

# Environmental Renewal Service Design Strategy with Multiple Role Participation in Old Communities Against the Background of Urban Stock — Taking South Community, Shuinianhe Road, Chengdu as an Example\*

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## ABSTRACT

Currently, cities are changing from an incremental era to a stock era, bringing new issues to the environmental renewal and space creation of old communities. Based on the investigation of the living environment of residents in the Lunan community in Chengdu, this article uses the collaborative cooperation of designers, community committees, and community residents in the process of renewal and transformation of the community environment. Aiming at the status quo of the community's public space, this paper puts forward six strategies: "establishing neighborhood communication and a sense of belonging to the homeland", "encouraging public participation in activities", "awakening the use and regeneration of gray space", "building vertical greening of space", "building edible landscapes", and "building a platform for co-governance community". Based on the policy of the new era, the authors attach importance to communication and implementability, and provide a reference for the current transformation of the old community environment.

**Keywords:** Community renewal, Public participation, Space creation, Collaboration and cooperation, Service design.

## 1. INTRODUCTION

The report of the 19th National Congress of the Communist Party of China clearly pointed out that people's needs for a "good life" should be placed at the core of socialist construction in the new era, and proposed to "strengthen the construction of a community governance system" and create a "social

governance pattern of co-construction, sharing and co-governance" [1]. Chapter 29 of the "14th Five-Year Plan" puts forward: "We should comprehensively improve the quality of cities, accelerate the transformation of urban development methods, coordinate urban planning and construction management, implement urban renewal actions, and promote urban spatial structure optimization and quality improvement, as well as transform the urban development mode, and speed up the promotion of urban renewal, transform and upgrade the functions of the stock area of old communities." [2]

Due to the early construction of residential buildings, unclear property rights, imperfect service facilities, lack of construction funds, and backward community management systems and concepts, old communities in China have led to the destruction of the overall public area environment within the

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community. For example, the coating on the exterior wall of the building is peeling off, the living facilities are aging or damaged, the greening is lacking, the sanitation environment is poor, the pedestrian traffic is messy, and the stair treads of some buildings are thin and even pose safety risks. At the initial stage, the community environment renewal model mainly adopts the overall demolition and construction method under the commercial development of real estate. On the one hand, excessive capital consumption and huge engineering volume cause the consumption of social resources; on the other hand, due to policy limitations, economic disputes and other problems emerge one after another, the government-led partial reconstruction measures gradually replaced the previous demolition and reconstruction model. However, due to the huge community base, it is impossible to fully understand the needs of residents in a timely manner and provide effective supply. The traditional model transformation can no longer meet the current needs of the residents in the old community, resulting in low effectiveness. The development of modern society is also weakening the traditional attributes of cities and residents, leading to the change of values, the loss of community spirit, and the indifference of community relationships.

A community is a gathering space composed of residents with multiple roles. At present, the internal personnel composition relationship of urban communities is different from traditional communities in the past. The endogenous sense of belonging and homeland gradually disappear with the change of residential mode and residential structure; the concept of subjectivity of "community residents" as a whole is also gradually blurred as community residents continue to repeat their own habitual actions and behaviors to build their own independent life world.

Due to a variety of reasons, the current lagging concept of internal management in old communities restricts residents' initiative and initiative to participate in community construction, and hinders the enthusiasm of community residents; at the same time, the past "top-down" community transformation model is deeply ingrained in the hearts of most residents, which makes residents lack the sense of subjective participation. Only by letting community residents become the main group of people participating in the transformation activities and stimulating and mobilizing the enthusiasm and creativity of community residents can residents cultivate their community residents'

sense of belonging and identity, effectively integrate community resources, continuously change residents' inherent thinking patterns, and increase residents' subject consciousness of participation. This often requires a certain design method and the use of intervention to gather the power of the community. With the help of professional planners and designers, the community neighborhood committee changes its role, provides policy support, fund-raising assistance, and promotes the heroic spirit of community residents. Starting from the needs of the main population, based on the "endogenous development" approach, the previous top-down administrative-led model of the government and community neighborhood committees has been changed to help community residents improve their sense of happiness, human emotions and protagonist awareness while creating an autonomous and shared community environment, which can better meet the different needs of residents.

