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Study on the Resilience Enhancement and Renewal Strategy of Traditional Village Public Space in the Post-Epidemic Era: A Study Considering Cuanxia Village in China as an Illustration

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Abstract. Background: The rapid emergence of the COVID-19 epidemic has prompted a reevaluation of the current physical space environment. After the pandemic, the fragmented rural tourist era has returned, and new ideas for the development of public space in traditional villages have emerged, with resilient designs for rural public space planning and design taking into account disaster conditions. Methods: This study examines the link between the idea of resilience and the public space of traditional villages, the present application of the concept of resilience in their spaces, and the features of shifting spatial demands during an epidemic. Results: This article provides techniques for maximizing and enhancing resilience at three levels: responding to the catastrophe, adjusting to the disaster, and seeking development in the epidemic, to reshape the public space in traditional communities. Cuanxia Village in west Beijing is utilized as a practical object for the application of empirical evidence in order to increase the resilience of village public space and the catastrophe adaption and response capabilities of traditional villages. Conclusions: This research proposes a public space design method that integrates with normalized epidemics, enhances the catastrophe response and recovery capacities of conventional rural public spaces, and makes an essential multidisciplinary theoretical contribution.

Keywords. Post-epidemic, rural, public space, resilience, Cuanxi Village

1. Introduction

1.1. The Severe Impact of the Pandemic on Rural Communities

The unexpected breakout of Corona Virus Disease has had a significant influence on all sections of the nation and has shown potential difficulties in both urban and rural locations [1]. As a result, it has been recognized that the pandemic poses a threat to public

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health and safety and is closely related to the current urban and rural environment [2]. The isolation and control of villages necessary during the era of epidemic prevention and control has resulted in a major reduction in the population's range of activities and a significant decrease in tourism profits in traditional villages. The "cooling off phase" brought on by the pandemic can also be viewed as an ideal opportunity for villages to focus on high-quality development [3]. People have more leisure time and are more concerned with quality than quantity [4]. By changing the popularity of fragmented tourism and adjusting their development goals, traditional communities can be revitalized in the midst of the pandemic's devastating impact [5].

1.2. Problems with Public Space in the Village

In the post-epidemic setting, people's travel radii are reduced, and the safeguarding of the intrinsic texture of traditional villages results in a high density of village structures and less public leisure and green space. This architectural environment does not promote ventilation, cleanliness, or social distance [6]. During an outbreak, people increasingly grasp the significance of public space in traditional communities for public health [7]. The public space of traditional clusters was used for evacuation and control during the epidemic, reflecting the dual resilience of public space, and the relationship and mutual influence between integrated land use arrangements, green eco-areas and public open space in traditional villages need to be taken into account in the planning process.

1.3. Resilience Necessity

In the framework of traditional village public space in the epidemic-prone to recurrence, the temporal dimension, i.e. the combination of peace time and disaster time, should be taken into account, relying on the relevant characteristics of resilient city theory [8]. The public space of traditional villages must accommodate the everyday living activities of people, i.e., have more open spatial qualities. Moreover, public space should have the capacity for resource storage, receiving treatment in isolation, monitoring, etc., in response to epidemics (Fig. 1) [9]. In the framework of the normalization of epidemics, the prevention and control of epidemics should also attempt to develop communities and encourage the continued growth and upgrading of traditional villages afflicted by epidemics [5].

Fig. 1. Fundamental and advanced characteristics of public space in traditional villages: (a) fundamental characteristics of resilience theory; (b) advanced characteristics of toughness theory.

1.4. Objectives and Methodology of This Work

This study will integrate the meaning of resilience theory, investigate the existing issues of traditional village public space in depth, and propose pertinent research to optimize and enhance its resilience. Using the relevant characteristics of resilient city theory, the dependability, redundancy, diversity, and speed of traditional village public space will be improved first. The advanced characteristics of resilience, adaptation, learning, and transformation are based on this foundation [10]. Specifically, it is interpreted as assessment and monitoring prior to the occurrence of disasters; rapid response, resistance, and reaction when disasters occur; and resilience following the occurrence of disasters to assist in returning to the original state, learning from disaster experience, and promoting transformation and sustainable development.

2. Literature Review

2.1. Urban Resilience Theory and Its Related Concepts

Scholars tend to divide resilience into three domains: engineering resilience, ecological resilience [11], and evolutionary resilience [12]. In regional planning research, resilience is typically characterized in terms of system evolution [13]. Resilience is the capacity of a system to stay stable in the face of external disruptions or to organize and adapt when the inherent equilibrium is disturbed [14]. In an application of traditional village thinking based on resilience, McManus et al. (2013) note that village resilience is a largely positive response to the concept of rural decline and views villages as active, dynamic social organizations as opposed to passive and at the mercy of uncontrollable external forces. Sorensen and Epps (2005) discover that resilient villages Wim Heijman (2007) argues that the resilience of rural areas is a necessary condition for sustainable development, ensuring that villages continue to develop despite various conflicts and are co-created by the economy, landscape spatial design, and policy.

