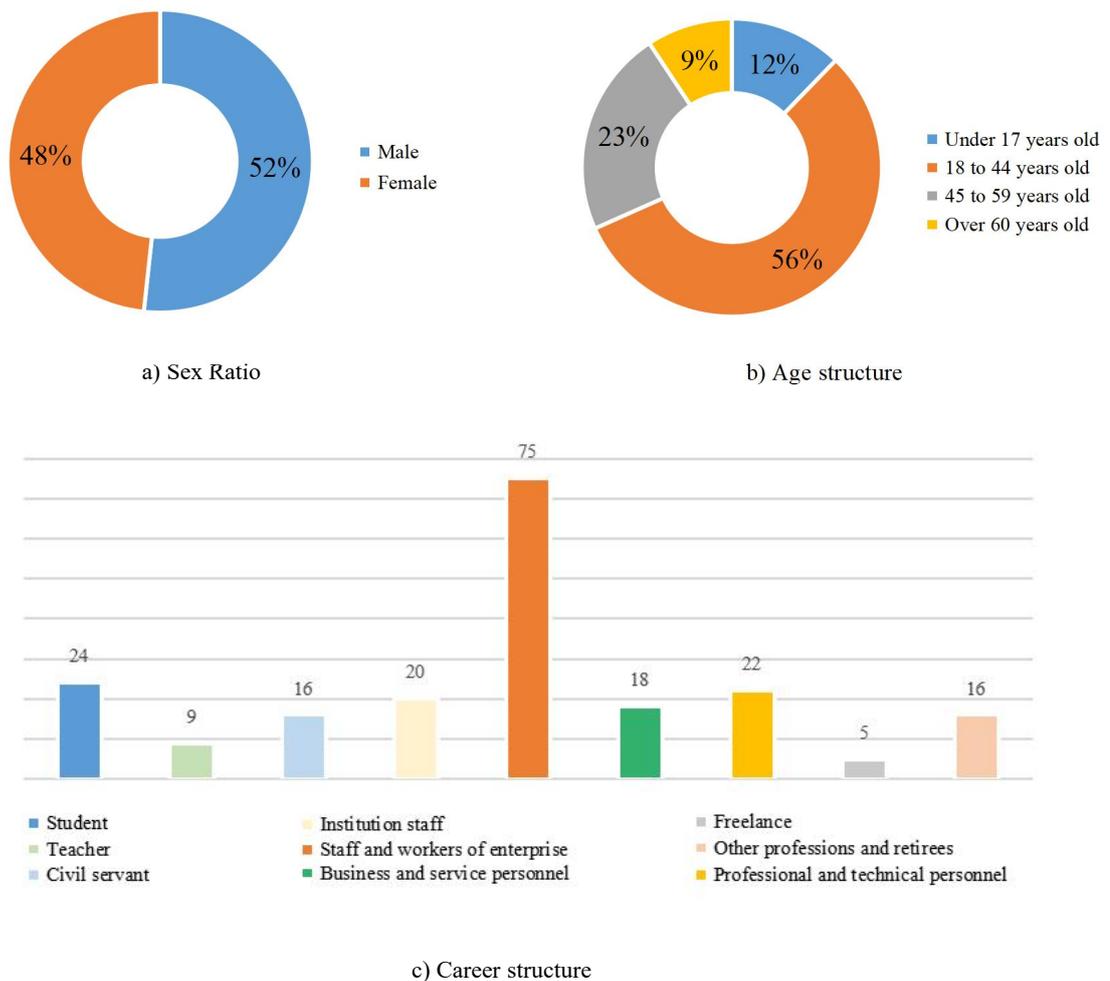
Figure 5-6 Basic information of respondents

Source: Completed by author

According to the questionnaire survey (Figure5-7), the respondents have a large number and types of unused items at home, and they are more willing to share their unused items with other residents. However, the field study found that there is a lack of resource sharing in Siheng Road Community, which leads to a lack of places for unused items to go. At the same

time, 92% of the respondents hoped that Siheng Road Community could build a sharing space for resource exchange to solve the problem of unused resources in the community.
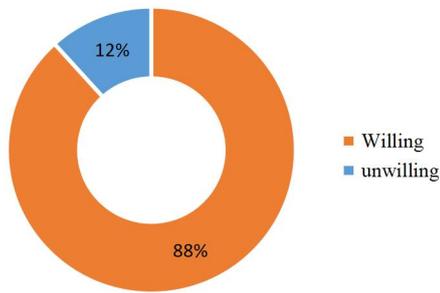
a) Willingness to share living resources
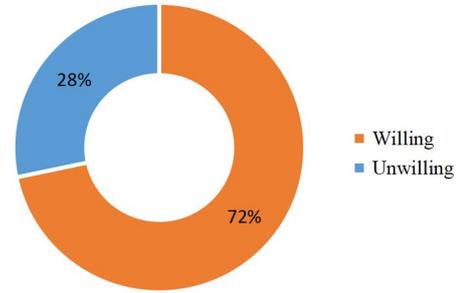
b) Willingness to share knowledge and skills
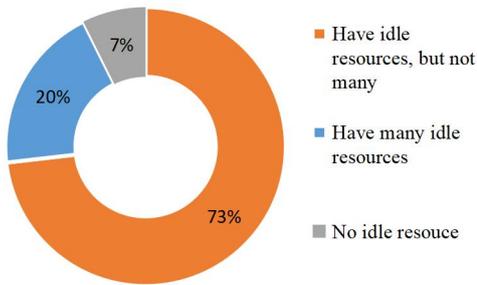
c) Number of idle resources at home
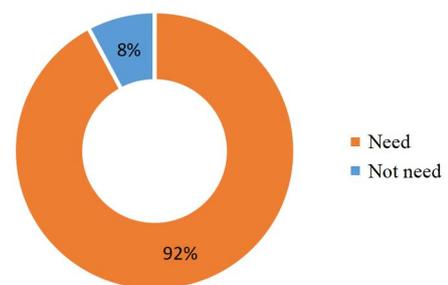
d) Need for resource sharing space
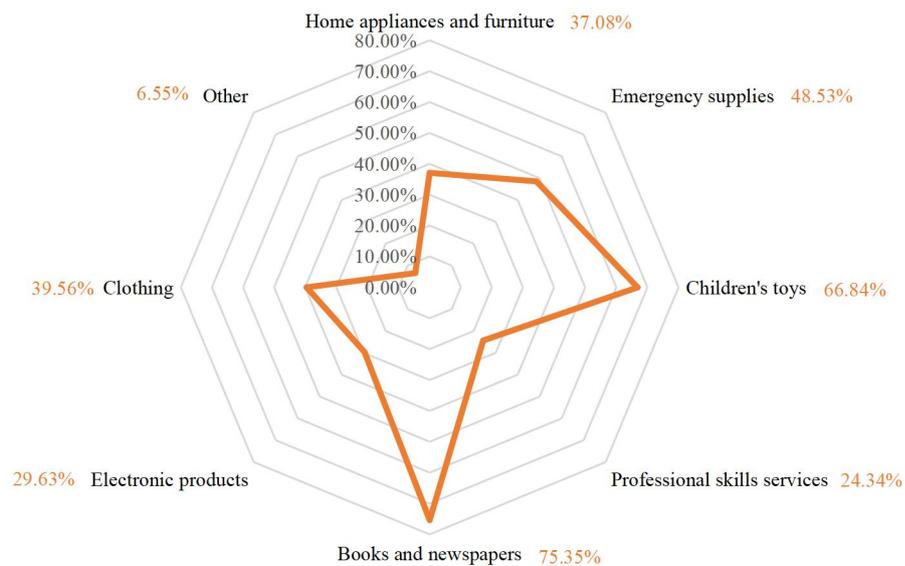
e) Types of idle resources in the home