The project team deeply explores the problems that need to be solved in the public space of Lunan Community in Chengdu, integrates the four goals of "resident autonomy, farming landscape, community creation, and space regeneration", analyzes the nature of the existing site and the difficult-to-use gray space, and explores the strategy of improving the quality of community space with public space as the carrier, giving the site a variety of meanings, including place, public participation, daily, cultural, and network. At the same time, based on the perspective of landscape architecture, the team pays attention to daily landscapes, with the participation of designers, community committees, and community residents, to explore new ways for multiple roles to participate in community transformation.

## **2. OVERVIEW OF THE BASIC SURVEY OF THE PROJECT**

The project is taken from Chengdu Shuonianhe Road South Community as the object of experiment and research. This block is a purely residential community in Chengdu in the late 1970s and early 1980s that was dominated by municipal reconstruction and resettlement of residents. There are 18,927 people, 6525 households, and a total of 63 residential courtyards in the community [3], which has a good "bottom-up" cultivation soil. The researchers used image mapping, questionnaire distribution, in-depth interviews, neighborhood committee discussions, etc. to obtain the existing

problems of the community environment and residents' needs. Through interviews and communication with community residents, the researchers obtained surveys on the willingness of residents of different ages to participate in the transformation of the community in which they live. The results show that 75% of residents are willing to join, especially for residents with elderly and

children at home. The other 25% of residents in the community are mostly renters, and their willingness to participate is low; most residents believe that the transformation process and the content of the transformation require public participation in order to express their desire for transformation in the community in which they live. (See "Table 1", "Table 2", "Table 3", "Table 4")

Table 1. Questionnaire survey report on the landscape reconstruction of Shuinianhe Road South Community in Chengdu City 1 — Residents under 30 years old (self-made)

Residential age	Length of residence	Family status	Opinions	Suggestions	Participation intention
Under 30 years old	Less than 10 years	Living with the elderly	1) Damaged roads 2) Too little cultural publicity 3) Scribbles in public spaces 4) Lack of greenery 5) Lack of venues for activities	Improve community greening, repair, increase night lighting, and increase activity areas	Yes
		Living with the children	1) Insufficient parking spaces and chaotic parking management 2) Too few barrier-free passages or too steep 3) Poor sanitation of garbage disposal 4) Lack of activity places	Dismantle random constructions, paint and refurbish the facade of the building, trim the exposed pipelines to make the community tidy and beautiful, add the community intelligent identification system, monitoring, access control, and increase the fitness facilities in the activity area	
		House to rent	1) Insufficient parking spaces and chaotic parking management	Increase parking spaces and repair the roads in the community to facilitate travel	No
	10 - 20 years	Living with the elderly	1) Damaged roads 2) Unmanned pruning of green vegetation 3) Lack of night lighting facilities or damage affecting use 4) Poor hygiene of garbage disposal	Paint and refurbish the facade of the building, repair the roads of the community, facilitate travel, and improve the greening of the community	Yes
		Living with the elderly	1) Lack of night lighting facilities or damage to affect use 2) Too few fitness equipment 3) Unplanned and unsightly pipeline crossing	Increase parking spaces, refurbish and increase night lighting, add community intelligent identification systems, monitor access control, and increase fitness facilities in activity areas	Yes

Table 2. Questionnaire survey report on the landscape reconstruction of Shuonianhe Road South Community in Chengdu City 2 — Residents of 30 - 50 years old (self-made)