Space is a relatively practiced type of material existence, a material projection resulting from the interaction of humans with their surroundings. The creation of rural resilient areas primarily mirrors the growth of rural resilience. Based on the research of coral reefs, Nystrom and Folke (2001) introduced the idea of spatial resilience for the first time. From the standpoint of spatial organization, Fariba Gharai (2016) believes that resilient environments should be characterized by "diversity, connectedness, redundancy, and resilience." In addition to spatial structure, Lars Marcus and Johan Colding (2011) suggest that places should also be defined by "diversity, self-organization, learning, and active capability." Cote and King (2017) contend that rural communities must develop resilience, particularly spatial resilience. This is due to the fact that these regions serve as a link between impoverished regions and economically prosperous metropolitan cities. Ding Jinhua (2016) constructs a rational spatial structure system and land use structure in order to enhance the overall resilience capability of rural public space. Together, the four pillars of spatial resilience outlined by Brunetta and Caldarice (2020) comprise the definition of spatial resilience. However, the current application of resilience theory in rural space consists primarily of qualitative descriptions, or the establishment of a corresponding evaluation system and direction guidance at the theoretical level, and it is difficult to apply the research findings to actual planning practice [15].

On the basis of resilience theory research, disaster reduction academics have developed the idea of "disaster resilience," which stresses the importance of resilience in resisting catastrophes. Cutter (2008) proposed the DROP model (disaster resilience model based on place) and constructed six resilience evaluation indexes to quantitatively assess local resilience; Chris et al. (2010) constructed a community resilience evaluation index system; Asadzadeh et al. (2015) used factor analysis and hierarchical analysis to develop resilience indicators.

All parties have reached a preliminary consensus on communities for the purpose of catastrophe adaptation and mitigation. In order to transfer the results at the village level, however, more research results must be translated and re-discussed based on the theoretical level, as the spatial usage characteristics and spatial structural stability of villages are more complicated.

2.2. Resilience of Village Public Space After the Outbreak

During the COVID-19 outbreak, traditional communities were more susceptible to the disease's influence on their public space resistance due to their substantially more congested dwelling situations and more complicated spatial settings. And in the context of the pandemic, traditional village places have distinct resilience capacity requirements than urban environments due to the vast disparity in spatial scale [16]. The COVID-19 epidemic led to the closure of traditional settlements and the growing internalization of spatial usage [4]. In the context of social distance limitation, the utilization of public open spaces has evolved dramatically and become the sole "outside" alternative available [17]. Faced with the pandemic, rural areas should be prepared with resilient spatial management as well as infrastructural assurance. In the case of an epidemic, the marketing of relevant services and facilities should be built on a more robust spatial and facility system [6].

In addition, the usage of public space inside villages is increased, and its resilience capability for people's economic and social stability, physical health, and psychological healing is highlighted [18]. Gokemen and Baskici (2021) proposed that individuals develop greater social norms to organize social conduct in the face of external risks posed by epidemics, hence increasing the likelihood of group survival. High cultural spatial cohesion in public areas, according to Lu (2022), would strengthen the resilience of social behavior in villages in the face of epidemics, hence mitigating the detrimental consequences of external shocks. Simultaneously, extensive ecological greenery covering will give healing capability to rural public areas during an epidemic and improve the psychological health of individuals during an epidemic [19].

From the standpoint of resilience theory, however, the deployment of traditional village spaces in the face of infectious illnesses such as COVID-19 has proven insufficient. In terms of their emergency reaction capability to epidemics and their resilience and ability to learn from epidemics, it is evident that traditional village public spaces cannot be successfully altered from their everyday condition [20]. The pandemic is persistent, pervasive, and will continue to influence people's behavior. In light of this, it is vital not only to stress the fundamental qualities of resilience such as "redundancy" and "connectivity" of rural public space in reaction to unforeseen catastrophes, but also to apply the "self-organization" and "learning capacity" of resilience theory. "It ensures that traditional villages continue to develop while adapting to the epidemic. When the public space of traditional villages is confronted with the epidemic, the idea of resilience in the context of the epidemic should first be developed and examined in reality to fill

current research gaps (Fig.2) (Fig.2). Specifically, we intend to determine the conditions under which traditional village public spaces respond to the epidemic crisis and to study the importance of this tendency in the future resilience construction of traditional village public spaces.