Figure 5-7 Questionnaire results on community sharing space

Source: Completed by author

5.2.2 Create community sharing spaces

On the basis of protecting the overall spatial structure of Siheng Road Community and repairing old buildings, the community's stock of buildings, stock of green space and unused public service facilities should be actively utilised, and private structures that seriously affect the public interest, fire safety, and environmental hygiene should be demolished, whereas spontaneous regeneration behaviours that reflect the optimistic attitudes of the residents should be adopted as the principle of "inclusion, prudence and regulation", so as to reasonably guide the residents of Siheng Road Community's unique enthusiasm for space regeneration and create diversified sharing spaces.

In addition, relying on the many types of sharing spaces in various Compounds in the community, community sharing activities are held on a regular basis to further stimulate community vitality. The types of activities should be based on the characteristics of the various sharing spaces, taking into account the needs of all-age residents' activities, and providing a centralised platform for promoting community interaction as well as resource sharing.

In order to better create a sharing space, the author collected the needs of Siheng Road Community residents for the function of the sharing space and sharing activities through field questionnaires and interviews and research, and combined with the actual situation of Siheng Road Community's stock of space. From the sharing perspective, respond to the residents' most urgent solution to the problem of community regeneration, and create suitable sharing spaces within different residential compounds(Table 5-1)(Figure5-8).

Table 5-1 Sharing spaces and activities in Siheng Road Community

Type of sharing space	Functions	Site	Type of activity
Living interaction-type sharing space	Shared Living Room	Compound No. 4	Dinner together, Community Cookery Festival, Community Cultural Salon, Community Exhibition Gallery, Literary Reading, etc.

Resource exchange-type sharing space	Resource Sharing House	Compound No. 5	Flea Markets, Skills Training, Public Service Activities, etc.
Co-construction and participation-type sharing space	Shared Pergola	Extension to the whole community with Compound No.5 as a demonstration site	Nature and Environmental Education, Plant Rafting, Tree Planting Festival, Planting Experience Festival, Horticultural Display, Parent-Child Colouring, Community Art Festival, etc.
	Shared Garden	Compound No. 2	
	Shared boundary space	Extension to the whole community with Compound No.2 and Compound No.1 as a demonstration site	
Facility service-type sharing space	Shared laundry room	Set up in a suitable location in each compound	Fitness for the Elderly, Fitness for Children, Community Fitness Classes, Shared Parking Spaces, Time-sharing Use of Public Facilities in and outside the Community, etc.
	Shared fitness facilities	Extension to the entire community with demonstration sites in Compounds No.1 and No.5	
	Shared parking space	Extension to the entire community with demonstration sites in Compounds No.2	
	Time-sharing for public institutions	Public facilities within and outside the community	

Source: Completed by author

①	Shared living room	⑤	Shared planter demonstration site
②	Resource sharing house	⑥	Shared fitness facilities
③	Shared garden	⑦	Shared intelligent fitness facilities
④	Shared painting wall	⑧	Shared parking arae
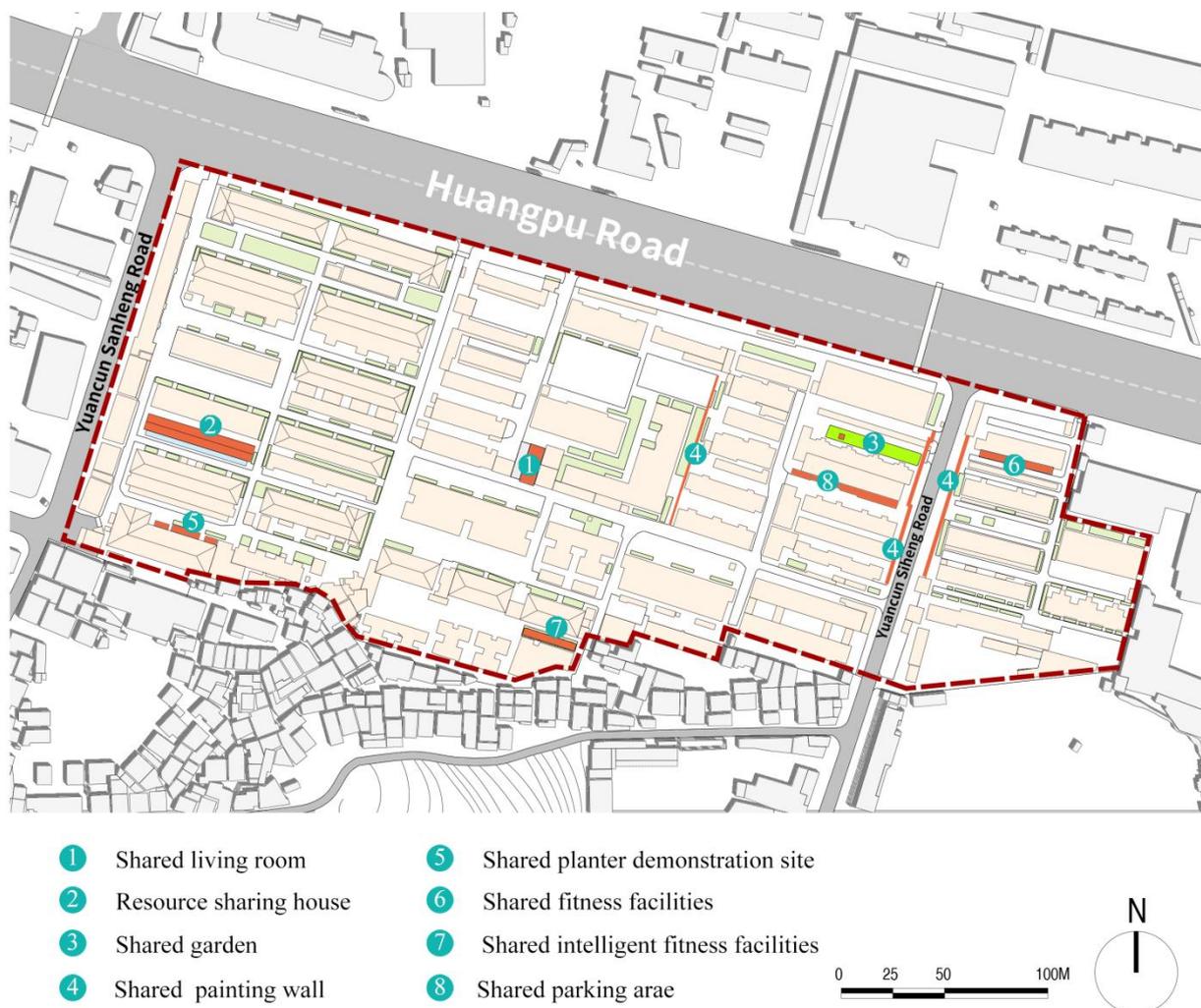
Figure 5-8 Demonstration site of Community sharing space

Source : Completed by author

5.2.3 Establish community sharing mechanisms

(1) Government level

Siheng Road Community Regeneration from the sharing perspective, the government should give full play to the role of support to lay a good foundation for the regeneration work:

① The residential property rights of the Siheng Road Community are complicated and require co-ordination at a high level of government to reach a broad consensus on regeneration.