Residential age	Length of residence	Family status	Opinions	Suggestions	Participation intention
30 - 50 years old	Less than 10 years	Living with the children	1) Insufficient parking spaces and chaotic parking management 2) Lack of night lighting facilities or damage affecting use 3) Poor sanitation of garbage disposal 4) Lack of activity places 5) Problems of chaotic construction in the community	Increase parking spaces, repair community roads to facilitate travel, improve community greening, repair to increase night lighting, and increase activity area fitness facilities	Doesn't matter
		Living alone	1) Too few fitness equipment 2) Lack of greenery in the community 3) Problems of chaotic construction in the community	Increase parking spaces, transform electricity lines, and increase fitness facilities in the activity area	Yes
		Living with the children	1) Damaged roads, insufficient parking spaces, and chaotic parking management 2) Unmanned trimming of green vegetation 3) Too few fitness equipment 4) Poor sanitation of garbage disposal 5) Lack of activity places	Increase parking spaces, improve the greening of the community, refurbish and increase night lighting, and increase fitness facilities in the activity area	Yes
30 - 50 years old	20 - 30 years	Living with the elderly	1) Lack of night lighting facilities or damage to the use 2) Too few fitness equipment 3) Too little cultural publicity, poor sanitation of garbage disposal, lack of activity venues	Paint and refurbish the facade of the building, repair the roads in the community to facilitate travel, improve the greening of the community, and renovate to increase night lighting	Yes
		Living alone	1) Damaged roads, insufficient parking spaces, and chaotic parking management 2) Lack of activity venues 3) The community lacks greenery, and there is a problem of random construction in the community	Increase parking spaces, energy-saving renovation of exterior wall materials, reduce energy consumption, renovate power lines, repair community roads, facilitate travel, and improve community greening	Yes

Table 3. Questionnaire survey report on the landscape reconstruction of Shuonianhe Road South Community in Chengdu City 3 — Residents over 50 years old (self-made)

Residential age	Length of residence	Family status	Opinions	Suggestions	Participation intention
50 - 80 years old	10 - 20 years	Living with the children	1) Unmanned trimming of green vegetation 2) Too few fitness equipment 3) Scribbles in public spaces	Renovate power lines, trim exposed pipelines, make the community tidy and beautiful, repair community roads, facilitate travel, and improve community greening	Yes
	20 - 30 years	Living alone	1) Green vegetation is not trimmed 2) Too few fitness equipment 3) Lack of activities	Increase parking spaces, improve community greening, refurbish and increase night lighting	Doesn't matter
		Living with the elderly	1) Damaged roads, insufficient parking spaces, and chaotic parking management 2) Lack of greenery in the community 3) Lack of activity venues	Increase parking spaces, improve community greening, and increase fitness facilities in activity areas	Yes
		Living with the children	1) Insufficient parking spaces and chaotic parking management 2) Unmanned pruning of green vegetation 3) Lack of night lighting facilities or damage affecting use 4) Poor garbage disposal	Trim the exposed pipelines to make the community tidy and beautiful, increase parking spaces, improve the greening of the community, and increase the fitness facilities in the activity area	Yes
Over 80 years old	More than 30 years	Living with the children	1) Insufficient parking spaces and chaotic parking management 2) Green vegetation is not trimmed 3) Too few fitness equipment, too few barrier-free passages or too steep	Increase parking spaces and improve community greening	Yes

Table 4. Summary of the questionnaire survey report on the landscape reconstruction of Shuonianhe Road South Community in Chengdu City (self-made)

Summary of the questionnaire survey report on the landscape reconstruction of Shuonianhe Road South Community in Chengdu City	
Research conclusion	1. Environmental perspective: The main problem of the community environment is the lack of corresponding public activity space, the overall environmental quality needs to be improved, and the construction of a spiritual home for life is vacant.
	2. Residents' perspective: For those who rent a house, the living facilities can be basically guaranteed, and the willingness to participate in community renovation is low; For the local aboriginal residents, they look forward to the improvement of the community's environment, and they have a stronger sense of participation in community governance. It is hoped that residents can carry forward the spirit of ownership and participate in community building together.

### 3. QUESTIONNAIRE SURVEY REPORT

Through summarizing the survey data and sorting out, it is found that residents have similarities in community issues, which can be summarized into three types: 50% basic type, 37.5% perfect type, and 12.5% improvement type. The team communicates with the neighborhood committees of the community, summarizes the daily responses of the residents, so as to think deeply about the needs behind them, establish the

project implementation steps and plans, and pave the way for the formation of the strategy in "Figure 1". In the later stage of the project, based on actual needs and research data, through keyword analysis ("Figure 2"), the survey team proposed to "establish neighborhood communication and a sense of belonging to the homeland", "encourage public participation in activities", "awaken the utilization and regeneration of gray space", "build vertical greening of space", "build edible landscape", and "create a platform for co-governance community".

