

Research on the Spatial Form Evolution of Traditional Villages in Yimeng Mountain Area

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ABSTRACT

Taking Zhaogaoyu Village in Yishui County as an example, this paper summarizes the development and evolution process of the spatial form of traditional villages in Yimeng Mountain area and analyzes its evolution characteristics and influencing factors. The study has found that the overall spatial form of Zhaogaoyu village presents a form of "big mixed inhabitation, small settlement"; building forms gradually change and enrich with the development of the times, but at the same time, traditional buildings are constantly being replaced by modern ones, and traditional building forms are gradually heading for extinction.

Keywords: Yimeng Mountain area, Traditional villages, Spatial form.

1. INTRODUCTION

Yimeng Mountain area is the core distribution area of Dong Yi culture, one of the origins of ancient Chinese culture, and it is also a very famous revolutionary base in Chinese history. However, due to the harsh natural environment, uneven distribution of resources, and poor traffic conditions, the overall economic, cultural, and social development of traditional villages in the Yimeng Mountain area lags behind and the evolution of the spatial form of the villages is very slow. In addition, due to the serious damage to the spatial form, traditional buildings, and cultural and historical materials of traditional villages caused by modern wars and social changes, the historical context of many traditional villages has also been affected to a certain extent, many characteristic regional cultures have been lost, and the forms and styles of traditional buildings have gradually been replaced by modern buildings, heading for extinction. Zhaogaoyu Village is one of the more typical traditional villages in Yimeng Mountain area. This paper mainly studies the evolution of Zhaogaoyu Village's spatial form based on the development and evolution of the settlement form, building community and building form of Zhaogaoyu Village.

2. THE DEVELOPMENT OF TRADITIONAL VILLAGES IN YIMENG MOUNTAIN AREA

2.1 The Basic Scope of Yimeng Mountain Area

Yimeng Mountain area is a concept of human geography, which mainly refers to the geographical area with Mount Meng and Yishui as geological coordinates. Yimeng Mountain area is located in the central and southern part of Shandong Province, mainly including Linyi City, Zaozhuang City, Zoucheng City, Qufu City, Sishui County, and parts of Yiyuan County, Juxian County, Lanshan County, Weishan County, and Yanzhou County, with a total area of about 2.88 10,000 square kilometers, of which hills and mountains account for about 70%.[1] There are a large number of traditional natural villages that are sparsely populated and underdeveloped in Yimeng Mountain area.

2.2 Development Status of Traditional Villages in Yimeng Mountain Area

Yimeng Mountain area is one of the typical representatives of the northern earth-rock mountainous areas. The ecological environment there is fragile, the water resources are very short, and soil erosion is common.[2] Due to the

constraints of natural conditions, social culture, economic development and other conditions, agriculture has always been an important pillar of the economic development of traditional villages in Yimeng Mountain area. However, the overall agricultural production technology level is poor, and the production quality and production efficiency are generally low, resulting in relatively backward overall economic development.

Against the background of the country's vigorous development of the strategy of rural vitalization, Yimeng Mountain area actively adjusts the town and village system and builds new villages, promotes the development of modern agriculture and the improvement of rural life, and drives the transformation and development of local villages and towns.[3] However, because most of the traditional villages in Yimeng Mountain area are located in the mountainous areas, the transportation is inconvenient and the resources that can be developed and utilized are very limited, they lack favorable conditions for economic development, which leads to the exodus of a large number of

people, making the development of traditional villages even more sluggish.

3. DEVELOPMENT HISTORY OF ZHAOGAOYU VILLAGE

3.1 Overview of Zhaogaoyu Village

Yishui County is located in the central and southern part of Shandong Province and the hinterland of Yimeng Mountain. Zhaogaoyu Village is located at the junction of Yishui County and Yiyuan County ("Figure 1"), about 33-kilometer straight distance away from Yishui County and about 13 kilometers away from the center of Xiawei Town. Zhaogaoyu Village covers an area of about 7,300 square meters, with an area of 925 mu of arable land. The area under its jurisdiction includes 8 villager groups with a total population of 320 households and 920 people. Zhaogaoyu Village is one of the more typical traditional villages in Yimeng Mountain area with its rugged terrain, poor natural environment and inconvenient transportation.

