



An empirical analysis of community co-governance participation intention and its influencing factors in public space construction: A case study of community participation among residents in Chengmai County, Hainan Province

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Abstract. This study takes Chengmai County, Hainan Province as an example, and analyzes the problems of community participation in the county through a questionnaire survey of residents. Based on these problems, the research puts forward the community participation strategy of public space construction and community participation strategy of public space construction, and discusses the optimization path of community participation and the requirements of improving community participation. At the same time, it puts forward a variety of measures to provide residents with living convenience, improve the living environment of the residential area and improve the satisfaction of residents. The study has important implications for community development and sustainability.

Keywords: public space construction, community participation, community governance, sustainable development, residents questionnaire survey

1 Introduction

1.1 Community Background

Chengmai County is located in the north of Hainan Island, the geographical location is very favorable. Community as a construction unit of the city, community participation is the "cell" of urban construction, can be optimized in the construction of a spiritual civilization approach to community infrastructure and enhance the residents' community participation, production and living space, and ecological space, both natural and socio-economic value, the development of modern communities. The community problems in Chengmai County, Hainan Province, are mainly due to poor and unsecured community infrastructure. This has led to the participation of community residents which is positively declining.

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1.2 Literature Review

To systematically and objectively screen the research literature on community participation and ensure the accuracy of the samples, the CNKI database was used as the sample data.

To systematically and objectively screen out the literature on community participation, the CNKI database was used as the sample data, and 1,826 pieces of literature were obtained by using an advanced search with the themes of "community participation mode" and "influencing factors". By collecting, organizing, and synthesizing the existing literature, community participation factors were reviewed and analyzed. This can help researchers to understand the existing research findings and theoretical frameworks, and raise new research questions or provide theoretical support. In terms of the volume of literature publications, community participation in ecotourism-related research has shown an overall growth from 1990 to March 2023. Based on the context, content, and volume of literature published, it can be broadly categorized into three stages.

1.2.1 Exploratory Development Stage (1995-2004).

The research related to community participation in this period was in the beginning stage. As China did not pay much attention to the situation of residents' satisfaction with the community in the early period, most people's community participation was also not high. From 2000 onwards, scholars gradually paid attention to the importance of community participation and the importance of residents' satisfaction with the community. Relevant literature gradually began to increase. As the research continued to deepen, the content and perspective of the documents were also enriched. Yang Rong [1] indicated that community participation refers to the participation of community members in community public affairs and community public activities in general, and determines the development direction of community building in a certain sense. Liu Zhuhong [2] pointed out that the community as a social life community composed of people living in a certain geographical area, can not be separated from the common participation of community people. Because of the current situation of urban community participation in China, community construction should focus on people-oriented to improve the enthusiasm of community people to participate in community construction. The research method is mainly field survey method, interview method combined with questionnaire survey method and other methods, mainly qualitative research, less quantitative research.

1.2.2 Rapid growth stage (2005~2019).

The content and perspective of the research in this stage are more in-depth, such as community sense of belonging, Cheng Yan [3] studies the community sense of belonging and community participation of suburban residents, and she will conduct theoretical analysis from the "field" and "attitude-behavior" perspectives in social psychology. At the same time, she will use a non-parametric hypothesis testing method and case interviews for validation, to explore the sense of community belonging and

community participation behaviors of residents of peri-urban areas. On the other hand, in the construction of community participation types and the analysis of their influencing factors, Yang Qin [4] conducted a comparative study on the participation behaviors of residents in two communities with completely different construction backgrounds, constructed two different participation types according to the differences in the willingness, content, and degree of participation of residents in the two communities, and based on this, analyzed the reasons for the different participation types of residents in these two communities using a combination of qualitative and quantitative analysis. Based on this, we use a combination of qualitative and quantitative methods to analyze the reasons for the different types of participation of community residents.

From the point of view of the types of research cases, as time increases, the research cases have gradually changed from urban to rural and other poor areas. Through the comparative analysis of the results of the study, the willingness of community residents to participate in the community is assessed and optimization measures are proposed. In terms of research methodology, the combination of quantitative and qualitative research has gradually become the mainstream research method, and methods such as hierarchical analysis and structural equation have gradually become the mainstream of quantitative research, and the research methodology has become increasingly rich.