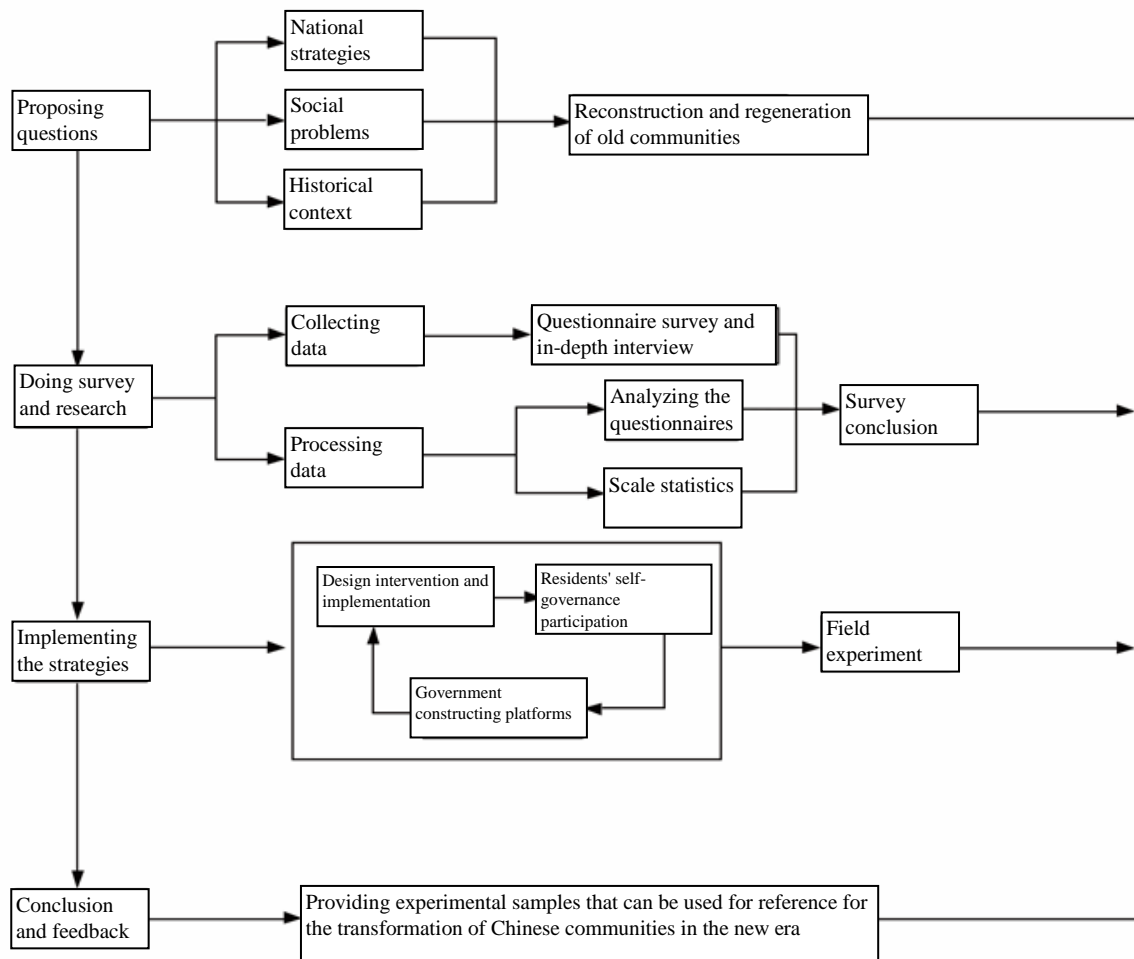


Figure 1 Project implementation steps and planning (self-made).