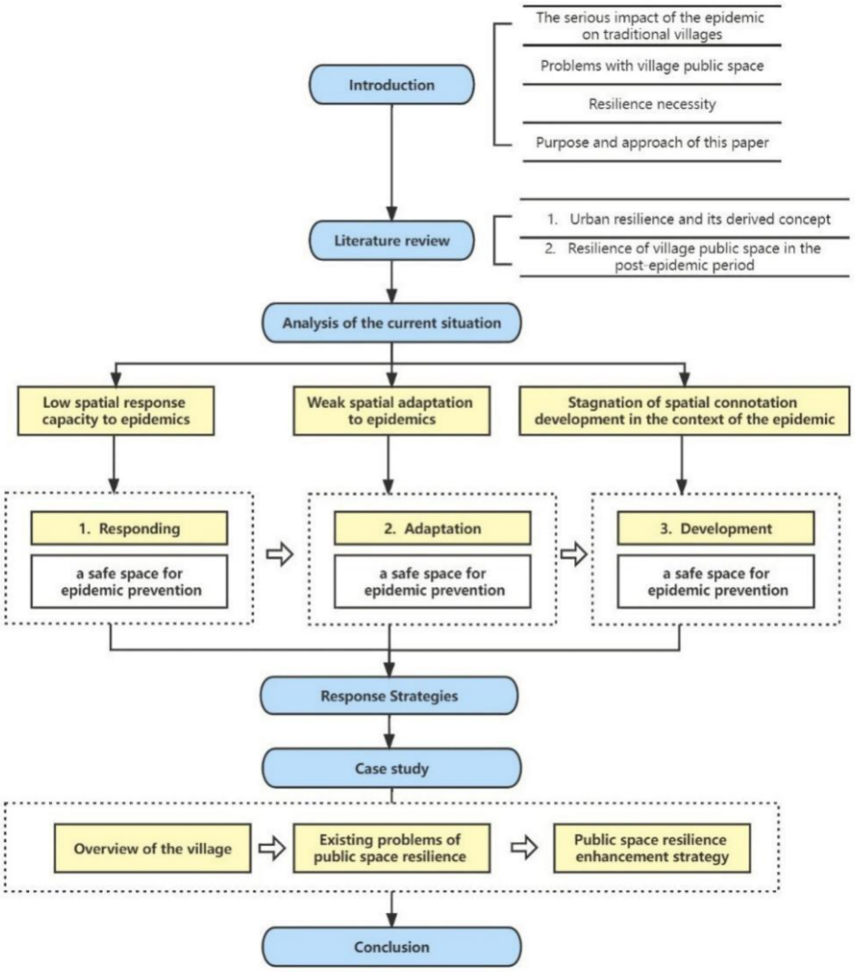

Fig. 2. Steps of the research.

3. Analysis of the Current Situation

3.1. Low Spatial Response Capacity to Epidemics

3.1.1. Poor Emergency Response Capacity of Public Space

As the spatial carrier of villagers, public space is the most direct spatial guarantee to cope with the epidemic. The historic settlements were created at an early age, and the spacing

between houses and roads is smaller. Most of the alleys have low effective widths, inadequate ventilation, and sunshine, and connect with natural ecology, which cannot fulfill the demands of ventilation and social distance maintenance during an epidemic (Fig.3). When a calamity occurs, the geographical criteria for epidemic area for temporary quarantine, monitoring, and surveillance cannot be met, and the emergency response capability is insufficient.

(a) (b)

Fig. 3 Encroachment of living space onto the street by inhabitants: (a) Encroachment of street space by inhabitants' everyday activities; (b) Encroachment of street space by residents' daily activities.

3.1.2. Low Degree of Functional Group Independence

In the setting of an epidemic, decentralized facilities and self-sufficient independent systems can, to some extent, better accommodate the social norm of keeping people at a distance, as well as simplify the evacuation of individuals and the safety of epidemic prevention. Existing traditional communities are frequently organized around a central center. Especially when traditional villages take on tourism-related duties, the living supply of the entire village and the consuming supply of visitors converge, making it more difficult to regulate the danger of epidemics.

3.2. Weak Spatial Adaptability to Disease Outbreaks

3.2.1. Lack of combination of peace and diseases.

Due to the complicated management of traditional villages, the public space is daily occupied by parking and miscellaneous piles, resulting in inadequate emergency evacuation routes, which impairs the emergency function of the space and contributes to a lack of disaster prevention effectiveness in the villages. In the case of an outbreak, there is insufficient open space for centralized testing, receive treatment in isolation, and other preventative and control measures. The function is rather homogeneous, and the space cannot be exploited quickly due to a lack of level and disaster-resistant spatial considerations [1].

3.2.2. Single-Level Spatial Structure

During the pandemic, individuals' social distance is getting smaller, and they require relatively solitary and independent settings. Traditional village public spaces are often low-level, typically consisting of huge open squares in villages with low usage rates and

small, constrained resting and lounging areas along the streets within the town streets (Fig.4). In reaction to the changes in social distance and consumption psychology caused by the epidemic, public spaces with a single level and a lack of design are no longer conducive to contemporary lifestyles.

(a) (b)

Fig.4 The lack of hierarchical space in the village: (a) the unused parking lot that is utilized inefficiently during the off-season; (b) the simplistic and rough designed architecture of private space.

3.3. Development of Spatial Connotation Stagnates in the Context of the Epidemic

3.3.1. Homogenization Of Spatial Expression

Currently, traditional villages are mostly in charge of some tourism functions. The construction of landscape architecture and accompanying infrastructure is frequently based on the physical environment style of neighboring settlements. Too much emphasis is placed on achieving a sense of uniformity and grandeur throughout construction, at the expense of preserving regional idiosyncrasies. All types of materialized manifestations of traditional village space tend to be similar, and their qualities are not sufficiently developed in terms of width and depth [21].