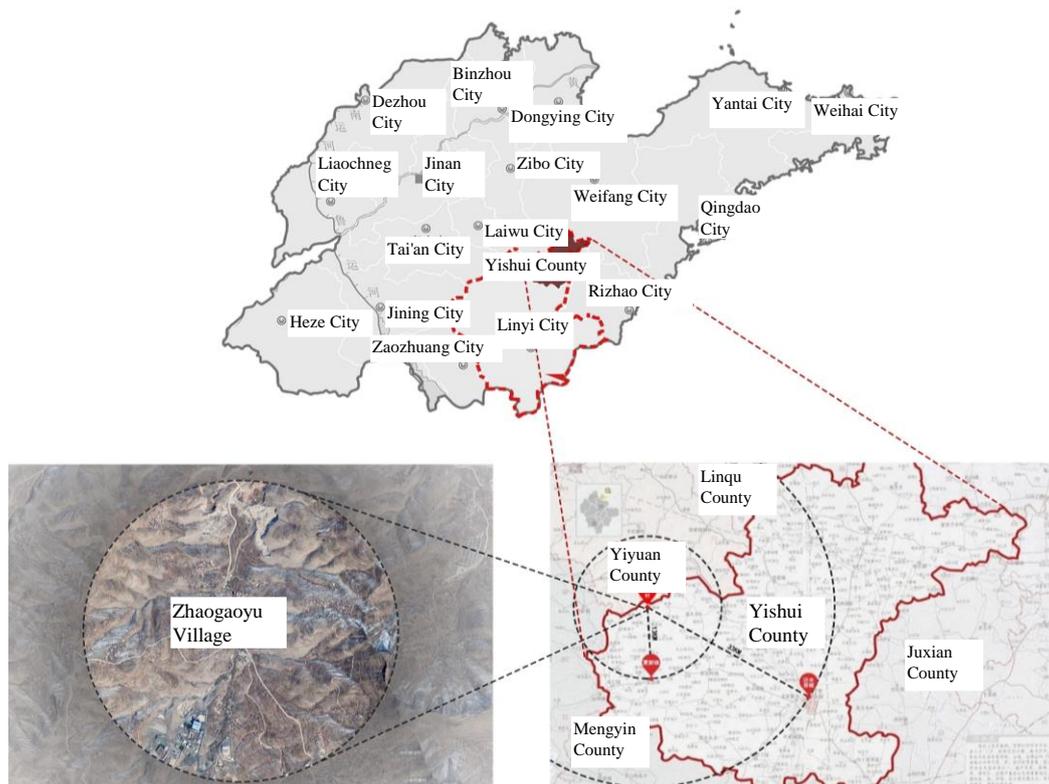


Figure 1 Location map of Zhaogaoyu Village (source: self-drawn by the author).

3.2 Natural Conditions of Zhaogaoyu Village

Similar to most traditional villages in Yimeng Mountain area, Zhaogaoyu Village is dominated by hills with uneven terrain. There is a small area of alluvial plain around the river basin in the village and the villagers' settlements are mainly concentrated in the relatively flat areas in the middle and lower parts of the hills. The soil type is dominated by brown soil, with low soil organic matter content and low nutrient content. Some ridge sandy soil layers are thin, the content of coarse sand and gravel in the soil is large, and the water retention is poor, resulting in serious soil erosion.[4] There is a stream within the scope of the village, with a large amount of water in summer and a small amount in winter. There are two adjacent small reservoirs in the north of the village, which are very important water conservancy facilities to meet the needs of the villagers for crop planting and irrigation. The overall natural environment of Zhaogaoyu Village is harsh and the basic conditions for agricultural development are poor.

3.3 Development History of Zhaogaoyu Village

According to the words engraved on the village plaque at the entrance of Zhaogaoyu Village, Zhaogaoyu Village is located 9 kilometers north of Wangzhuang. According to legend, at the end of the Yuan Dynasty, the village was built by people surnamed Zhao. Because people surnamed Zhao first lived here and the village was built in a pot-shaped valley, it was named Zhaoguoyu. During the Wanli period of the Ming Dynasty, its name on the monument was Zhaoguoyu, which later evolved into Zhaogaoyu. Due to the small scale of the village, the overall development is relatively backward, and the social turmoil in special periods such as the War of Resistance Against Japanese Aggression and the Cultural Revolution in modern times has resulted in a lack of materials and written records related to the development of the village.