② The history and culture carried by Siheng Road Community has a certain influence on the whole country. It is suggested that the People's Government of Guangzhou and Tianhe District

should issue relevant policies to guarantee the supply of funds, talents, technology, venues and other elements, integrate social resources, and guide more social forces to participate in the regeneration of Siheng Road Community.

③ Tianhe District Government coordinates a number of departments involved in the regeneration of Siheng Road Community, such as development and reform, natural resources and planning, housing and construction, civil affairs, greening and municipal affairs, to form a common working organisation.

④ By the Yuancun Subdistrict Office, through purchasing social services, the planning, design, construction and operation of the regeneration project are entrusted to a professional third-party team, so as to guarantee the quality of the regeneration project.

⑤ The Resident's Committee of the community in which Siheng Road Community is located will fully communicate with the residents to unify their ideological understanding and ensure the smooth flow of information between the Government and the residents.

(2) Resident level

In the regeneration of Siheng Road Community from the sharing perspective, residents should not only participate in the consultation and decision-making of the regeneration project, but also in the design, construction and operation phases of the community regeneration, and moreover, they should form a mechanism for residents to participate in the management of the community:

① Before regeneration

Based on interviews, symposiums and questionnaires to fully understand the needs of residents and the current situation of the issue, the residents will determine the specific spatial forms and functions of the community living interaction-type sharing spaces, resource exchange-type sharing spaces,co-construction and participation-type sharing spaces, and facility service-type sharing spaces.

② In the process of regeneration

Resource exchange-type sharing spaces and co-construction and participation-type sharing spaces need residents to actively participate in the construction, cooperate with the relevant regeneration work, and invest relevant resources to form the basis of the community sharing ecological chain.

③ After regeneration

After the regeneration of the community space is completed, the community activities of the residents and the long-term mechanism of residents' participation in the construction and management should be actively cultivated. Living interaction-type sharing space and resource exchange-type sharing space also require the active participation of residents to form a favourable atmosphere of sharing community.

(3) Third-party level

The regeneration of Siheng Road Community from the sharing perspective requires a third-party team to play an important role in space creation, activity planning, venue services, and operation and management. The third-party team may include community planners, design institutes, universities, social welfare organisations, community volunteers, and operational organisations.

① Space design

It is necessary for planning, architecture, landscape, interior and other space design teams to work with residents to complete the design of the regenerated space according to the needs of the residents and the current problems of the community.

② Activity planning

Living interaction-type sharing space and co-construction and participation-type sharing spaces require a third-party team to organise activities to further activate the space.

③ Place services

Community volunteers and other management teams are needed to maintain environmental

hygiene, usage management, and counselling and guidance of the space to form a good order of space usage.

④ Operation and management

Living interaction-type sharing space and facility service-type sharing space need to consider the balance of income and expenditure of the space, and therefore require a professional operation team to maintain the relative balance of income and expenditure of the space to ensure long-term operation.

(4) Creating a community sharing cyberspace

Create the "Sharing Compound" APP to facilitate the interaction between the online and offline spaces of each compound group in Siheng Road Community, and to provide an information basis for further cohesion of community sentiment. Functions include Community Information, Sharing Map, Community Resource Exchange, Community Council Chamber, Online Services,Convenience Services and   Community Interaction, and so on(Figure5-9).

Figure 5-9 "Sharing Compound" APP

Source: Completed by author

5.3 Detailed creation strategies for Siheng Road Community

5.3.1 Strategies for creating living interaction-type sharing space

At the beginning of the construction of Siheng Road Community, there was a workers' canteen with an area of about 325m^2 in Compound No.4, which was gradually abandoned with the progress of time and life. As it is located in the centre of the community with strong accessibility, the abandoned canteen in Compound No. 4 is regenerated into a community shared living room(Figure5-10). The façade design of the building should highlight the characteristics of "inclusion and openness" and reflect the community culture. And with the function of rich interaction space as the main focus, supplemented by public space for culture, entertainment and living services. Functions are arranged such as reception desk, leisure and communication area, multi-function hall, shared kitchen, book reading room, shared video room, express delivery, and public bathroom and so on(Figure5-11).

Figure 5-10 Shared living room in Compound No. 4

Source: Completed by author

1. Foyer / Reception
2. Express delivery / Rest area
3. Multifunctional hall
4. Shared kitchen
5. Mother and baby room
6. Bathroom

7. Shared video room
8. Shared Bookstore
9. Outdoor leisure area

N

0 2 5 10M

Ground Floor Plan

Second Floor Plan

Figure 5-11 Plan of shared living room in Compound No. 4

Source: Completed by author

5.3.2 Strategies for creating resource exchange-type sharing space

During the field survey in Siheng Road Community, the author found that some residents occupied the green space because of piling up their unused items out of home(Figure5-12), and it was learnt from the interviews that many families could not store the unused living materials due to the lack of indoor space, so they could only pile them up outside, occupying the public space, which had a negative impact on the community environment. But some unused resources are essential to life for some residents. So if residents are encouraged to put their unused items in a fixed space and voluntarily share some of their unused items, this will not only provide a standardised storage space for residents, alleviate the tension in their living

space, but also improve the community environment, and create opportunities for residents to break down the communication barrier between them.

Resource exchange-type sharing spac is a typical spatial model to solve the above problems. In Siheng Road Community, the debris piling phenomenon in compound No. 5 is most serious, and there is an abandoned warehouse inside compound No. 5 with an area of about 450m², which has a greater impact on the surrounding residents. So one of the original warehouses in compound No. 5 is transformed into a community resource sharing house to provide a place for the exchange of various types of resources for the residents(Figure5-13). which provides a place for residents to exchange various types of resources. The functions of the Resource Sharing House include sharing storage space, spaces for displaying and exchanging residents' unused items, and public interaction spaces that provides opportunities for sharing knowledge and skills (Figure 5-14).

Figure 5-12 Residents stacking idle resource in public space

Source: Completed by author

Before regeneration

After regeneration

Figure 5-13 Resource sharing house in Compound No. 5

Source: Completed by author

Figure 5-14 Ground floor plan of resource sharing house in Compound No. 5

Source: Completed by author

5.3.3 Strategies for creating co-construction and participation-type sharing spaces

(1) Shared pergola

Through fieldwork, it was found that many residents in Siheng Road Community had encroached on the green space in front of their houses and made small gardens for themselves. Although this kind of behaviour makes the community messy and disorderly, it is also a "featured landscape" of this long-established residential area(Figue5-15). Community regeneration from the sharing perspective is to stimulate the enthusiasm of residents to build up the community, therefore, it is not appropriate to prohibit the behaviour of residents in Siheng Road Community to build up green space, but should take positive guidance measures to satisfy the interest of some residents in planting and conserving the green space while not affecting the public interest, and to serve other residents.

