

# Study on the Optimization of Activity-oriented Rural External Public Space—On the Basis of Beijing Shuiyu Village

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**Abstract:** In China today, the construction of public space outside the traditional countryside has been influenced by the new urbanisation and has initially changed in the direction of intensification, functionalisation and outward orientation, and in the process has exposed the problems of uneven distribution, single function and under-release of stock. The starting and ending points are the adaptation of different types of public space to outdoor activities. In summary, the three main types of outdoor activities in China's countryside are gathering, leisure and commercial activities, and there are differences in the form and distribution of external space dominated by different activities, and different construction strategies. As an ancient village with mainly assembly and leisure activities, Beijing Shuiyu Village has a single form of assembly space, a scribbled monument space and a blank commercial space. Based on this, the thesis proposes a spatial strategy of "monument protection, assembly development and commercial increment", which promotes the revitalisation of the village in parallel with protection and development, guides the transformation of the village space in a holistic manner, and provides a refined activity perspective for the optimisation of the village space in general.

**Keywords:** rural revitalization; outdoor activities; external public space; Shuiyu Village

## 1. Introduction

On 1 June 2021, the Promotion of Rural Revitalisation Law came into effect, and China's strategy of "rural revitalisation" began to be safeguarded by the rule of law. Promoting rural revitalisation and forming a new pattern of integrated urban-rural development is an inevitable requirement and a realistic path for China to narrow the gap between urban and rural development. The implementation of the high-quality development requirements of rural revitalisation cannot be achieved without the ecological optimisation of the existing living environment and the reasonable construction of modern emerging architecture and public space systems. Rural public space is a fixed place for villagers' activities and interactions based on public activities. Through the creation of diversified public buildings or public building groups and the construction of a village public pattern, the atmosphere of the rural village is created.

Activity is the "mirror" of space, and space is the "shadow" of activity. The forms of villagers' public activities determine the basic form and evolution of the external public space of the village, and the formation and evolution of the external public space of the village reflect, to a certain extent, the selection and change process of villagers' outdoor public activities. Therefore, how to refine the selection criteria, i.e. what types of public activities are suitable for what types of public spaces, and what levels of public activities are undertaken by the same types and different levels of public spaces, is the subject of this paper.

## 2. Types of external public space in the countryside

This section classifies the types of external public space function, form and distribution based on spatial activity.

**2.1 Types of external public space functions**

*Table 1*

Main types	Segmentation	Examples
<b>Public assembly space</b>	Large assembly type	Theatres, event square
	Small interactive type	Roadside platforms, communication desks
<b>Public propaganda space</b>	Summary-intensive	Customs information boards, customs galleries
	Internal scatter type	Village buildings, directional signs, signage presentation boards
<b>Public leisure space</b>	Macro street type	Village roads, village footpaths
	Micro facility type	Fitness facilities, courts

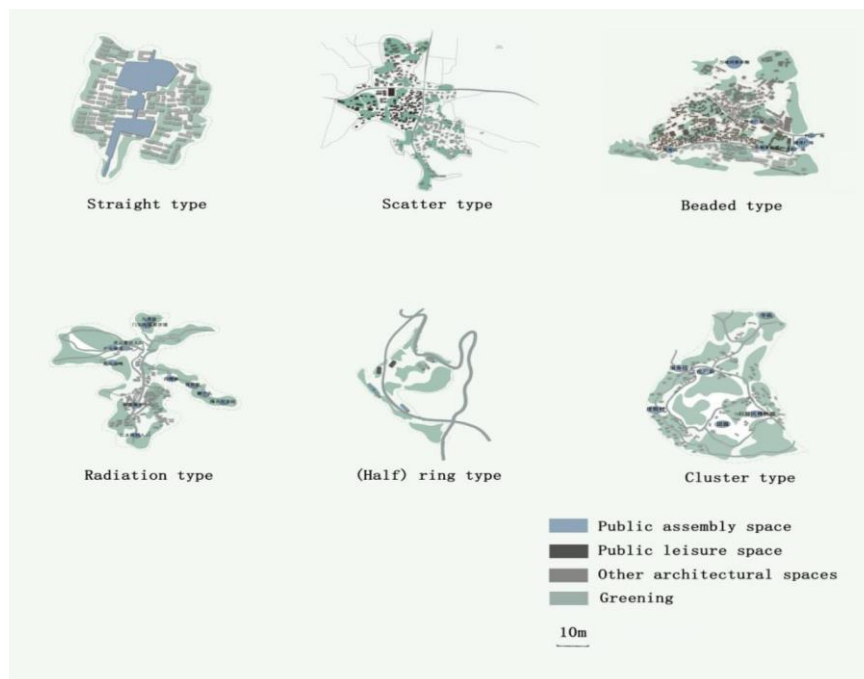
**2.2 Types of external public space forms**

Public assembly spaces are spaces defined by interactive activities to meet the needs of interpersonal or intercultural interaction between people and the village. Large-scale gatherings are mostly in the form of a 'centre + square', with the 'centre' being single or multi-centre, single or multi-storey. The square is mostly rectangular, fan-shaped or circular; the small interactive type is mostly 'polycentric', with weak links between centres.