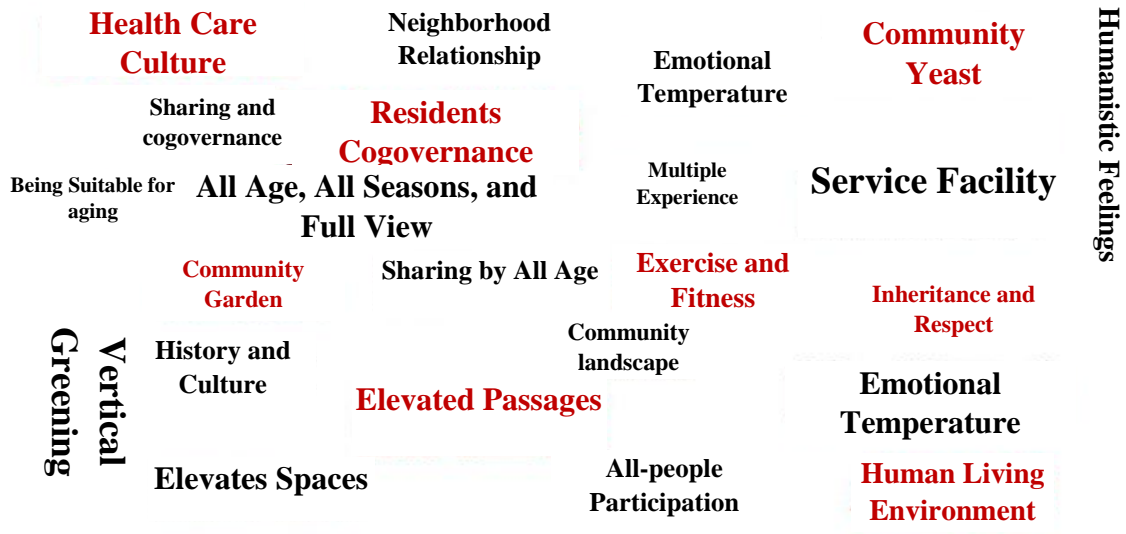


Figure 2 Strategy implementation keywords (self-drawn).

#### 4. ENVIRONMENTAL UPDATE SERVICE DESIGN STRATEGY

##### 4.1 Strategy 1: Establishing Neighborhood Communication and a Sense of Belonging to the Home

The term sense of belonging refers to an internal connection between an individual and the group to which he belongs. It is an individual's delineation, identification, and maintenance of a special group and its affiliation, and the sense of belonging is the psychological manifestation of this delineation, identification, and maintenance. The famous American psychologist Maslow put forward the "Needs Hierarchy Theory" in 1943. He believed that the "needs of belonging and love" are important psychological needs of people. Only when this need is met, can people be "self-realized". The residents of the community can only participate in it better if they have a sense of belonging to the community, and realize the residents' autonomy and a virtuous circle.

When love is used as a link to link relationships and break the original architectural boundaries, people in the community are liberated in the "cage" of urban buildings. By holding community activities, mobile workshops are used as neighborhood activity spaces to provide residents with farming tools and soil materials for cultivating fruits and vegetables, open public welfare courses, and organize regular activities to create corresponding classrooms for residents according to the needs of different population structures by age

group: for example, it is necessary to build community schools for the elderly, and offer a series of courses such as smartphone classes, maternal and child care classes, fitness and health classes, calligraphy research classes, massage classes, etc. Courses are offered to the elderly in the community for free, and professional training teachers or college students in related majors are invited to join to alleviate the social problems caused by the aging of the population; it can be a way to build a youth science center, impart farming knowledge, and carry out creative farm practice activities; it will also be a way to regularly organize community volunteer services, set up relevant party history and culture, publicize legal knowledge, and create a variety of community activities in a form that young people love to see, as well as set up old objects recycling activities, exhibit the old photos and old objects of the community, feel the temperature and changes in the community, and provide assistance and transport the recycled old clothes to relevant poverty alleviation areas. The labels of old clothes can be collected to make creative collages; special activities can be opened during the Spring Festival, Dragon Boat Festival, Children's Day and other holidays, which are jointly planned by the community and residents to create "pop-up" cultural activities and promote the construction of material culture and spiritual culture in a coordinated manner. The concept of "home" is given to the public space, so that residents can participate in life and make the space "alive".