1.2.3 Intensive exploration phase (2020-2023).

This stage has a declining trend due to time. But on the other hand, in the practical exploration of community participation, there is some consensus on regulating community development. More in-depth research is needed, with more research on topics such as community economy and case studies. Research methods are also beginning to be enriched, using various types of data analysis tools to identify problems in community participation. For example, Yan Hui [5] and others combined literature collation and factor analysis to refine the indicators of resident satisfaction into three factors: housing quality, service and management, and community life and conducted a questionnaire survey on the basic characteristics, residence satisfaction, and willingness to participate of 278 guaranteed housing residents in Guangzhou. It was analyzed by ordered multi-classification logistic regression. Based on the calculation results, measures to improve the willingness of protected housing residents to participate in community common governance are proposed from the perspective of improving residence satisfaction.

1.3 Research Purpose

The construction of community basic facilities highlights the value of social civilization, socio-economic value, cultural development value, and production and life value, adheres to the development concept of "people-oriented", creates comprehensive service centers, and provides residents with a more comfortable community environment. This paper analyses the questionnaire survey and various types of data in Chengmai County, Hainan Province, to find out the existing problems of community participation. Through the construction of good community infrastructure and the creation of a fa-

avorable community atmosphere, we put forward suggestions and opinions on the improvement of community participation in the future.

2 Research Methods and Data Sources

2.1 Research Methods

2.1.1 Questionnaire Survey.

Questionnaires were designed and distributed to understand community participation factors by collecting respondents' opinions, views, and feedback. Questionnaire surveys allow quantitative analysis of data and provide statistical results. By combing through a large amount of research literature on community education, four factors were identified that affect residents' satisfaction with community participation: funding, community activities, public infrastructure, and transport. This study designed a questionnaire based on the results of previous research and in conjunction with the purpose of the study. The questionnaire consists of 11 questions, including four parts: the first part is the residents' satisfaction with community funds and where the funds go; the second part is the residents' understanding of community activities and interests; the third part is the residents' satisfaction with the community's public service facilities and their needs; and the fourth part is to learn about the traffic situation of the residents' neighborhoods, and to collect the residents' opinions and suggestions on the community's traffic.

2.1.2 Reliability and Validity Analysis.

To ensure the reliability and validity of the questionnaire, the questionnaire was analyzed for reliability and validity after the questionnaire was completed. In the reliability analysis, the Cronbach α system was used to observe the consistency or stability of the questionnaire, and the Cronbach α value of the questionnaire data in this study was 0.731, indicating that the questionnaire's reliability was good. Invalidity analysis, exploratory factor analysis were conducted on the 11 items in the questionnaire involving residents' willingness to community basic services and their influencing factors, and a KMO value of 0.80 was obtained, and the approximate chi-square distribution of Bartlett's spherical test was 3156.347, and the probability of significance value of $P = 0.000 < 0.05$ reached the significance level, which indicated that the questionnaire had a good validity.

2.1.3 Descriptive statistical analysis.

According to the results of the correlation analysis (Figure 1), there is a significant positive correlation between funding and community participation (correlation coefficient of 0.125) and a positive correlation between funding and transport (correlation coefficient of 0.057). However, there is a negative correlation with infrastructure (correlation coefficient of -0.016). There is a positive correlation between community participation and infrastructure and transport with correlation coefficients of 0.025 and

0.080 respectively. In addition, there is a negative correlation between public infrastructure and transport (correlation coefficient of -0.070).

Project	Funding	Community Engagement	Infrastructure	Transport
Funding	1			
Community Engagement	0.125*	1		
Infrastructure	-0.016*	0.025	1	
Transport	0.057	0.080	-0.070	1

Fig. 1. Drawn by the author

2.1.4 Interviews and Focus Group Discussions.

In order to gain further insight into the motivations and perspectives behind the community engagement factors, we organized a series of face-to-face interviews and focus group discussions. Qualitative data on community engagement factors was collected through interviews with local community residents and focus discussions in two groups. Participants in the interviews and focus groups were selected by convenience sampling and represented the diverse backgrounds and perspectives of community residents. In the interviews, we addressed the motivations, psychological factors, social factors, and barriers faced by individuals for community participation.

2.2 Data sources

2.2.1 Primary data collection.

Collect data directly from community members or relevant stakeholders by designing and implementing your data collection tools. This can provide customized data for specific research questions.

2.2.1.1 Questionnaire survey.

An online questionnaire was designed for community residents in Chengmai County. The questionnaire addressed community residents' level of satisfaction with the community's funding, community activities, public infrastructure, and transport. For a total of one month, from June 2023 to early July 2023, the link to the survey was widely advertised through multiple channels, including the creation of advertisements on social media platforms, as well as invitations sent via email to community organizations and schools. To ensure a representative sample, we conducted stratified sampling and invited individuals of different ages, genders, educational levels, and residential locations. In the end, a total of 304 community members participated in our survey.