3.3.2. Weakened Spiritual Space

In light of the pandemic, the travel radius of the villagers is reduced, and their behaviors becomes more focused in the village. The majority of social and aesthetic requirements are satisfied by local travel, which sets greater demands on the spatial composition of traditional communities. At the same time, the spatial design of traditional villages is still predominately focused on the visual impression of walking, with little attention paid to the multidimensional experience of hearing and touch. The cultural connotation of the villages is low, focused on a single tourist experience of climbing mountains, admiring flowers, and eating farm meals, which makes it impossible to fully manifest the area's cultural connotation, and the desire for spiritual space is constantly ignored.

4. Response Strategies

4.1. Responding to an Epidemic: A Safe Space for Epidemic Prevention

4.1.1. Public Health Oriented Street Patterns

Due to the aerosol-based nature of the new coronavirus' propagation, ventilation is necessary for the street design during an outbreak. Villages should conform to the predominant wind direction of status quo roadways in order to provide natural airflow to building complex regions. It is necessary to regulate the height of new buildings and try to prevent the long side of the building from being vertical relative to the dominant direction, and to keep it within the angle of 30°45° from the dominant direction in order to facilitate the pressure difference between the air in front of and behind the building in order to ensure a good ventilation capacity [21]. In addition, as much appropriate open space as possible should be run through the dense building area, along with the construction of the corresponding strip of green space, utilizing the wind pressure formed between the cold environment on the ground created by the shading of the ground in the narrow alleyway of the Ministry and the hot environment in the open space to create thermal pressure ventilation (Fig. 5) [22]. It not only aids in the control of air pollution, but also hastens the dilution of airborne viruses and minimizes the likelihood of epidemics. In addition to this, debris control in the streets, alleyways, etc. facilitates the cleaning of ventilation corridors, lowers the site's negative space, and produces a street design that prioritizes public health.

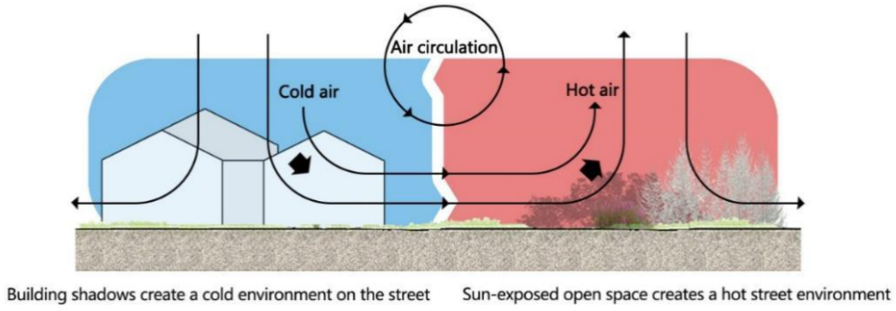

Fig. 5. Thermal pressure ventilation in village streets and alleys.

4.1.2. Fully Functional Zoning Groupings

People's social distance is shortened as a result of the pandemic, the old complicated social interaction between "self" and "others" loses its matching demand projection in space, and the relationship between people is simplified to a degree to a "city-village-family" structure. To ensure that the population density in traditional villages remains within a low-risk range, the entire village should be divided into a hierarchy of " Village - Subdistrict - Group" in terms of functional structure, to weaken the excessively strong centripetal organization (Fig. 6) and to prevent the excessive gathering of people from making epidemic prevention more challenging.

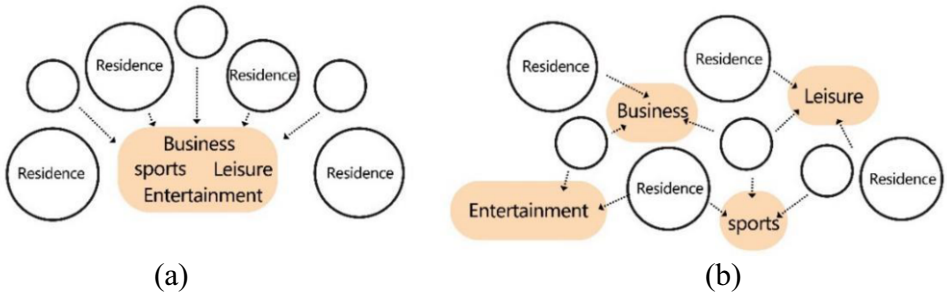

Fig. 6. Different village structures used: (a) Centralized (b) Decentralized.

Second, the arrangement of facilities should not only meet the normal needs of villagers and some tourists, but also adapt to the response to public health events; therefore, the original overly concentrated commercial and service facilities should be split and decentralized to ensure the functional completeness and disaster resistance of each unit group, thereby increasing its independence. (Fig.7).

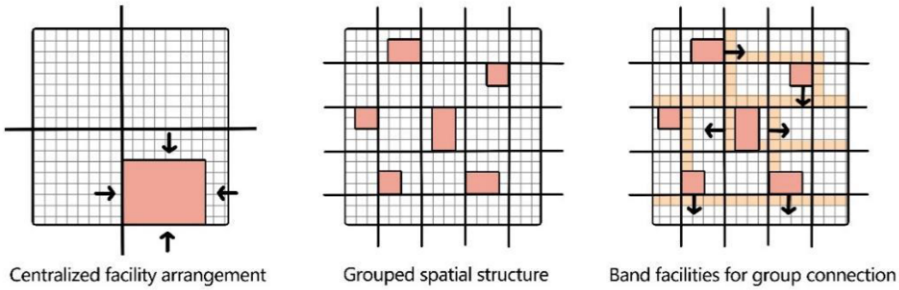

Fig. 7. Grouped space optimization strategy.