Public leisure space is a space delineated based on the needs of daily personal activities, and is also an area of intensive daily activities of villagers. Among them, the macro street type covers the inherent streets and lanes such as village roads, and the morphology is similar to that of streets and lanes; the micro facility type is mostly in a regular form such as moments.

Public propaganda space is an outward-looking public space formed based on village resources. The summary intensive type refers to the creation of a specific public space, the integration of a certain element to focus on the characteristic village culture, including landmarks, publicity boards, customs promenade, etc., and therefore located in the village landmarks, and most of them exist in a straight line; internal scattered type is distributed in the village on both sides of various buildings or roads.

**2.3 Types of public space distributions**



*Fig.1. Types of distribution of public space in the countryside (Source:self-drawn by the author).*

Based on the location, distance, orientation and form of the three types of external public space in a particular area, the above six types of distribution can be summarised as representative.

### 3. Analysis of outdoor public activity types and spatial relevance

#### 3.1 Types of outdoor public activities

Traditional rural public activities mainly include three types of activities: gatherings, leisure activities and commercial activities. The main form of these activities is to gather at regular intervals to receive certain knowledge, such as temple fairs, theatrical performances, “red and white” festivals, village meetings, etc. The main form of these activities is individual recreation and self-improvement, such as fitness, walking, walking the dog, talking, playing cards and other daily activities. Commercial activities are based on commercial interactions, mainly in the form of exchange of information and material materials, such as stalls, folklore exhibitions and folklore shows.

#### 3.2 Correlation between activity and spatial form

The large assembly type and the small interactive type of public assembly space carry the main assembly activities and part of the leisure activities of the village respectively. Large-scale assembly public spaces focus on the interpretation of major activities and have an active transmission function, so there is a centre within the space and the audience space is distributed around the centre. The centre is mostly built in a square shape, but there are also (semi-)curved, fan-shaped, multi-layered and other types; the outer space is enclosed by three or four open sides, and is mostly curved. The small interactive public spaces focus on daily communication and have a passive reception function, so they are set up with multiple centres and have a relatively diverse spatial form, which is mostly irregular according to the terrain and area.

The macro-street type and the micro-facility type of the public recreation space correspond to the scattered and intensive recreational activities of the village respectively. The macro-street type is based on the village's own roads and is used by villagers for daily leisure activities such as walking after tea and dinner, so its form and distribution is similar to that of the streets. The micro-facility type is usually distributed in residential areas or areas with dense pedestrian flow, such as by the river, the centre of residential areas, etc. The distribution varies with the density of residential areas; the form has a strong regularity, such as rectangular, shuttle-shaped, trapezoidal, etc.

The summarised dense and internal scattered types of public propaganda space serve the main outward-looking commercial activities in the countryside. The outward-looking space is an emerging space type that has been developing rapidly in Chinese villages in recent years. Villages with resources focus on developing the tourism resources within the village area and indirectly promoting the villages by creating condensed public information boards, promenades and style exhibitions and other public spaces.

*Table 2*

Outdoor public activities	Types	Typical spatial carrier form	Morphological effects
<b>assembly activities</b>	Regular festivities	Arc	"Centre + periphery", multi-faceted interactive clustering
	Daily assembly Activities	Multiple	Bonding of road forms in the village, in a variety of forms
	Large-scale conference activities	Rectangular	Highlighting the seriousness and the two-way interactive effect
<b>Leisure activities</b>	Targeted fitness activities	Regular	Meeting the need for efficient planning and management
	Daily leisure activities	Reticulated	Formed along the village road for the convenience of villagers
<b>Commercial activities</b>	Outreach activities	Straight	Centralised publicity to facilitate simultaneous viewing by many people
	Experience Activities	Arc	"Centre + periphery", multi-faceted interactive clustering

### ***3.3 Correlation of activities with spatial distribution***

Straight type means that public spaces are distributed in a straight form, showing an integrated character within a certain area; a typical village is Ge Wan Village in Shanxi. This layout type has a high concentration of public activities and a strong sense of immersion and progressive experience, and is suitable for maximising the effectiveness of a combination of public spaces in a square assembly with similar functions.