2.2.2 Existing Data Collection.

Already existing datasets such as government reports, historical records, and opinion poll data were used for analysis. To support our study and provide relevant background information, we referred to existing databases that are publicly available. We used census data from national statistical agencies to obtain general information on demo-

graphic characteristics and patterns of community participation patterns in specific areas.

3 Community Participation Factors

3.1 Participating Subjects

The participating subject in community participation refers to its stakeholders, and in the creation and construction of tourism-based rural public space, it includes multiple participants such as the government, designers, builders, enterprises, villagers, and non-profit organizations. In this paper, the main participant is the residents as the theme of public space creation, through the power of the community to influence and improve the construction of public space.

3.2 Participating Objects.

The participation object refers to the public affairs and public activities in the community, the participation object in this paper is mainly the construction of community public space, including not only the construction of physical public space but also the public space of the community atmosphere. To make its participation in the crowd and public activities richer, the need to build the public space is also more diverse.

3.2.1 Community Residents' Perceptions of the Use of Funds.

According to the results of descriptive statistics (Figure 2), 80% of community residents believe that the community has sufficient funds to conduct meetings and discuss community issues. Secondly, a portion of the residents, 43.53% of the total number, believed that the funds related to community management organizations are more adequate. Finally, 1.18% of the residents believe that there is sufficient funding for community recreational activities, meaning that the majority of community residents believe that very little money is spent on community recreational activities.

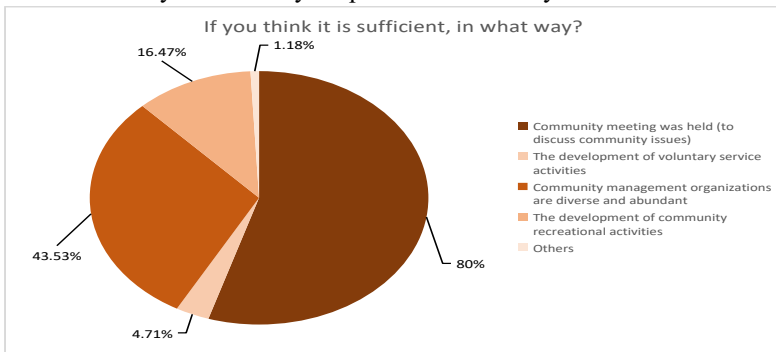


Fig. 2. Drawn by the author

3.2.2 Level of residents' interest in community activities.

The results of the descriptive statistical analysis (Figure 3) show that the majority of residents have a very high interest in sports and fitness activities, education, or skills training activities, accounting for 77.63% and 86.18% of all respondents respectively. Fewer residents were highly interested in community service projects and environmental protection activities, accounting for 31.91% and 25.99% of all respondents respectively. On the other hand, the vast majority of residents believed that community organizations could provide them with resources and support, accounting for 83.55% of all respondents. Some residents, accounting for 12.17% of the total number of respondents, believe that community organizations do not have a significant impact on regional development.

Which types of community activities are you interested in participating in?

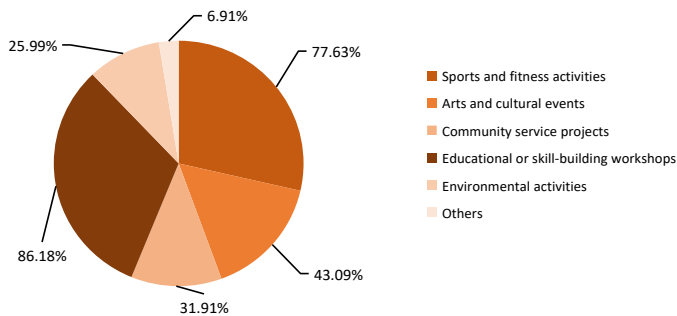


Fig. 3. Drawn by the author

3.2.3 Problems encountered by residents in using public infrastructure and suggestions for improvement.

The results of descriptive statistical analysis showed (Figure 4) that the vast majority of residents encountered problems related to the use of public infrastructure, with the main problems being that the facilities were not user-friendly (90.46%), aging facilities (83.88%), poor maintenance of the facilities (73.36%), and disorganization and congestion of the facilities (68.09%). Residents' suggestions for improving public facilities were more consistent, regular maintenance (84.87%), fundraising through civil society organizations (69.74%), and increasing the government budget (60.86%).