4.1.3. Optimization of Ecological Isolation Space

In the case of a public health emergency in a traditional village, an effective and functioning zoning group will significantly lessen the difficulties of disaster response and resilience. Traditional villages are endowed with unique ecological circumstances; hence, they should utilize the biological barrier of vegetation to maximize the isolation space and establish ecological isolation zones or ecological isolation walls to prevent the spread of polluting sources. The establishment of ecological isolation space can not only contribute to the deepening of the effect of group separation, but it can also serve to soften the group's border. Concurrently, vegetation with an adsorption effect on pollution molecules (e.g., two-bulb hammock, triangle maple, etc.) is planted [23], and the ecological landscape wall can similarly block the spread of some pollution sources, optimize the local air circulation effect, improve the microclimate within the street, and facilitate the further spread of harmful air and viruses. Specifically during epidemics, it will have a greater diluting impact on aerosol-borne neocoronavirus, which is advantageous for disaster risk management [24].

4.2. Adaptation to the Epidemic: Public Space Reactivation

4.2.1. Resilient Space Combined with Peace and Disaster

The two functions of space in relation to an epidemic are Ability to monitor epidemic risks and resilience to adapt to epidemics. A spatial organization that provides the ability to switch modes is called for at this time to enhance the resilience of the space. Through the layout and use of public space, there should be room for future renovation or pattern change. In terms of resilient space combined with peace and disaster, it can be considered from various aspects such as resilience of space structure, resilience of space function, and resilience of space using people.

4.2.2. Ecological Combination for Healing Space

Construction of crowd psychology is essential for the space demand in the post-epidemic era. During the epidemic phase, individuals confront unclear epidemic risks and self-monitored quarantine policy, and the frequency of going out and interacting with others drops drastically, which is very likely to produce psychological melancholy. A landscape rich in healing properties will play a crucial role in managing the emotions of individuals during and after the crisis. In the building of ecological healing spaces, more emphasis should be placed on the quantity of green places that are easily accessible to villages [25]. Initially, it is necessary to restore a number of deteriorating and inefficient flower gardens and ponds in traditional villages (Fig.8). Second, more scattered green landscape settings were introduced, with an emphasis on modest landscape modifications to communicate the village's environmentally good ambiance (Fig.9). Some of the current landscape nodes will be modified to strengthen the sense of engagement and involvement of the original rather static landscape space with the crowd, allowing even more villagers and visitors to participate in vegetation planting and leisure activities (Fig.10). Utilizing vegetative landscape to promote the vitality of public space and improve the mental health of people is essential for the resilient development of public space in traditional communities.

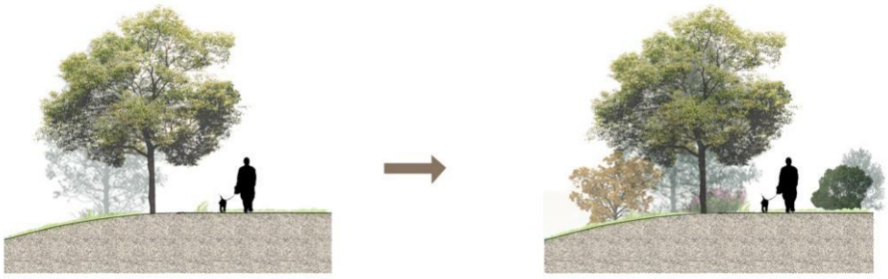

Fig. 8 Landscape supplement of inefficient garden.

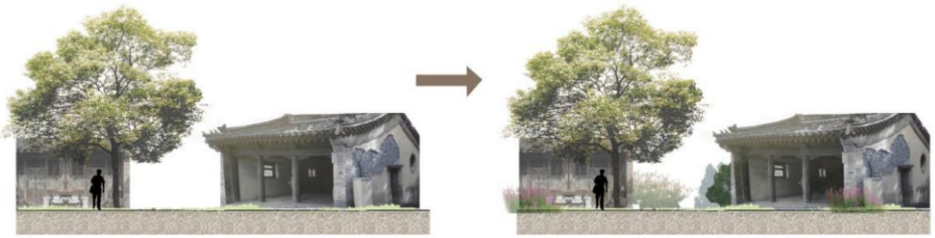

Fig. 9 Scattered landscape supplement.

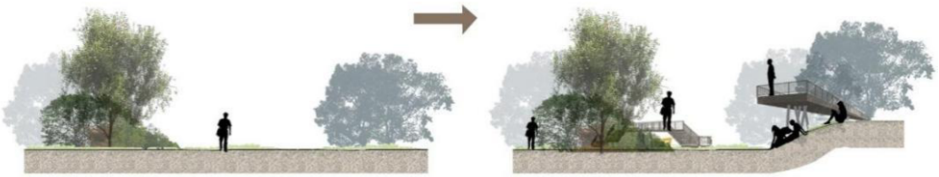

Fig. 10. Landscape interactive participation optimization.