Figure 5-15 Residents planting in front of their houses

Source: Completed by author

During the visit and research, it was found that the phenomenon of green space in front of the residence of No.5 compound was the most serious, so we took the space in front of the residence of No.5 compound as an example, and created a Shared pergola in front of the residence, by making full use of the space in front of the residence, and placing a modular Shared pergola system(Figure5-16), which not only acts as a living service facility, but also provides more opportunities for the community to participate in the community residents' co-construction. Through the modular assembly parts, residents can build their own pergola according to their needs, and the built Shared pergola not only becomes the planting landscape in front of the house, which makes the residents' behaviour of planting green space standardised and rationalised, but also serves as the outdoor drying facilities for the residents, which makes the green space in front of the house become an ecological and humanistic space that demonstrates the residents' attitude towards life and promotes the residents' mutual exchanges and understanding (Figure5-17).

| Basic components | Flower rack | Clothes hanger |

| Display rack | Light box | Photovoltaic panel |
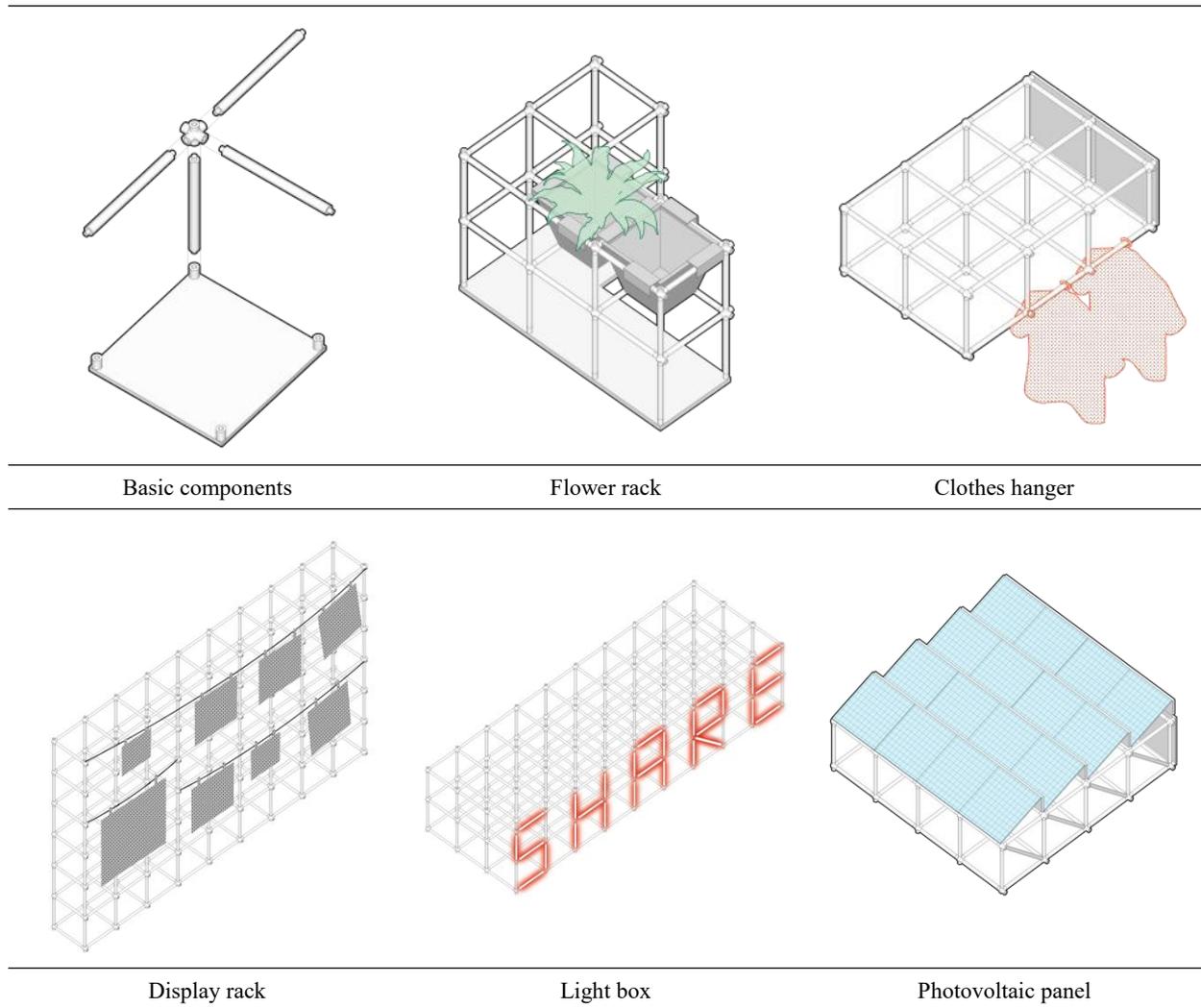
Figure 5-16 Modular components of shared pergola

Source: Completed by author

However, it should be pointed out that rights and obligations are mutually unified, residents in the enjoyment of the right to build the green space in front of the house at the same time need to comply with the relevant norms of the shared pergolas building, professionals under the guidance of the green space in the designated area of the design, construction, planting, maintenance, etc., should not change the functional nature of the green space in front of the house, shall not be converted to other uses, should be set up for the service of other residents, such as sitting tables and chairs, landscaping, etc., should be on time to tidy up the the green space in front of the residence and should be tidied up on time to ensure that it is clean, tidy and beautiful. This will enable residents to carry out personalised transformation of the stock of space in an orderly manner.