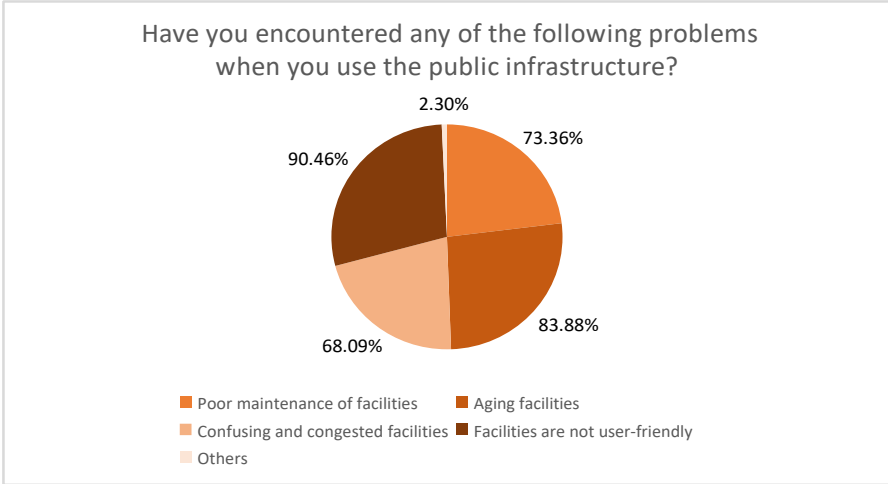


Fig. 4. Drawn by the author

3.2.4 Residents' views and opinions on public transport.

According to the results of descriptive statistics (Figure 5), half of the residents believe that the transport facilities in their community are aging 52.3%. Another 31.58% of the residents were neutral. The majority of residents, 62.86% of all respondents, believe that the existing transport facilities are adequate for their existing needs. The majority of residents believe that the district's transport focus and development should "ease traffic congestion" (91.3%), and about half of the residents believe that "public transport routes should be optimized" (58.7%), "Connectivity of transport infrastructure" (43.48%) and "Improvement of transport roads within communities" (52.17%).

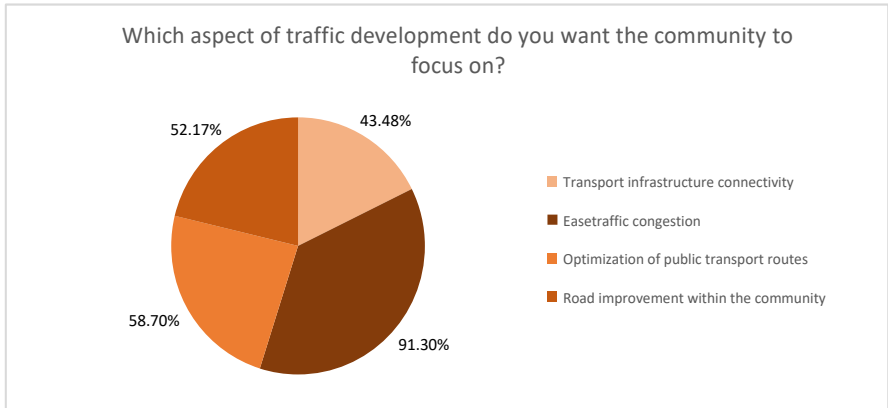


Fig. 5. Drawn by the author

3.3 Motivation for Participation

The main purpose of community participation in the construction of rural public space is to make full use of the resources within the community and to increase community participation by improving the satisfaction of community residents through infrastructure construction and space beautification. The optimization of infrastructure and the improvement of the environment is conducive to the improvement of living standards. The good community atmosphere created also provides better living space for community residents and attracts more residents to join in community activities.

4 Community Participation Strategies for Public Space Construction: A Case Study of Chengmai County, Hainan Province

4.1 Background and Current Situation of Public Space Construction in Chengmai County

The construction of public space in Chengmai County is relatively lagging behind in comparison to other urban infrastructure projects. The investment in public space construction is relatively small, and the planning, design, and construction of public space is relatively simple, lacking innovation and foresight. As a result, public spaces lack in quality and functionality. Additionally, the management and maintenance of public spaces is not in place, and there are hygiene problems and safety hazards. Although Chengmai County has made some achievements in public space construction, such as the Fenghuang Mountain Park and Longtang Park, these parks still have room for improvement in terms of supporting facilities. The lack of complete facilities, such as toilets and garbage cans, affects the visitors' experience.