4.2.3. Private and Low-Gathering Micro Public Spaces

In the post-epidemic stage, social units are reduced to tiny groups, and greater emphasis is placed on maintaining social distance and personal space. Additionally, the public space of traditional villages should be structured into layers of fragmented public space systems and regenerated in accordance with the spatial progression "public-semi-private-private." Traditionally, a sense of privacy is created by enclosing the area with tangible things (such as trees and bushes, walls, and promenades) or by ensuring the privacy and size of the space by boundary implication and line of sight restriction (Fig.11). To minimize disputes between private groups, special attention is devoted to the buffer and distance between the more private and low-gathering tiny microspaces.

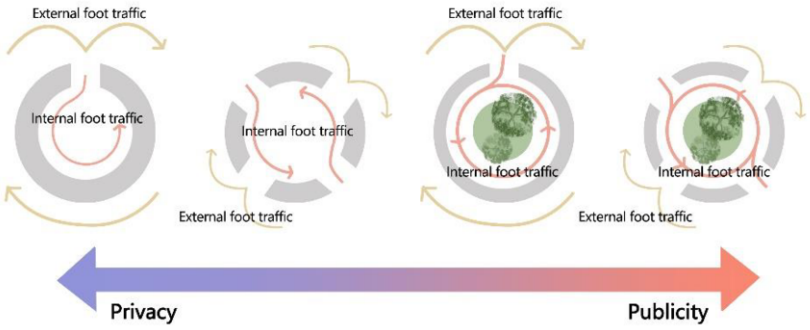

Fig.11 Schematic depiction of the privateness and accessibility of the village public space.

4.3. Development in the Epidemic: Connotation Enhancement of Public Space

4.3.1. Spiritual Space with Outstanding Characteristics

If traditional villages choose to pursue growth in the face of the pandemic, they must transition from the stage of formal concern to the stage of attending to the needs and emotions of villagers and even the psychology of tourists. In the stage of considering spiritual wants, the first consideration will be the developing unseen social demands that will manifest in the virtual network environment. The post-epidemic implicit travel motivation and psychological need of villagers and visitors is to seek profound communication, identification, and social circle membership throughout the journey. Therefore, public space should pay greater attention to the interaction link between the design of the space and the participants, in addition to its esthetics function.

4.3.2. Theme-Based Fragmented Space Exploration

The unitary spatial organization can increase the village's total resilience in the event of a disaster, so achieving the objective of disaster resistance. The fragmentation of the crowd's wants and the growing intrinsic demands necessitate a qualitative enhancement of the spatial experience per unit of time, particularly in the setting of the epidemic. Traditional communities should build a public space structure that is spatially reticulated, microdividing into fragmented theme public areas that may be unfurled through the major nodes. The primary pathways must link the concentrated, fragmented regions with numerous characteristics, including thematic, social, artistic, and cultural.

Concurrently, it is vital to reinvent the trend of fragmented themes, unlock more methods to play, investigate the process of playing, and pursue the experience per unit of time. Exploring the demands of the space of the times necessitates combining activities like as camping, riding, script gaming, etc. with the crowd's and travel fans' constant need for the novel and unusual.

5. Case study

5.1. Overview of the Village

The location of Cuanxia Village is in Zaitang Town, Mentougou District, Beijing. It is around 65 kilometers from Mentougou's core city and 90 kilometers from Beijing's central city, with a total size of 5.33 square kilometers. The community is strongly connected to the metropolitan region and has easy access to transit; it is also a traditional village. The community is developed along the steep terrain, exhibiting a flexible and adaptable spatial organization (Fig.12). There is an abundance of natural value, historical value, and humanistic worth, and the spatial qualities are clear [26].

Fig. 12. Overhead view of the village.

5.2. Existing Problems of Public Space Resilience

5.2.1. Overly Centripetal Spatial Structure Organization

The geographical organization of Cuanxia Village is connected by a "Wang"-shaped street network, which not only provides access but also functions as a tourist attraction. The village's public venues, including squares, ancestral halls, and temples, are also linked by the main roadway. In the present activities, the general activities of tourists and the linked lives of villagers are focused in a more centripetal space on the main street. As the hamlet is constructed on a hill, many of the side streets and alleyways must ascend from the main roadway, which is difficult to traverse. Because there are fewer nodal spaces connecting the street space to the interior of the town, tourists are less inclined to enjoy the area, and the spatial use rate and vitality are lower than on the main street.

This indicates that the village's overall spatial organization is very centrifugal, lacking gradual functional decentralization. With a huge gathering of people and a high degree of pedestrian flow junction, it is difficult to meet the disaster prevention requirements of the space. Especially in the setting of the age of epidemics, the tight social distance and safety and hygiene concerns such as ventilation progressively arise, hence raising the pandemic risk and control challenges.