Scatter type, in which public spaces are scattered and irregularly distributed, is typical of Wanwan Village in Beijing. This type is designed on the basis of advantageous resources, which is conducive to the development of commercial activities and maximisation of commercial value, but the space is not concentrated enough and it is more difficult to co-ordinate the development of various activities, which is suitable for mature villages with perfect basic space.

A typical village is Luli Village in Beijing, where public spaces are laid out one by one along the road. This type of layout has a high degree of accessibility and frequency of use, but it is likely to result in a closed environment for activities in the less accessible areas of the village.

Radiation type, i.e. the distribution of public space, shows distinctive demarcation characteristics. The typical village is Jiangshuihe Village in Beijing. This type has a strong hierarchy and makes good use of topographical features, but it is influenced by the topography and has a low degree of integration between living and commercial public spaces, with a fragmentation of living and outward-looking activities.

(Half) Ring type, i.e. the spatial distribution is in an arc. The typical village is Tangshang Village in Beijing. The cluster type means that the public space is distributed in blocks. A typical village is Shui Ban Village in Anhui Province.

## **4. Present situation of public activities and space construction in Shuiyu Village**

### ***4.1 Current status of public activities***

Public activities in Shuiyu Village are mainly leisure and assembly activities for the villagers, with a small amount of commercial activities. Leisure activities are the daily outdoor activities of the village, with a distinctive original spontaneity, such as fitness, walking and talking. The village has a large stage and a Chinese New Year streamer performance, but the number of activities is small and the scale of activities is small. Commercial activities are the main vehicle for outdoor activities in Shuiyu Village. The current situation in the village is that there are only corridors and signage for publicity, and few open public scenic spots.

### ***4.2 Types and forms of public space***

The type of public space in Shuiyu Village covers gathering, leisure and propaganda space, showing the characteristics of primitive form and low outward orientation. There are 10 public assembly spaces in the village, including 6 small interactive ones, namely, the Village Entrance Square, the Border Cooling Platforms, the East Street Entrance Squares, the East Street Old Walkways, the West Street Entrance Squares and the West Street Old Walkways. There are four large assembly type, respectively, the West Street Exit Grand Square, the Shuiyu Grand Stage, the Little Sophora Street, and the Stone Mill Museum. The largest square in the village is the Shuiyu Brand Stage Square, which is a 4M\*10M\*10M concrete cube shaped square with access roads on three sides and occupies the widest area for the assembly of large scale performers; the rest of the squares are irregular in shape. The public propaganda space is mainly distributed at the entrance of the village and both sides of the main spots. The "Four Paleo" propaganda promenade at the entrance of the village and the Zhongfan sculpture are listed on both sides of the Shuiyu Grand Stage, with a regular rectangular shape. There are 14 public exhibition spaces, 2 of which are directly intensive, namely the Custom Gallery and the Stone Mill Museum at the entrance of the village, and 12 of which are internal scattered signage.

### ***4.3 Public space distribution status***

Shuiyu Village is built on a mountain, with a gossip-shaped form and a bead-shaped distribution of external public space, mainly concentrated on both sides of an S-shaped village road, similar to "small

pockets ". Shuiyu Ancient Village extends outward to form the West Street and East Street with the village square as the center. The West Street is dominated by internal scattered public propaganda space, which is smaller and more compact than the East Street; the East Street has a variety of public space forms distributed.