Before regeneration

After regeneration

Figure 5-17 Shared pergola in Compound No.5

Source: Completed by author

(2) Shared garden

Positive measures should also be taken for the public unused green grass space in the community. The front of compound No.2 was originally a public green space in the community, but it was gradually deserted with the passage of time, and nowadays, some residents of the community are using the public green space for planting vegetables privately, which has caused negative impacts on the community's environmental hygiene and management. Therefore, the public green space in Compound No.2 is unified and designed as a community Shared Garden, and including the following functions (Figure5-18,5-19):
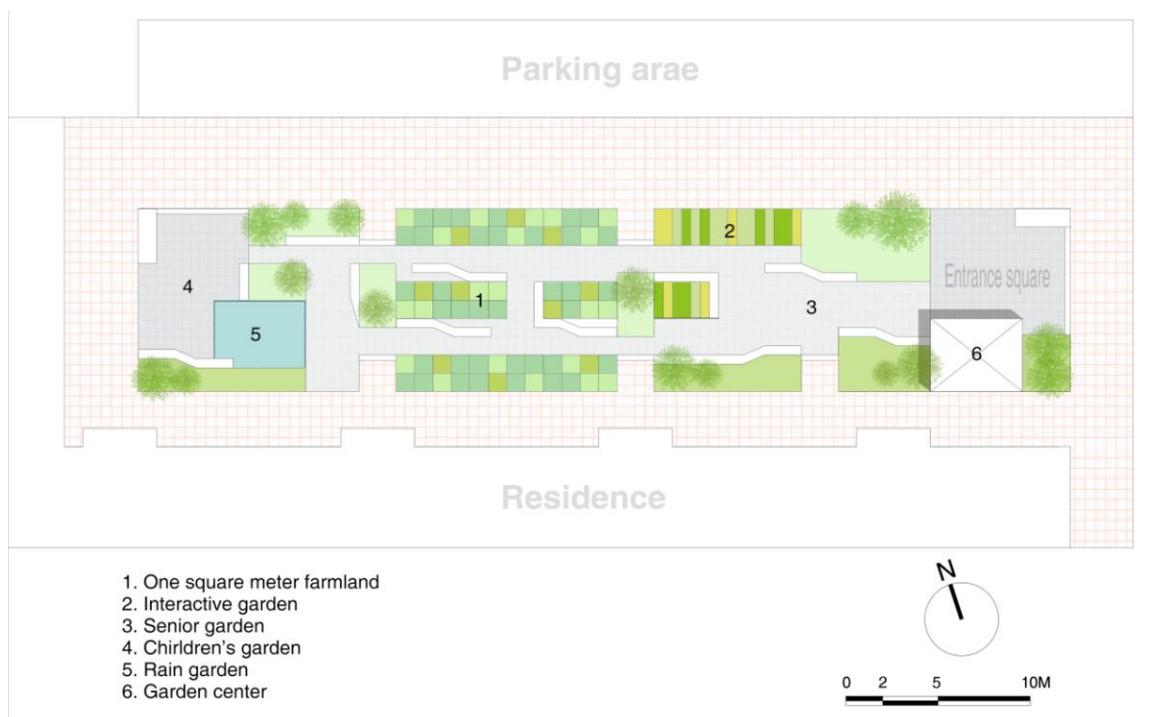
Figure 5-18 Master plan of Shared Garden in Compound No. 2

Source: Completed by author

① One square meter of farmlad: encouraging interested residents to adopt a square metre or so of space for planting.

② Interactive garden: encouraging residents to "float" their own plants to the shared green space.

③ Senior garden: a garden designed for the elderly to participate in planting experience.

④ Children's garden: a garden and play area designed for young children to participate in planting experience.

⑤ Rain garden: to cultivate and save rainwater in the area, which can be combined with ecological education.

⑥ Garden centre: providing professional team consultation and storing farm equipment.

Figure 5-19 Shared Garden in Compound No. 2

Source: Completed by author

(3) Shared boundary space

Siheng Road Community was built a long time ago, and many hard boundary walls were built between the compounds due to management reasons. These boundary spaces have become negative spaces for residents to pile up debris and illegally park their vehicles, which not only hinders the interaction between the compounds and between the community and urban space, but also affects the safety of the community and the overall environment with the gradual deterioration of the hard boundary walls. In the shared regeneration, the negative hard boundary should be actively used to clean up the piles of debris, regulate parking, improve the conditions of the pavement, and re-enforce and paint the dilapidated walls, and at the same time, through the call for community residents with artistic talent and professional team guidance, such as parent-child colouring festival, themed graffiti festival, and other activities, to drive the residents to take the initiative to participate in the community's beautification of the co-construction (Figure5-20).

Before regeneration

After regeneration

Figure 5-20 Residents participate in the beautification of boundaries in Compound No. 2

Source: Completed by author

In addition, Siheng Road crosses Compound No. 1 and Compound No. 2, making both compounds enclosed by a high wall, which lacks the necessary connection between the two compounds and separates them from the city. During the research, it was found that some residents piled up debris along the wall, while some then residents made full use of the space

along the wall for planting and the plants were better cared for, but these flowers and plants as landscaping could not be shown to the outside city, regardless of the behaviours that made the boundary wall an important stock space in the community(Figure5-21). Therefore, through the transformation of Compound No.1 and Compound No.2 adjacent to the city wall, the interface along the street of the community has been opened up to a certain extent, and the original hard wall has been widened and turned into an activity space at the boundary of the community, which not only provides more planting space for the residents in the community, but also allows the plants to be displayed externally and become the landscape of the city, which will further stimulate the residents to participate in the community construction. At the same time, the expanded boundary also provides open space for urban pedestrians. In addition, the boundary can be used as an exhibition gallery, where small-scale art exhibitions can be organised on a regular basis to promote wider social interaction(Figure5-22).

Figure 5-21 Boundary walls between community and city become stock space

Source: Completed by author

Before regeneration

After regeneration

Figure 5-22 Shared boundary space in Compound No. 1 and No.2

Source: Completed by author

5.3.4 Strategies for creating facility service-type sharing space

(1) Shared laundry room

In the field research of Siheng Road Community, found that due to the small indoor space and balcony area of the residence, the residents of each compound often put washing machines and drying clothes in the public space, which adversely affects the landscape of the community (Figure5-23). In addition to solving the problem of drying clothes through the use of a shared pergola system in the green space in front of the community houses and in some public areas, it is also necessary to explore the community's stock of space, and place shared laundry rooms in suitable locations in each residential compound, and control the walking distance of 300m and travelling time of less than 5 minutes (Figure5-24).

Figure 5-23 Residents occupying public space for washing and drying of clothes

Source: Completed by author

Figure 5-24 Shared laundry rooms in Siheng Road Community

Source: Completed by author

(2) Shared fitness facilities

During the research, the author found that there is a lack of fitness and recreational facilities within the community, making it difficult to meet the leisure and fitness needs of the community's residents of different age groups. Most of the fitness facilities are no longer viable due to age and deterioration, and some are occupied by parking due to long periods of non-use. (Figure 5-25).

Figure 5-25 Abandoned fitness facilities

Source: Completed by author

Due to the land constraints of community public space, it is difficult to solve the above problems in a centralised site, and due to the large scope of the community, the centralised fitness facilities are often inefficiently used due to poor accessibility, and the demand for fitness facilities is different between different compounds due to the different population structures, so in order for the residents to conveniently use the fitness facilities, it is necessary to make full use of the space at the corners and edges of the building, and to arrange different types of fitness facilities according to the demand，including equipment that can be used directly by the elderly and children (Figure5-26). And at the same time, introduce the intelligent facilities mentioned above that have been put into use in many cities across the country, so that the residents can enjoy diversified and specialised fitness equipment by scanning the QR code (Figure5-27).