5.2.2. Lack Of Spatial Combination with Peace and Disaster

Under the influence of interest, the public space of the hamlet is progressively being encroached upon and transformed into a tourist receiving area. The high building density and low roadway widths make emergency evacuation functions difficult. According to a number of villagers, the overcrowding of space has resulted in a decline in the quality of life, and the emotional and social functions of the village have diminished or completely gone, which is not favorable to the resilient and sustainable growth of the village as a whole.

During the epidemic, the village's public area is underutilized or even empty, and there is insufficient room for emergency response and material storage. Especially during the duration of an epidemic, relatively concentrated area for temporary quarantine and testing places are not prepared, which will have a wide range of effects on the village's everyday life.

5.2.3. Weak Healing Capacity of Cultural and Ecological Landscape

Cuanxia possesses a rich cultural heritage, but it has not been extensively excavated, and the cultural branding and cultural output of the ancient village have remained at a relatively superficial level, with the cultural focus of the village remaining solely on the analysis of the word "Cuan" and ignoring the village's extensive cultural history. Most tourist destinations focus solely on the physical and disregard the spiritual requirements of tourists. The space's functional manifestation is somewhat traditional and antiquated, unable to achieve the cultural function of the "living carrier."

In addition, the ecological area is segregated from the surrounding countryside and does not make effective use of the natural ecological substrate for landscape design. This low-quality cultural and ecological landscape area makes it difficult for locals and tourists to engage in participatory cultural activities and experiences. The lack of emphasis on the pro-nature and restoration qualities of the ecological and cultural landscape system makes it difficult to produce the psychological healing impact after a disaster, which is not favorable to the robust and disaster-adapted design of the village.

5.3. Public Space Resilience Enhancement Strategy

5.3.1. Integrity and stability: spatial partitioning and network connections

To increase the control of epidemic risk and lower the risk of epidemic, a model of relatively autonomous group growth is proposed, and the village is divided into two halves based on its hilly topography and existing circumstances. While retaining a reasonably tranquil ambiance in the top portion, service facilities such as restrooms and stores are installed to boost the spatial vibrancy and independent service capability. The bottom portion of the town depends on the liveliness of the main street's populace and incorporates small landscape nodes to enhance the sense of space. Through the spatial and landscape connection of the streets, the integration of the north and south regions is enhanced, and the transition of function and ambiance is accomplished while the areas remain autonomous (Fig.13).

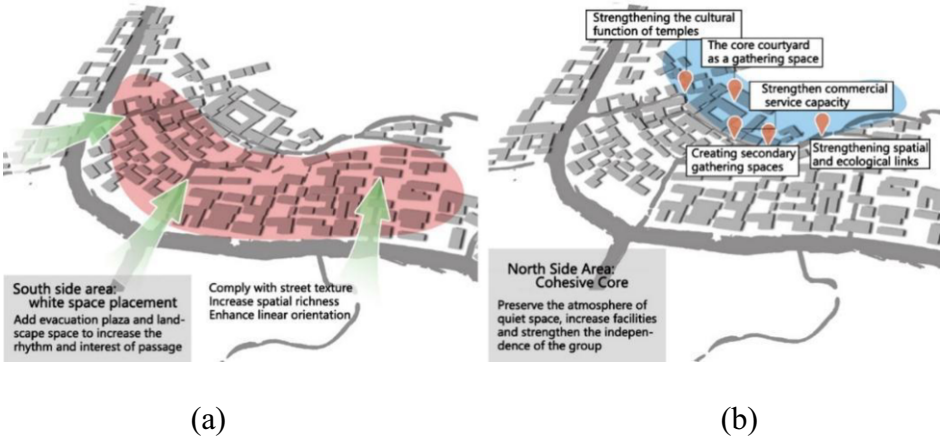

Fig. 13. Village restoration diagram: (a)southern village renovation approach; (b)northern village renovation strategy.

The public space in the upper and lower portions of the town is primarily connected by the "Wang" route; hence, the original street texture serves as the framework for the village's spatial network. The visitor receiving center at the entry and the ribbon service facilities on the main street are defined as the essential nodes, while Guangliang Yuan, Caijian Yuan, and Niangniang Temple are classified as the minor nodes. The route network is connected, and little micro landscapes and resting node spaces are provided between the nodes for tourists and villagers to relax and converse, so enhancing the linear spatial network's direction. In addition to addressing the demands of epidemic control or quarantine, it increases the village's sense of space on several levels.

5.3.2. Multifunctionality and Stress Resistance: Multifunctional Resilient Space

On account of the optimization of Cuanxi Village's resilient space, the public space's combined disaster resilience is enhanced. First, the spatial divide of traffic and pedestrian flow in the main street, the removal of excessively redundant furniture and vignettes in the pedestrian section, and the invasion of companies into the public space of the street owing to their interests. While increasing the roadway's effective evacuation width, minimize the number of individuals who linger excessively in the main street. Simultaneously, the landscape orientation and landscape connection between the main street and the secondary streets are enhanced, allowing the pedestrian flow from the main street to be evacuated to the secondary street space and the pedestrian flow from the secondary street space to be directed to the ecological space. The flow lines are utilized to disperse the tourist crowds, as well as to offer a cohesive emergency refuge channel and a suitable gathering area for distribution. In addition, the ecological space is associated to diluting the concentration of airborne pathogens and increasing the social distance between travelers, which aids risk management in the event of an epidemic.