Chengmai County lacks citizen participation in the construction of public spaces. Citizens invest less in public space construction and have limited enthusiasm and initiative, resulting in poor quality and effectiveness of public space construction. Therefore, the Chengmai County government should strengthen the awareness and publicity of citizen participation. This will improve citizens' participation and sense of responsibility, fostering joint development in public space construction. Additionally, public space construction in Chengmai County also has problems in planning and management. Some urban squares and parks have been built without reasonable planning and design, resulting in wasted space and low utilization rates. Management of some public spaces is not strict enough, leading to problems such as indiscriminate parking and littering.

To address these issues, Chengmai County needs to implement effective community participation strategies in public space construction. These strategies should encourage citizens to invest in public space construction, improve the quality of planning and design, and enhance management and maintenance of public spaces.

4.2 "Interactive" Community Participation Model

4.2.1 Interactive and Cooperative Community Participation Model.

Local life could be shaped by local interactions. Everyone's activities result in social constructions, which are mutual purpose and mental constructs[6]. The interactive and cooperative community participation model refers to a mode of participation in the governance of community affairs, in which community organizations, government service agencies, and jurisdictional units can collaborate in the governance of community public affairs based on laws and regulations through the mechanism of consultation on an equal footing[7]. In the modernization of urban community governance, Chengmai County's interactive community participation model is defined as a coordination of government and social regulation, with residents' autonomy as the course of action to promote the actors in community public affairs and public welfare[8].

In recent years, Chengmai County has actively guided the participation of social forces in community education, promoting community education into the community (village) governance community project. By 2023, Chengmai County plans to realize the "community education into community (village) governance community" project, covering the whole area, establishing 11 town community education schools, and building the "family + school + enterprise" education platform model. Through a series of courses, Chengmai County has created a favorable atmosphere for lifelong learning for all people, empowering faster and better development of rural governance.

4.2.1.1 Application of Cooperative Participation Model of Community Organizations and Jurisdictional Units in Chengmai County.

The government of Chengmai County has established a cooperative mechanism between community organizations and jurisdictional units through signing cooperative agreements, clarifying the responsibilities of each party, and realizing the sharing of resources and information. Chengmai County encourages residents to actively participate in community governance and establishes a mechanism for residents' self-governance. Through the election of community residents' committees and the establishment of a community residents' representative system, residents are allowed to play a greater role in community governance. With the joint support of both sides, the community has established community medical and health service stations, community cultural activity centers, and other service facilities to provide better services for residents.

4.3 Measures to Implement the Community Participation Strategy in Chengmai County

4.3.1 Creating an Interactive Atmosphere for Residents' Personalized Interaction.

Communities in Chengmai County can encourage residents to create recreational associations such as calligraphy, dance, and mountaineering associations to help expand neighborhood interaction and enhance feelings. Housing and community management departments should emphasize shaping public spaces when planning community construction to create opportunities for flat contact between residents and

eliminate the sense of isolation that comes from "closed doors" in urban communities[9].

4.3.2 Building an Interactive Platform for Rationalized Consultation among Residents.

Chengmai County has built a platform for the expression of interests and demands, institutionalizing and standardizing the construction of various forms of political communication, interests and demands, and platforms for the expression of public opinion. This has built a systematic network for the expression of interests and political communication that is free of information and crisscrossed with information, realizing the effective communication and benign interaction of pluralistic governance subjects in the community, and continuously improving the administrative efficiency of Chengmai County's government and the effectiveness of community governance.

Chengmai County's Community Resident Committee has established a platform of "fingertip interaction" through the construction of microblogging, QQ groups, WeChat public numbers, and related APPs and clients, and gradually moved community governance to the cellphone, built on fingertips, to realize the mobility of the committee and improve the relatively backward development of informatization in Chengmai County. Chengmai County has also built a democratic interactive consultation platform based on the Internet thinking of "network" + "grid".

4.3.3 Improving the Interactive Mechanism for Residents' Orderly Expression.

Chengmai County guides residents' orderly expression by cultivating community politicians, who serve as spokespeople for residents' expression and become an important bridge connecting the private sphere of residents' lives with the public sphere of community life[10]. Each grid unit should develop ways for residents to interact with each other in accordance with the actual development situation, creating an interactive platform that divides the network into various levels according to the region and establishing a grid "resident group" to receive and solve problems in a timely manner.

4.3.4 Chengmai County Community Participation Strategy Achieved Results and Experiences.

4.3.4.1 "15-minute Convenient" Service Circle.