Before regeneration

After regeneration

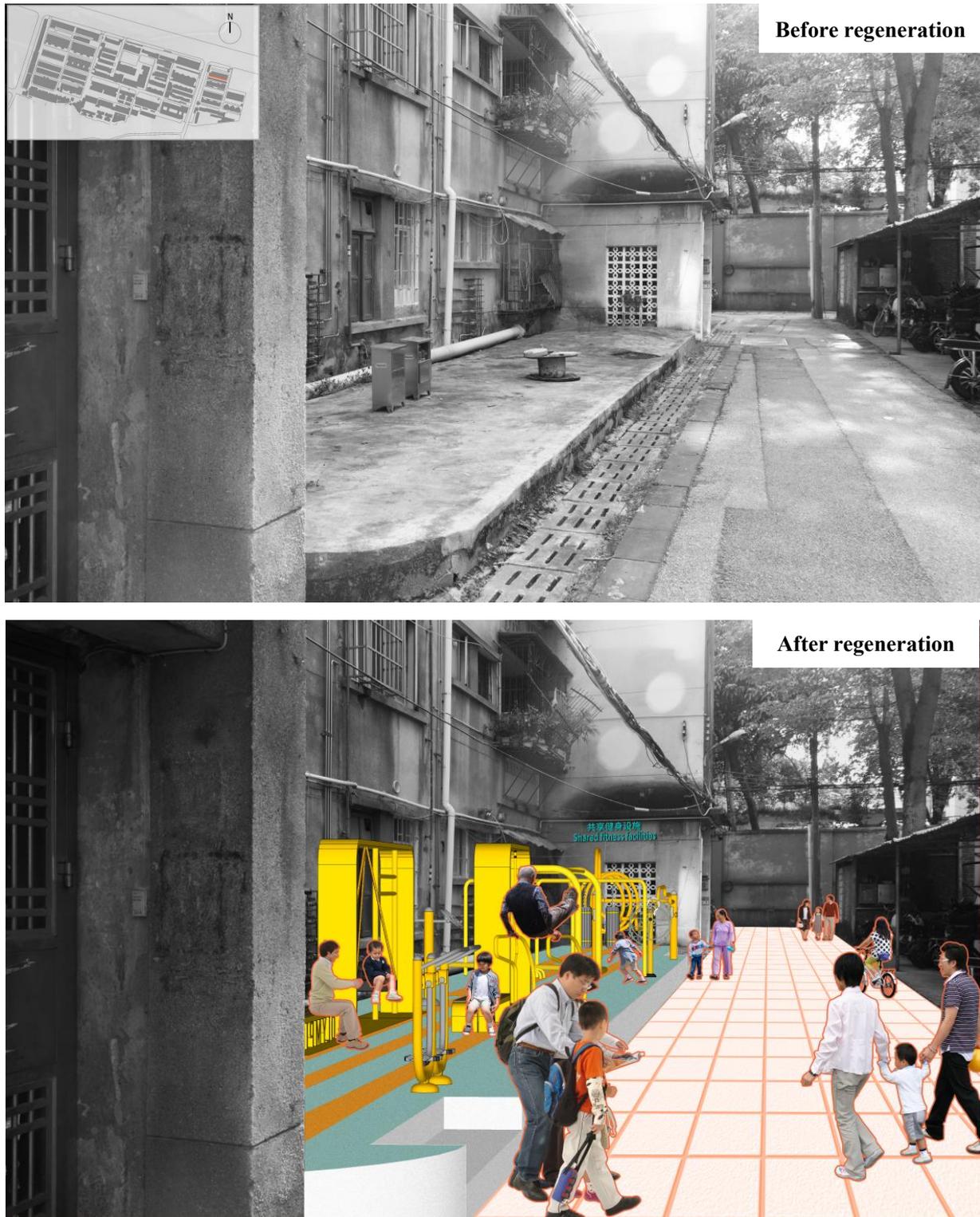**Figure 5-26 Using building edge space for shared fitness facilities in Compound No. 1**

Source: Completed by author

Before regeneration

After regeneration

Figure 5-27 Community Smart Shared Fitness Facilities in Compound No. 3

Source: Completed by author

(3) Shared parking space

Siheng Road Community was built with less consideration for car parking, but as the standard of living has improved, the number of private cars for residents has climbed rapidly, so it has put a great deal of pressure on the community space. It is more common for some footpaths, street green spaces and public green spaces to be encroached upon by private cars (Figure5-28). Through the research, it was found that many parking spaces within the community were not charged resulting in serious illegal parking, and some residents took over public parking spaces for themselves by building private awnings. Therefore, there is a need to strengthen the management of cars within the community and to enhance the supporting functions of the parking spaces. For example transforming the internal community parking spaces in Compound No.2 to shared parking by adding photovoltaic panels awnings and charging piles, which can convert solar energy into electricity to provide lighting and a certain amount of power recycling for the parking spaces, which saves the energy consumption of the community. In addition, by charging a small amount of money, the problem of illegal parking of cars can be avoided(Figure5-29). And as space within the community is very tight and additional parking within the Siheng Road Community would squeeze the area of public space, the problem of parking within the community can also be solved externally.

Figure 5-28 Private cars encroach on public space

Source: Completed by author

Before regeneration

After regeneration

Figure 5-29 Community Shared Parking in Compound No. 2

Source: Completed by author

(4) Time-sharing use of public facilities

At the same time, Siheng Road Community is surrounded by different types of public organisations such as schools, administrative units, enterprises, etc., and the public service facilities in the organisations are idle during non-working hours, so Siheng Road Community and the public organisations out and in of the community should be regarded as a synthesis and share public service facilities. that is to say, residents in the community can enjoy the service facilities within the public organisations during non-working hours, while the staff of the public organisations can also enjoy the various shared functions in the community. therefore, on the basis of safeguarding the order and safety of co-operative organisations, we can actively open up the activities and service facilities of co-operative organisations, so as to provide community residents with more adequate and abundant activity space（Figure5-30）.
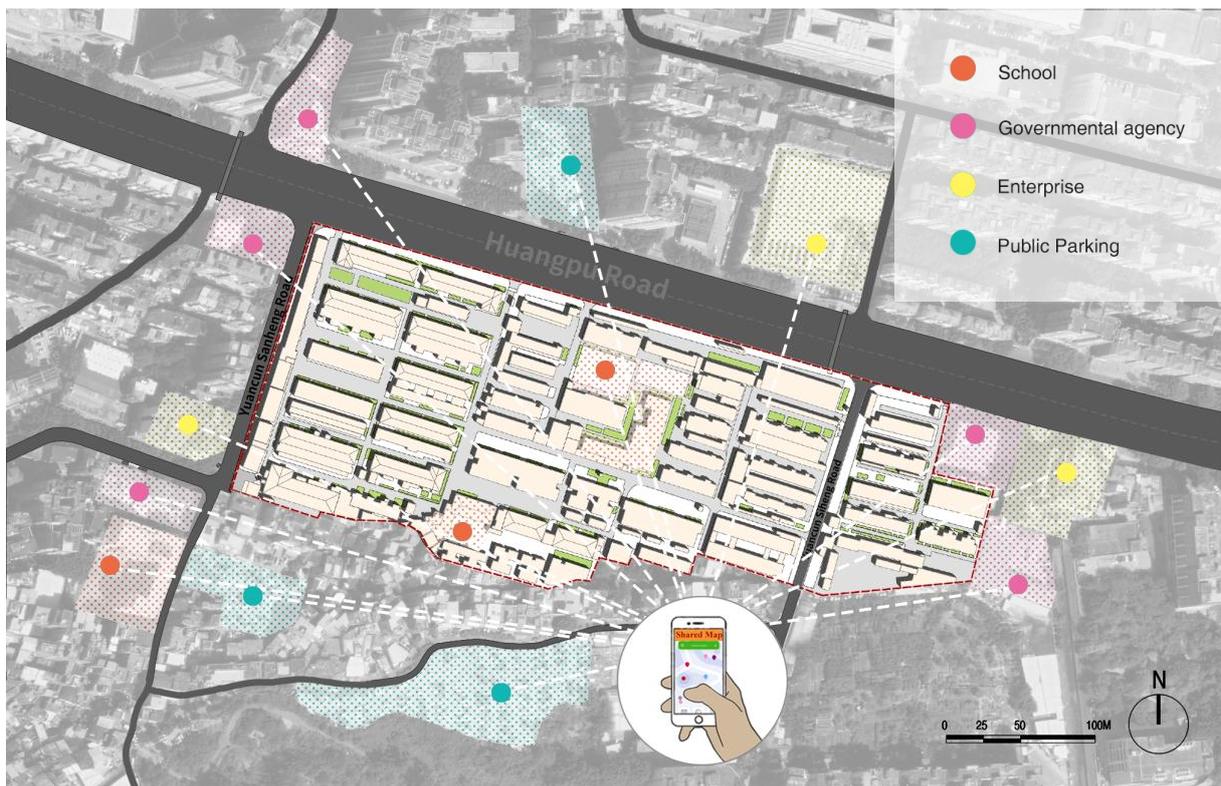
Figure 5-30 Distribution of services within and outside the community