The space that was underused during the outbreak will be increased, and the option of employing the parking lot in conjunction with the peace and disaster will be studied. The parking area will be outfitted with linear barriers between parking places, as well as minor landscaping and resting space and facilities. When parking demand falls, the parking lot can be repurposed as a linear display and interaction space, or as a sports and exercise area for locals. Ecology and landscaping are incorporated into the design of the vast tourist evacuation plaza in order to partition the original expansive open space. It not only enhances the experience of tourists, but the area of the unitary square may also be used to dry agricultural products during the off-season. It can also be utilized as an emergency evacuation site or as a central quarantine and monitoring function in the case of a disaster.

5.3.3. Flexibility and Foresight: Public Space Connotation Enhancement

First, the spatial projection of the village's rich cultural history should be investigated further. First, the unique feng shui culture of the village, which is "backed by Xuanwu, with the front mountain as a screen and the left and right green hills protecting each other" and the good ecological foundation of the landscape are used to enhance the function of the alleyways and nodes in order to illustrate the cultural narrative. In addition, an ecological observation deck is constructed on Jinping Mountain in order to comprehend the typical expression of ancient feng shui patterns by overlooking the village, as well as to improve the information transferability and participatory experience of public space culture. Focus on small landscape arrangements surrounding cultural and folklore nodes to enhance the serene and solemn ambience of the cultural area. The tiny

space nodes improve the positive cultural contagiousness of the site, entice visitors to become active participants in space use, rejuvenate the folk culture spirit of the village, and produce a beneficial cultural landscape space healing effect.

Second, more immersive experience spaces are built in Cuanxia Village to better address the deeper needs of people in the post-epidemic period for returning to nature, getting near to history, and socializing and aesthetics. Enhance the overall street network's spatial level setting. First, based on retaining the openness and high liveliness of the main street, the tourism space is designed to accommodate more innovative demand-side operations. Around the main street, thematic fragment areas such as outdoor fitness touring trails, camping concentration sites, and indoor board game fields are placed to improve the spatial experience per unit of time. In response to the demand for private space among visitors affected by the pandemic, we add comparatively inward-facing stunning landscape rest micro-spaces to minor streets and alleyways. Thus, the village's spatial experience is layered, rich, and expansive, and the connotation of tourism space is improved.

6. Conclusion

This article examines the application of the notion of resilience to the enhancement and optimization of traditional village public space. In the context of the post-epidemic era, the connotation of resilience theory is interpreted, the current conundrum of village public space is resolved, and a plan for the optimization and enhancement of traditional village public space in conjunction with resilience theory is proposed. In conjunction with case studies from field research, the viability of applying the resilience concept to the revitalization of traditional village public space is demonstrated. The subsequent conclusions are reached.

1. public space renewal and upgrading of traditional villages in accordance with the resilience concept can encourage the speedy recovery of daily life in villages in the context of epidemics, disaster capacity enhancement, and the development and upgrading of villages in the context of epidemics. First, the resilience theory's spatial upgrading strategy of rapidity and dependability will enable the village public space to adapt and recover rapidly in the event of a disaster. Second, based on the redundancy and multiplicity recommendations in the plan, the space will be evaluated, monitored, and prepared before the occurrence of a disaster in order to address the characteristics of reoccurring epidemics. Last but not least, the resilience theory is utilized to strengthen the spatial learning and adaptive qualities of the approach in order to learn from the village space's lessons throughout the epidemic and support the transformation and development of the traditional village public space.

2. By interpreting the core connotation of the resilience concept, we propose that the strategies for traditional village public space in response to the epidemic should be implemented in three dimensions: preventing and controlling the epidemic, adapting to the epidemic, and developing in the epidemic: creating public health-oriented street patterns, functional zoning groups, and utilizing ecological landscapes for soft group quarantine to increase disaster response capacity. The project will produce resilient spaces for disaster prevention, healing spaces for ecological integration, and micro-spaces for private and intimate gatherings. According to the changing needs of the people following the epidemic, we will carry out timely life recovery and spatial transformation against the normalization of the epidemic to achieve a higher disaster resilience in the

village; and create a spiritual space with outstanding characteristics and theme-based fragmented space exploration to seek the sustainable and healthy development of the traditional village.

3. The public space renewal and improvement strategy of traditional villages based on the concept of resilience can address the public space problem of villages affected by the current epidemic and can also seek the transformation and development of village space in the context of the protracted epidemic war. Compared to earlier disaster response tactics, resilience theory is better suited to directing the spatial upgrade in the event of an epidemic crisis. In addition, the resilience theory proposes the techniques of "transformation power" and "learning power" so that the traditional village public space has a certain buffer space and epidemic tolerance when encountering an epidemic. In addition to maintaining spatial safety, the space can be further adapted to the epidemic condition so that it can be utilized with greater efficiency and adaptability.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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