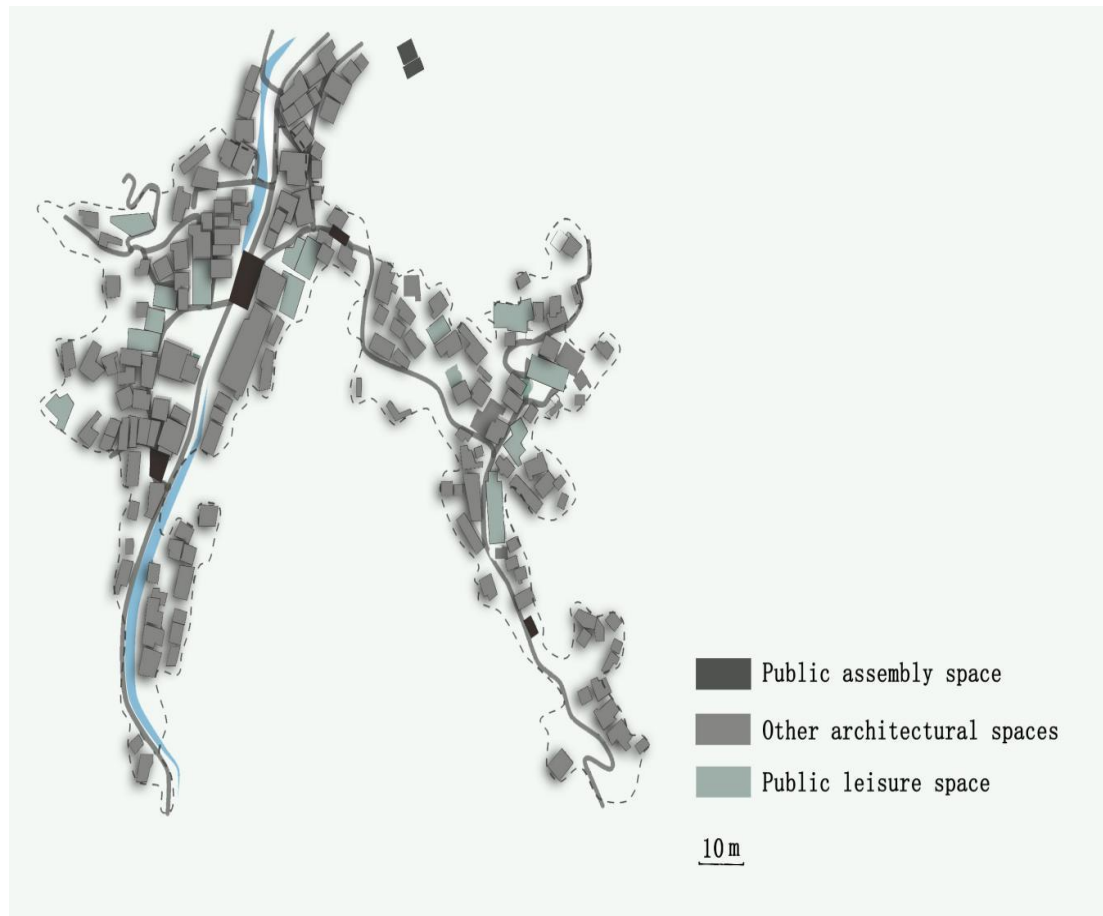


Fig.2. Plane map of public space distribution in Shuiyu Village

(Source:Self-drawn by the author).

## 5. Existing external public space issues

### 5.1 Improper development of internal scattered public propaganda space

**First, ancient buildings on West Street "can not be visited".** The micro-renovation of the historical buildings on the West Street that directly face the tourists to show their culture has not been followed up in time. The internal monument buildings and residential buildings on West Street are old, with aging wall facades and peeling walls, and in urgent need of repair. Mr. Big Courtyard, Mr. Second Courtyard, Mr. Third Courtyard, Mr. Fourth Courtyard, as the original sites of the houses of the great landlords in modern times, have not been developed in a protective manner and have even been abandoned.

**Second, the village signage is "invisible".** There are common problems of "not enough" and "not enough" in the selection of public spaces for posting publicity signs in Shuiyu Village: some signs are posted on high walls, which are difficult to find without deliberate looking; in the layout of distribution, there are obviously more signs on the West Street than on the East Street, and the density and distribution are uneven from east to west.

### 5.2 Low utilization rate of public leisure space resources in the East Street

**First, small interactive squares are "less developed".** The East Street assembly space has a full form, large area, good pattern, and low density of ancient buildings, but there are fewer developed assembly platforms, and the developed space is not mature enough. There are three existing small

interactive platforms on the East Street, namely, the Border Cooling Platforms, the East Street Entrance Squares and the East Street Old Walkways, which have the problems of low space utilization such as narrow spaces, vehicle parking and miscellaneous piles.

**Second, large assembly squares are developed " disorderly ".** There are two types of large assembly squares, the Little Sophora Street and the Stone Mill Museum, but there are problems such as overgrown weeds in the domain, no continuous maintenance and less signage. In addition, the entire village stone mills are scattered in various corners of the village, while only two stone mills exist in the Stone Mill Museum. The effectiveness of the stone mill exhibition is not maximized.

### ***5.3 The ineffective space form of square public gathering***

The more prominent problem of public space in Shuiyu Village is the poor effect of its square public space in assembly popularity, which is mainly reflected in its location and form. As the largest public assembly space of Shuiyu Village, the location of the Shuiyu Grand Stage is on the right side of the road, occupying more than half of the road, and the traffic is obstructed; in addition, the performance direction of the Shuiyu Grand Stage is directly opposite to the location of a small undeveloped small square at the entrance of the village, which has a low carrying capacity of pedestrian flow and a poor view.