The need for a 15-Minute City is equally focused on other dimensions, relating to ecological sustainability, promoting social interactions and citizen's participation and addressing automobile dependence by emphasizing on proximity of all basic services[11]. Chengmai County established a 15-minute convenience service circle to meet the basic consumption and quality consumption of daily life of residents as the service object. The community can expand the "online processing, offline service" mode of human resources and social services and strengthen the role of the district and county level human society comprehensive service hall. Chengmai County has also strengthened the grass-roots station of the people's service center battleground status and other channels to expand the capacity of resources for people's services.

4.3.4.2 "Five Communities Linking" Governance Circle - Community Social Organizations Playing a Prominent Role.

Chengmai County relies on community comprehensive service stations, comprehensive governance grid information platforms, and emergency command platforms to establish deliberative carriers such as "people's affairs rooms", "people's mediation rooms", community forums, and alleyway forums to form communities, social workers, social organizations, community volunteers, and social resources as one of the new models of linked governance.

Chengmai County has also created brand projects, giving full play to the regional characteristics of Chengmai County's "Fushan Coffee". For community organizations, volunteer teams can build a platform to serve residents and show style, reasonable distribution, full integration, and play the role of $1 + 1 > 2$.

4.3.4.3 Mechanism Innovation for Participation in Community Governance by Jurisdictional Units.

Chengmai County has creatively put forward the new term "Geshitong" to create a new platform for "dynamic" grids. The platform establishes a five-level management and command system of "grid-village (community)-town government-county departments-command center" to build a county-wide unified grassroots social governance grid system.

Chengmai County has also established a public benefit sharing list, public resource opening list, and public action list on the basis of the "vitality network" with the contents of shared time, shared goods, shared knowledge and skills, shared public space, shared public welfare funds, and shared data, so as to realize the win-win situation of cooperation among multiple subjects.

In the process of community governance, it is necessary to break down the barriers to cooperation between different actors, establish a cross-sectoral, cross-industry platform for equal dialogue[12], communication, and coordination, and utilize the function of "enterprise WeChat" to establish a grid "residents group" with the residents. The "Format Pass" platform has a variety of functions such as publishing announcements, anonymous complaints, information sharing, etc., and is able to reflect problems from the "bottom up" and push newsletters from the "top down".

4.4 Community governance and cultural environment construction

4.4.1 Participate in the construction of community vitality space.

Research on "vitality" in the field of urban planning is mainly based on space. In *The Life and Death of Great American Cities*, Jane Jacobs believes that the vitality of city squares is due to various public life in cities, and that the generation of vitality is the result of citizens' activities in the places[13]. Space vitality is usually generated by people, activities, places, people are the indispensable basis of vitality, activity is the external expression of vitality, and all need to have a place to support. This paper argues that how to make space attractive to people, the process of generating various activities can be understood as space vitality. Spatial vitality makes people, as the main

body of social production and life, have a high enthusiasm for participating in a variety of activities with certain regional characteristics.

(1) Optimize the distribution and layout of activity points in public spaces to enhance spatial attractiveness.

Whether community public space has high accessibility can directly affect the frequency of community residents' participation in community activities [14]. Community participation activities in public spaces should take into account whether the vast majority of residents are within the accessible coverage of activity points. However, in the old community, the number of activity points is small, and there will be insufficient space utilization and timely update. It is necessary to investigate the idle and old space facilities in the community, and reasonably transform and utilize them according to various conditions such as specific space location, mode and form, so as to increase residents' participation in public space and improve residents' satisfaction.

(2) Improve the quality of public space and enhance the attractiveness of space.

Aiming at the construction of community vitality space, firstly, the quality of space should be improved, and residents should be attracted to participate through good environment. In addition, the unique atmosphere of the public space should be formed to strengthen the emotional connection of the community.

This requires timely understanding of residents' needs. The preliminary research part of this paper conducted a survey on residents' satisfaction, and residents' actual living needs for phenomena such as old infrastructure and inconvenient transportation should also be considered. Attract residents to form common opinions, ensure the unity of community participation in public space, enhance residents' sense of participation and belonging through co-construction mode, and then improve residents' satisfaction.

4.4.2 Participate in the construction of community cultural space.

The construction of community cultural space is mainly to show the culture and style of the community.

Zhang Jinming believes that public space has certain symbolic properties, which can be jointly built by residents[15], so that residents can participate in the construction process and give the place a certain symbolic significance. The cultural value of the place also has social attributes. The stories that have happened in the community and the memories of the elderly should be fully explored to give different communities special cultural values and highlight the uniqueness of the cultural atmosphere. The particularity of public space enables community participation to influence the attributes of the community to a certain extent. Residents' requirements for the community are closely related to residents' satisfaction, which also reflects people's pursuit of a better and happy life.