Source: Completed by author

5.4 Chapter summary

（1）According to the previous research results and the current situation of Siheng Road Community, the concept of "sharing" has good applicability to some existing problems of Siheng Road Community.

（2）The overall regeneration strategies of Siheng Road Community regeneration includes three aspects: activating community stock resources, creating community sharing space and establishing community sharing mechanism.

（3）There is a large amount of stock space in Siheng Road Community, and according to the characteristics and problems of each rensidential compound, it is possible to create in detail the sharing spaces for living interaction-type sharing spaces, resource exchange-type sharing spaces, co-construction and participation-type sharing spaces, and facility service-type sharing spaces, forming a system of sharing space in the community.

Conclusion and prospect

Starting from the sharing perspective, this thesis takes old community regeneration as the research object, summarises the main problems existing at the current stage of China's community regeneration, explains the connotation of "sharing" under the perspective of architecture, and analyses the significance of "sharing" for the regeneration of old communities. Based on the analysis of domestic cases with precursor exploratory significance, this thsis summarises the practical experience of the renewal of old communities from the sharing perspective, establishes the regeneration strategy for old communities from the sharing perspective, and selects Yuancun Siheng Road Community in Guangzhou for the applied research.

1. Research Value and Innovations

(1) Identify the main problems of community regeneration in China and the connotation of "sharing" under the perspective of architecture.

This thesis comprehends the development history of community regeneration in China and abroad, and concludes that the main problems of community regeneration in China are reflected in the insufficient use of integrated resources, the neglect of community humanistic care, and the imperfection of the mechanism of multi-party participation. In addition, it summarises the meaning of "sharing" in different disciplines, and proposes that under the perspective of architecture, the meaning of "sharing" includes three aspects. Firstly, it is a resource-sharing mode based on the transfer of the right of use, reflecting the intensive orientation of urban design; secondly, it is a humanistic value of equality and inclusiveness, reflecting the humanistic care of urban design; and secondly, it is a social collaboration mode of joint consultation and construction, reflecting the public attributes of urban design.

(2) The significance of the connotation of "sharing" for old community regeneration

On the basis of analysing the current problems of community regeneration and summarising the connotation of "sharing", the significance of "sharing" as a method of regenerating old

communities is proposed: Firstly, it emphasises the regeneration and reuse of community stock space, improving the efficiency of stock space utilisation, and linking a wider range of community resources through space regeneration to form a community sharing ecological chain. Secondly, it emphasises the activity orientation of space design, and through the organisation of sharing activities and the formation of favourable interactions with the sharing space, it constantly stimulates the vitality of the community and makes it a living place with lasting vitality. Finally, it emphasises the broad participation of the Government, residents and society, and resident participation is not limited to decision-making and consultation, but rather serves community construction and governance by actively guiding residents to actively participate in the creation of space.

(3) Summarises the experience of regeneration practices in old community from the sharing perspective.

This thesis analyses and summarises the cases of old community regeneration from the sharing perspective in China. Among them, the micro-regeneration of Shanghai West Guizhou Lilong meets the needs of different individuals in the community for different types of life and interaction activities, and embodies the connotation of sharing with equality and inclusiveness. The Beijing Digua Community creates a community resource exchange platform with sharing spaces and activities, reflecting the sharing connotation with separation of rights of use. Guangzhou Changxing Eco-Garden encourages residents to take the initiative to participate in the construction of community gardens, reflecting the sharing connotation of co-construction and participation. On this basis, it summarises the sharing experience embedded in the regeneration practice, which mainly includes the activation of stock resources, the creation of community space, and the mechanism of multi-party participation.

(4) Constructing a strategy for old community regeneration from the sharing perspective

Based on theoretical research and case experiences, this thesis proposes that the regeneration strategy of old communities from the sharing perspective includes two levels: general

regeneration and detailed creation. Among them, the overall regeneration strategy includes three aspects, namely activating community stock resources, creating community sharing space and establishing community sharing mechanism. At the level of detailed design strategy, according to different sharing activities, the sharing space can be classified into four types, namely, living and interaction-type sharing space, resource exchange-type sharing space, co-construction and participation-type sharing space, and facility service-type sharing space, which can be designed accordingly for different types of community stock space.

2. Gaps in the research

First of all, this thesis is only a preliminary qualitative study on the old community regeneration from the sharing perspective, which is still in the stage of analysing and summarising, and needs more theoretical and practical support. Secondly, the regeneration experience of the selected study cases in this thesis is difficult to replicate completely due to the different urban contexts in which they are located. Finally, at the level of applied research, due to the age of the construction of the Siheng Road Connunity, it is not yet possible to sort out community conflicts at all levels, and more in-depth explorations and summaries are needed.

3. Prospect

Older community is a typical type of community, and as a starting point, different types of communities in different cities and regions need to respond to the connotation of "sharing". In addition, "sharing" is an important theme for future urban development, the community is the smallest unit of urban development and construction, how to start from the community regeneration and apply the concept of sharing to a wider range of urban regeneration and construction level, still need to be more explored.

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Appendix

Questionnaire on community sharing space

Dear Sir/Madam:

I am a postgraduate student of Architecture at South China University of Technology, and I am now conducting a survey activity about the shared space of Yuancun Siheng Road Community. I sincerely hope to get some of your views, thanks for your co-operation.

Description: The creation of community sharing space helps to enhance the physical environment of the community, meet the needs of residents in daily life, promote the optimal allocation of community resources, guide residents to help each other, create a community shared ecological chain and a green and frugal lifestyle, promote residents' active participation in community construction, improve neighbourhood relations and increase mutual trust among residents.