## **6. Suggestions on optimization of external public space**

Shuiyu Village is rich in unintegrated public assembly space and public propaganda space, and there is more developable space in the East Street than in the West Street. Therefore, according to the goals of "intensification", "functionalization" and "outward orientation", the optimization strategy of "protection of the West Street and development of the East Street" is determined, insisting on the development orientation of diversified public activities and guiding the overall development of multiple types of public spaces in Shuiyu Village.

### ***6.1 Reconstructing public propaganda space for activity needs***

**The first is the "protective" renewal of the West Street.** The public activities in the West Street area are mainly daily activities and therefore do not require extensive design development based on the necessary infrastructure maintenance. It is recommended to carry out the "protective" renewal of East Street with the goal of habitat standard. First, organize commissioners to focus on cleaning and repairing ancient architectural resources such as Mr. Big courtyard, timely rescue; second, renovate the façade of ancient houses within the West Street, using local masonry materials to repair.

**The second is the signage "brightness" innovation.** In view of the fragmented layout of the village's propaganda slogans and the urgent need to plan the location of the public space for the village's propaganda signs from an overall perspective, it is suggested that signs should be set at three points in the public space: at the entrance, at the fork and at the corner to increase the exposure and brightness of the signs. In addition, the innovative design of the logo and the integration of the stone mill elements will subconsciously establish the brand and better integrate the characteristics of Shuiyu Village.

### ***6.2 Actively building assembly space to attract inflow of activities***

**Firstly, improve the infrastructure of each square for the purpose of attracting pedestrian flows.** The space with relatively high concentration of people in Shuiyu Village is the village square and the Shuiyu Grand Stage, so it is suggested to integrate the design of both public spaces with an overall perspective: improve the beautification of the street side of the square; Transform the Shuiyu Grand Stage into a circle according to the distribution of road forms, and use local masonry materials to update the top and columns to make it better integrate with the square space and strengthen the assembly effect. For the small square space with relatively minor area and remote location, it is suggested to actively carry out street cleaning and design more stone chairs, stone benches and sports equipment facilities with stone mill elements to meet the needs of villagers and tourists for daily activities.



Fig.3 Design effect map

(Source: Self-drawn by the author)

**Secondly, create an "open-air museum" for the purpose of publicity.** Taking the ancient trees as the core, reasonably delineate the scope of the Stone Mill Museum, allow the expansion of the surrounding area, and expand all the area of the museum. At the same time, to lay a good space foundation for the construction of the museum, actively clean up the museum area pile of abandoned building materials, guide relocated villagers own large tools. On this basis, the stone mills in the village were reasonably screened and relocated to the museum area, while trails were delineated according to the scope, and the stone mills were placed in chronological order along the trails and marked for publicity.

### 6.3 Promoting the integration of three major cultures

It is recommended to explore the fusion of multiple cultural activities, including the "Commercial Culture", "Stone Mill Culture", and "Zhongfan Culture". The transformation of public space should be carried out in accordance with the development of public activities. The problems of Zhongfan performance unable to leave the village and villagers' serious brain drain reveal the dilemma of "lack of people" and "lack of activities" in Shuiyu Village, which is ultimately due to the fact that the richness of public activities in Shuiyu Village is not enough to support the upgrading of public space. First, organize the village's Zhongfan performance to actively "go out" and innovate the form; second, actively promote the "introduction" of various types of commercial business to undertake commercial activities; third, design the stone mill creative products of Shuiyu image brand.

## 7. Conclusion

The activity-oriented rural external public space is an important carrier of villagers' outdoor activities. It is an important research object for the village to complete the three major transformations of activity diversification, pattern rationalization, and economic externalization. It is also an important development base point for realizing rural revitalization and improving villagers' happiness index. In this paper, the main outdoor public activities in rural areas, the form and distribution of external public spaces are classified in detail, and the correlation between activities and space is analyzed. Based on this, the corresponding spatial transformation suggestions for Shuiyu Village in Beijing are proposed: The only way to achieve a new breakthrough in the field of public services is to continuously implement the needs of villagers at all levels of activity and to reasonably transform public space according to the needs of different activities. There are more studies on activity-driven space and less studies on space-reaction activity development in this paper. Space and activity are complementary and should not be considered in a fragmented manner or single-ended. In the future, analyzing activity optimization from a spatially oriented perspective and re-upgrading of the enabling space will be a major research direction.

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