To create the cultural atmosphere of public activity space, it is necessary to fully explore the characteristics of the community and create the activity space with high adaptability and diversity. Taking into account the specific needs of residents, carefully joining the construction project, transforming residents' demands into design schemes, creating residents' common activity memory, and making the cultural atmosphere of public space show humanization and comfort everywhere.

Activity places in public spaces should receive greater attention in the community. The activities of community residents are mainly communication, fitness and rest, so the placement of appropriate health and entertainment facilities such as seats and fitness equipment in public Spaces can attract more residents to participate. The construction of public space that is more in line with the community atmosphere and reflects the characteristics of the community can attract some residents to come, in addition, it can attract more residents to join, communicate with the residents who came earlier, let more people stay in the public space, and then enhance the vitality of the community cultural atmosphere.

To a large extent, the creation of cultural atmosphere depends on the choice of appropriate facilities. In the choice of specific facilities should fully consider the conditions of different communities, both practical and aesthetic. Include the different age groups, geographical locations, and specific needs of residents in each community. In order to meet the entertainment needs of community residents, to meet the requirements of beautifying the environment. In the space layout, combining the requirements of convenience and aesthetics, grasp the space rhythm and facility orientation; In color design, consider appropriate color and spatial coordination. In order to create a better overall effect, to create a comfortable, healthy, relaxed atmosphere.

4.4.3 Participate in the construction of community ecological space.

As the main group participating in the community, local residents are not only the utilization group of ecological resources, but also the protection group of ecological resources.

(1) Improve the ability of community management and organization to create a good health environment.

The environmental health of the community is also an important aspect of urban management. The neatness of public space directly affects space utilization and space accessibility. The introduction of long-term environmental health governance mechanism can improve the overall cleanliness of the community environment. To create the endogenous power of community environmental health, professional property companies should be introduced, and the main body of responsibility should be clarified. Improving the ability and level of community management and organization plays an important role in improving community environmental conditions, forming a long-term system and mechanism, and effectively improving community environmental health conditions.

To clarify the needs of community ecological environment maintenance, you can perform the following steps.

First, conduct a statistical survey on the environment of the community, and conduct a full range of regular and special cleaning of the internal space of the community. Second, according to the size of the community equipped with enough cleaning personnel, while encouraging residents to join them, the establishment of a fragmented grid management system. Let the community residents have a real sense of participation in the maintenance of environmental health conditions of public space, will promote the improvement of public space maintenance. Third, the strict implementation of garbage classification standards should be implemented, and the improvement of

ecological conditions will make the long-term and slow effect, and the garbage classification and release measures can ensure that the ecological damage is flat or reduced. Promote regular fixed-point sorting and collection of domestic waste, appoint special personnel to take charge, and encourage community residents to participate. Finally, intelligent equipment can also be used to improve the identification and cleaning efficiency of garbage, and promote the digital construction of communities.

(2) Attach importance to the power of the masses and ensure community participation.

Improve the community health management system, strengthen the construction of relevant teams, on the basis of improving the level of environmental management at the management level, encourage residents to participate, mobilize the masses, and supervise the environmental health situation in the community. Residents can score the environmental health conditions of public Spaces, and the scoring results can be incorporated into the work assessment indicators of grid management, which can promote the improvement of work quality and work efficiency, and effectively improve residents' satisfaction.

(3) Improve residents' awareness of environmental protection and clarify the subject consciousness.

Community residents should consciously protect environmental health conditions, and make clear their own responsibility and main consciousness for the construction of a good environment in the community. In daily life to ensure their own behavior at the same time, stop uncivilized language. At the same time, you can participate in the cleaning work inside the community, clean the community environment and participate in the community construction.

The participation of community residents can reflect the willingness of community residents to participate to a certain extent, and the higher willingness of community participation can also promote the construction of public space atmosphere.

5 Effectiveness and inspiration of the community participation strategy

The community participation strategy of public space construction and space creation is carried out by means of questionnaires and field research in the early stage to understand the pain points and difficulties of community participation and to objectively understand residents' opinions and ideas about community participation through data analysis. In the middle of the implementation, villagers' opinions are solicited and real-time information is exchanged, and in the late stage, continuous surveys and evaluations are conducted to provide feedback. The whole process of grasping the concept of resident-centered community participation can be predicted to achieve community participation of all residents, the greatest enthusiasm to mobilize community residents to participate in the enthusiasm of the participation rate of not less than 80% of the resident population of the community, the satisfaction of the community construction of more than 90% of the effect of participation, to enhance the sense of

community residents to live in the sense of experience and the attractiveness of the community itself.