### 4.2 Strategy 2: Encouraging Public Participation in Activities

Nowadays, a people-oriented harmonious society has prompted the emergence of democratization of design. Public participation is an innovative governance method for community micro-renewal. The full participation of citizens is used to deal with space and social issues, thereby promoting social transformation [4], to form a new model of old community construction that adapts to social development in the new era. It is a must to realize public "sharing" to meet people's needs for a better life, encourage community residents to

participate in activities, and set up autonomy for different age groups: courtyard vegetables, farming landscapes, vegetable and fruit science squares, etc., so as to form community reconstruction and construction effectiveness and increase influence ("Figure 3"). In addition to the "hard needs" of food, clothing, housing, and transportation, it is necessary to pay more attention to the spiritual "soft needs" of residents' sense of gain, happiness, and security. It is also necessary to integrate public participation activities with community building and transform the past community governance model. Residents, as the owners of the community, should be attached importance to their voices and needs.

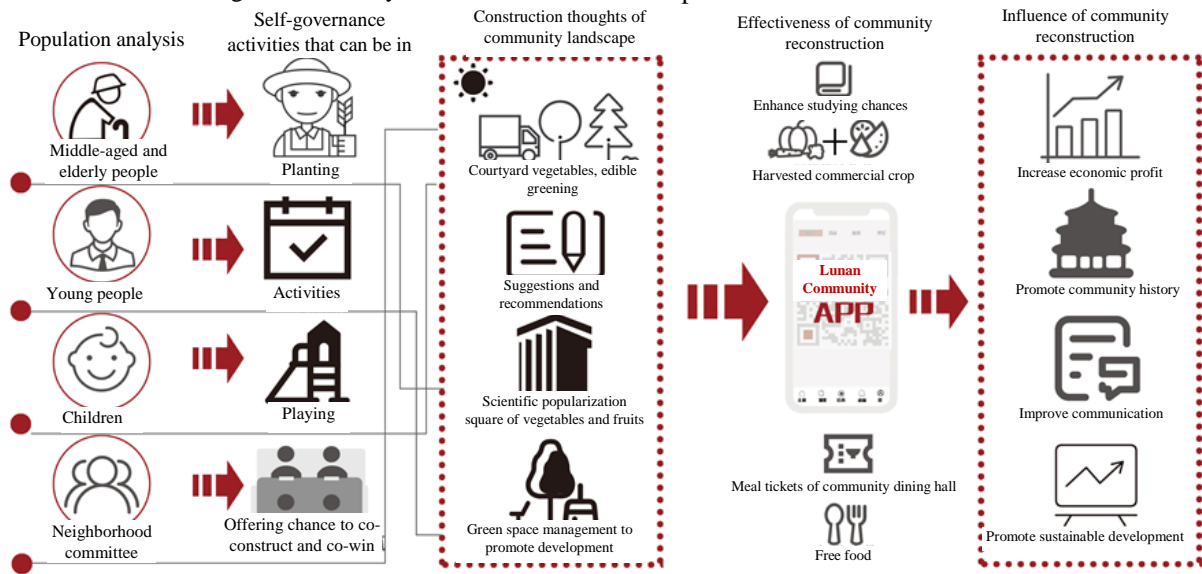


Figure 3 Process analysis of public participation activities (self-drawn).

### 4.3 Strategy 3: Awakening the Use of "Grey" Space

Exploring the potential space in daily life and its utilization methods, based on the small spacing between old and old community buildings, many buildings, few green spaces, insufficient community space, and the coexistence of insufficient supply and inefficient use of space, it is a necessity to strengthen the use of existing space through design methods and rational use of the "gray" space of the community to make maximum use of it. Through research, it is found that most of the existing fitness equipment is small and difficult to use, and the facilities and equipment produced by machines are difficult to meet the needs of residents in old communities. It is a must to be aimed at the five senses of people: hearing, touch, taste, vision, and create interactive landscape facilities to arouse the interest of community residents to participate.

In the limited public space, the community can add shared facilities with high utilization value and wide applicability, dismantle abandoned chess tables and illegally constructed clothes rail drying racks, and adopt acupuncture-style transformation mode to inject new vitality into the gray space of the community, giving it multiple possibilities. Through the investigation and observation of the needs and hobbies of residents, in the gray space that is difficult to use: the space under the first floor of stairs, street corner space, roof space, building space, etc., can be made into spaces for bird walking, street corner cooking, chess and cards, exercise, business conversation, public activities, edible landscape planting, community festival activities, etc. The re-planning of the community space can create a variety of complex spaces for rational use.