1．What is your gender?

A.Male   B.Female

2．What is your age?

A.17 years and under   B.18-44 years   C.45-59 years   D.60 years and over

3．What is your education level?

A. High school and below   B.Junior college   C.Bachelor Degree

D.Master degree and above

4．What is your occupation?

A.Student   B.Teacher   C.Civil service   D.Employee of an institutio   E.Scientific researcher   F.Enterprise employee   G.Doctor   H.Service workers   I.Freelancer J.Solicitors   K.Designer and Artists   L.Skilled worker   M.Other

5．How satisfied are you with Siheng Road Community in general?

A. Satisfied   B.Relatively satisfied   C.Dissatisfied

6．Do you want Siheng Road Community to have more space for living and interaction?

A.I hope   B.I don't hope   C. I don't care.

7．If community sharing spaces were to be established, what sharing functions would you like to have? (Multiple choice)

A.Shared kitchen   B.Shared library   C.Shared toys house   D.Shared cinema E.Shared classroom   G.Shared gym   H.Other

8．Do you need help from other people in the community when you need certain items or skills in your life?

A.I need   B.I don't need

9．If you have unused resources, would you be willing to use the community resource sharing space to share them with other residents?

A.Willing   B.Unwilling

10．How many resources do you have unused in your household?

A.I have many unused resource   B.I have unused resource,but no many

C.I don't have unused resource

11．What idle resources do you have at home? (Multiple choice)

A.Professional skills services such as housekeeping, tutoring, art training, etc.

B.Emergency items such as umbrellas, medicines, crutches, wheelchairs, etc.

C.Maternal and child products, such as children's toys, prams, etc.

D.Books, magazines, newspapers, etc.   E.Home appliances, furniture, etc.
F.Electronic product   G.Clothing   H.Other

12．Would you like Siheng Road Community to have space to share resources?

A.I hope   B.I don't hope   C. I don't care.

13．Would you like to be able to participate more actively in community construction and regeneration activities?

A.I hope   B.I don't hope   C. I don't care.

14．What community construction activities would you like to take the initiative to participate in?

A.Gardening and planting   B.Painting walls   C.Furniture assembling   D.Other

15．What service facilities in the community would you most like to see improved? (Multiple choice)

B.Car parking space   B.Fitness facility   C.Drying space

D.Public laundry room   E.Activity room   F.Other

16．Would you like to see public organisations inside and outside the community open on a time-sharing basis to provide more services and facilities for the residents?

A.I hope   B.I don't hope   C. I don't care.

攻读硕士学位期间取得的研究成果

一、已发表（包括已接受待发表）的论文，以及已投稿、或已成文打算投稿、或拟成文投稿的

论文情况（只填写与学位论文内容相关的部分）：

序号	作者（全体作者，按顺序排列）	题　目	发表或投稿刊物名称、级别	发表的卷期、年月、页码	与学位论文哪一部分（章、节）相关	被索引收录情况

注：在"发表的卷期、年月、页码"栏：

1 如果论文已发表，请填写发表的卷期、年月、页码；

2 如果论文已被接受，填写将要发表的卷期、年月；

3 以上都不是，请据实填写"已投稿"，"拟投稿"。

不够请另加页。

二、与学位内容相关的其它成果（包括专利、著作、获奖项目等）

Acknowledgement

This is the end of the thesis, beginning in early fall and ending in summer. First of all, I would like to thank my supervisor, Prof. Ping Su, who is very knowledgeable, rigorous and serious in his studies, and kind to others, and is the guide for me to continue to cultivate in my professional field, which is unforgettable and will be remembered in my heart.

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The tree is a thousand feet high, but not forgetting the deep roots of the fertile soil. Thank you to my parents and family, you are my life forever rely on and support, you bring me a healthy environment for growth, your meticulous care, is my driving force, my achievements so far are due to your high expectations.

I hope the mountains and the sea can be leveled. Thank you, my girlfriend, for your understanding and tolerance along the way, so that I can get through the uneasiness and anxiety, I hope that the long life, with your company, together to a better future.

I wish to be thankful for the years, and to be with my friend for a long time. Thank you for my dear friend Chen Xi, in a foreign land, fortunate to have you take care of, in the blink of an eye you and I have grown up, the future of the time to meet although fewer and fewer days, but the love of hand and foot is indelible.

Thank you for the roommates in 301 who talked all night long to overcome the difficulties together, and thank you for the classmates who spent unforgettable foreign study time

together in Turin, it's fate to get together, may we keep our love, go to the mountains and the sea, and see each other at the peak in the future.

Finally, I thank myself for walking very slowly but always moving forward, do not want the future are bright moon and clear wind, only wish that no matter the trials and tribulations do not change the original heart, those who were ridiculed whether the dream is realized, so far, although there is no conclusive, but still determined to go.

Love doesn't know what it's all about but it's all about love, South China University of Technology, thanks for the encounter, and we'll meet again later.

3.答辩委员会对论文的评语

（主要内容包括：1.对论文的综合评价；2.对论文主要工作和创造性成果的简要介绍；3.对作者掌握基础理论、专业知识程度、独立从事科研工作能力以及在答辩中表现的评价；4.存在的不足之处和建议；5.答辩委员会结论意见等）

　　硕士研究生温勇贤所完成的题为《共享视角下的社区更新研究——以广州员村四横路社区为例》的学位论文，选题具有较好的理论意义和实用价值。作者归纳和评述了一定量的相关文献，较好地掌握了该领域国内外的研究现状和发展方向。论文完成了下列研究成果：

　　1.通过对相关领域文献及资料收集整理，对不同学科领域下的"共享"概念进行总结，提出了在建筑学视角下的"共享"内涵，并在分析社区更新现状问题的基础上，提出"共享"可以作为老旧社区更新的一种方法；

　　2.通过对我国共享视角下的老旧社区更新案例进行分析总结，得出社区更新实践中所蕴含的共享经验，主要包括存量资源激活、社区空间营造、多方参与机制等多个方面；

　　3.在理论研究与案例经验结合的基础上，提出共享视角下的老旧社区更新策略，在总更新上强调社区存量资源的激活、社区共享空间的营造、社区共享机制的建立三个方面。在详细设计策略中提出了四种共享空间模式，对存量发展背景下社区空间的更新设计提供了参考。

　　论文概念清晰，结构完整，研究方法可行。答辩中作者较好地回答了提出的问题。依据投票结果，答辩委员会同意通过硕士学位论文答辩，同意毕业，并建议授予硕士学位。

论文答辩日期：_2023_年_9_月_4_日　　　　答辩委员会委员__5__人

表决票数：同意毕业及授予学位（_5_）票

　　　　　同意毕业，但不同意授予学位（_0_）票

　　　　　不同意毕业（_0_）票

表决结果（打"√"）：同意毕业及授予学位（_√_）

　　　　　　　　　同意毕业，但不同意授予学位（　）

　　　　　　　　　不同意毕业（　）

答辩成员签名	（主席）　　　　　　　Antonio di Cample （纸上添加、秘书代签）		
答辩秘书签名			