5.1 Community Participation Strategy for Public Space Construction

The community participation strategy of public space construction predicts the creative effect of forming a "15-minute convenient" service circle, a "five-society linkage" governance circle, and community governance mechanism innovation in the community, and the following will elaborate the expected effect of this strategy in each community in Chengmai County. The following is a detailed description of what the strategy is expected to accomplish in each community in Chengmai County.

Chengmai County, as a "hometown of longevity" and a highly aging city that greatly exceeds the standards set by China and the United Nations, has highlighted the problems of difficulties in community government affairs, business promotion, and cooperation among residents, so through the model of cooperation between community organizations and jurisdictional units, it is possible for residents to communicate with community grid members and coordinators within 15 minutes to open up the barriers between community organizations and residents.

Chengmai County, there are many urban old neighborhoods, the community, social workers, social organizations, community volunteers, and social resources are fail to effectively communicate, greatly reducing the management efficiency of the community and the ability to integrate resources. The formation of the "five community linkage" governance circle, will create a community as a platform, social organizations as a carrier, social workers as a support, and community volunteers as complementary community public welfare resources to supplement the new community governance model and the formation of a high degree of participation of residents in the vitality of the community.

Break the past Chengmai County community units' inherent thinking and governance model, relying on WeChat for grid management of the status quo based on the formation of a perfect and mature "list" management of the community, to create various types of management lists will be the people's views and needs systematization and accountability, and synchronized to promote the new development of grid-based service management work.[16]

5.2 Community Participation Strategy of Public Space Creation

According to our questionnaire survey of community residents in Chengmai County, only 1.18% of the residents believe that community recreational activities have sufficient funds, and the community's investment and development in recreational activities is relatively small. Therefore, through the creation of vibrant space to provide community residents with more space for recreational activities and infrastructure conditions, combined with Chengmai County's specialty coffee culture, coffee culture exchange activities, to develop special community activities. Achieve a vibrant community with at least 25% of funds invested in recreational activities.

According to the results of the questionnaire survey community infrastructure is not easy to use accounting for 90.46%, and aging facilities accounted for 83.88%, indicating a lack of many cultural facilities and insufficient. Our creation of cultural space strategy to increase and repair cultural facilities, to achieve the community of cultural facilities damage and aging rate of no more than 5%, to create sufficient public cultural space.

According to the on-site research, the community in Chengmai County has problems such as dead ends of hygiene in each natural village, small advertisements posted indiscriminately, broken banners, chaotic piles by the corners of houses and walls, and construction garbage as far as the eye can see along the village roads, etc. Through the enhancement of the organizational capacity of community management and the power of people's participation, we can achieve the effective improvement of the community's environmental conditions and the formation of a long-lasting institutional mechanism, and reach the eco-community.

6 Summary

This study is based on a resident questionnaire survey on a series of problems of community participation in Chengmai County, and the questionnaire data have revealed the problems of community participation in Chengmai County. In response to these problems, the study proposes two different community participation strategies, namely the community participation strategy of public space construction and the community participation strategy of public space creation, with the aim of giving constructive suggestions for the improvement and development of community participation in Chengmai County. At present, the construction of public space in Chengmai County is backward and less investment, the community participation strategy of public space construction proposes specific formulation and implementation programs from the aspect of residents' interaction, aiming to help all the people in the community to participate in the community governance, improve the effectiveness of community governance, and let the community residents have a sense of belonging. The community participation strategy of public space creation proposes the construction of community quality atmosphere and environment from different space types of vitality, culture, and ecology, aiming to improve the atmosphere of community participation in Chengmai County and to improve the status quo of Chengmai County's residents with poor awareness of participation and poor democratic atmosphere in the community.

The community participation strategy discussed in this study combines existing research results and proposes some optimization paths for community participation, especially in Chengmai County as an example, to help communities and residents interact in a benign way, and residents actively participate in community development to promote sustainable community development. Therefore, the community participation strategy has a good effect and high generalizability and can be more deeply explored and researched in the future. In the future implementation stage, the quality of the community people put forward higher requirements, so residents need to pay more attention to the improvement of personal ability and the progress of thinking to better

participate in community management. For the community system, it is necessary to introduce new responsible bodies according to different community development needs and task models, and to construct clearer organizational structures, such as departmental supervisors, NGO coordinators, and community self-governance[17], to assist in the sustainable development of community participation. For the development of society as a whole, it is necessary to increase the attention and support for community participation in order to build a mature community management mechanism.

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