#### **4.4 Strategy 4: Building Vertical Greening of Space**

Designed in the form of vertical greening in the community, based on the lack of ground space in the old community, the small area of community green space, and the limited available space, the community can look for the green space in the sky, make rational use of the top space, ground space and facade space, and set up flexible and movable planting devices. They can introduce local vines such as creeper into the community, teach community residents the maintenance techniques, and cultivate the concept of urban green space in residential parks. In this way, plants are used to beautify the facade of the building and create vertical greening, and at the same time increase the residents' sense of autonomy and the feelings of the protagonist. At the same time, the residents' daily drying behavior can be designed on the roof to turn it into a scenic line of artistic drying, to alleviate the problem of insufficient ground space, and create ecological and green communities through the construction and construction of vertical greening.

#### **4.5 Strategy 5: Building an Edible Landscape**

Edible landscape is a brand-new model of future urban development, and it is a new trend concerning the future development of cities based on the concept of sustainable ecology and covering the natural environment and human values. It is an important path to implement urban agriculture and realize urban sustainable development [5].

"Remember homesickness" is an important concept pointed out by General Secretary Xi at the Central City Work Conference, and "edible" landscape is to plant and cultivate fruits and vegetables in the green space of the community. We set up courtyard edible landscapes according to the courtyard layout structure, and build an "edible" life system through forms such as elderly gardens, popular science gardens, and roof gardens. Doing these can alleviate the urban aging and empty-nested homesickness for the elderly, increase the pursuit of emotions and elapsed memories, and produce popular science education for young people through farming, food and planting, and evolve from a simple landscape viewing function to a functional, interactive and interactive function. The new model of experiential community landscape allows people to socialize in their work: 1) Improve neighborhood relations 2) Strengthen

community spirit 3) Cultivate fresh vegetables, flowers and fruits 4) Look for agricultural civilization to explore new ways of landscape existence. It will be of great significance to construct a community landscape environment of sustainable circular production of symbiosis, coexistence, sharing and empathy.

#### **4.6 Strategy 6: Creating a Community Platform for Co-governance**

"Everyone can speak", the public service platform will provide community residents with services such as business, education, medical care, and elderly care. Through the platform, the following can be achieved: 1) Realizing online shopping without leaving the house, and door-to-door; 2) Inquiring about discount promotion information of merchants, and making online reservation and consumption of goods and services; 3) Carrying out educational information release and inquiries, and receiving education and training at community education and training service points; 4) Providing telemedicine and collaborative medical care, forming a smart medical system, and provide community residents with mobile or PC appointment registration services; 5) Establishing emergency rescue and alarm facilities, setting up help buttons in public areas, and setting up emergency call devices connected with the help buttons in the property management center and control center. 6) Achieving real-time statistics of the records of pedestrian and vehicle traffic, controlling the number of vehicles parked in the community, and checking the remaining parking spaces at any time; 7) Through community sharing and residents sharing, spreading and carrying forward the historical and cultural heritage of Lunan Community, and community residents can also share their own new things and make themselves the protagonists of the community.

## **5. CONCLUSION**

For the environmental renovation and renewal of the old community, public support is the foundation to promote its development. The coordination of policy and funding support between the government and non-governmental organizations is an important condition to ensure its long-term and healthy development. The professional knowledge of landscape architects is the source of wisdom for community transformation [6]. In the current urban development process, the issue of humanization and

indifference in the old community, the relationship between people and the construction of neighborhood activities in the residential block in the process of reshaping the development of the old community is particularly important. Through collaborative design, all parties can participate in the strategy, combined with community building experiments, spontaneously organize community activities, and strengthen neighborhood construction, so that residents can truly become the protagonists of the community, and ultimately achieve the sustainable spatial quality improvement of the old community.

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## **AUTHORS' CONTRIBUTIONS**

Jie Tan is responsible for experimental design, and contributed to revising and editing. Yue Ma analysed data and wrote the manuscript.

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