In 2010, Zhaogaoyu Village carried out a village renovation planning and finally built seven sets of community residences and built a villager activity square. At the same time, village clinics, village committee offices and Zhaogaoyu village market were built. However, due to the small scope of the overall planning, the new community can only accommodate a very small number of villagers to move in. Therefore, the planning project has

little impact on the overall spatial form of Zhaogaoyu Village and only achieves the purpose of relocating the village administrative center and medical center to the village entrance.

4. EVOLUTION OF THE SPATIAL FORM OF ZHAOGAOYU VILLAGE

4.1 Evolution of Settlement Forms

A rural settlement mainly refers to a fixed area with clear boundaries where people engage in agricultural production live together and reproduce for a long time. The form of a rural settlement is generally a large-scale, static, and permanent material entity in the village, such as a spatial unit composed of buildings, streets, facilities, hills, and rivers.[5] The traditional settlements in Zhaogaoyu Village mainly exist in the form of 8 villager groups ("Figure 2"), of which Group 1 and Group 2 are located in the center of the village, and the third to eight groups are scattered in different directions of the village. The villager groups are mainly based on the distribution of the original village settlements, and the whole shows the community characteristics of "big mixed inhabitation, small settlement". For example, Group 3 is dominated by primitive residents with the surname Li, Group 4 is dominated by the surname Zhang, and Group 8 is dominated by the surname Pan, etc. However, Group 1 and Group 2 are dominated by villagers with multiple surnames, including Zhang, Wang, Pan, Li, Su, and Yang and so on. As shown in "Figure 2", Zhaogaoyu Village Committee was originally located in the area of Group 1, but was later moved to the village entrance community due to the village development plan.

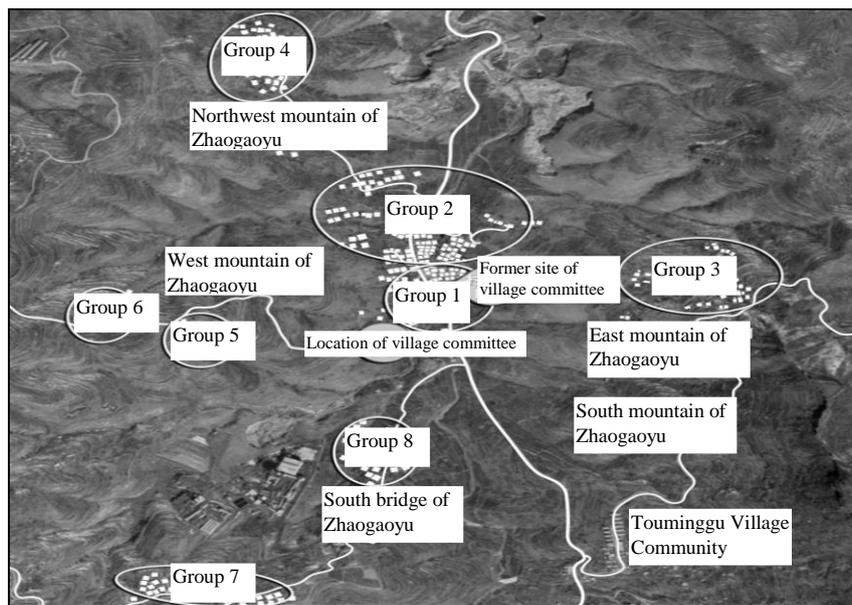


Figure 2 Distribution map of villagers' settlements in Zhaogaoyu Village (source: self-drawn by the author).

In essence, human settlement is an activity that constantly deals with the relationship between "people" and "land". Both the form and the internal spatial structure of settlements are the result of the balance between supply and demand between people and land.[6] The settlement form of traditional villages is often an important manifestation of regional culture and folk customs within the region.[7] By analyzing the location and composition of the villagers' groups in Zhaogaoyu Village, combined with the development history of the village, it can be seen that the early settlement core of Zhaogaoyu Village was located at the location of Group 1 and Group 2, and there were several different settlements scattered around. With the continuous development of the times, the exchanges of labor, trade, population flow and other activities between different settlements have become increasingly close. In addition, the natural barriers such as mountains, bridges, and llej formed by the surrounding terrain have prompted the activity centers of the surrounding villagers to gradually move closer to Group 1 and Group 2. Villagers from the surrounding settlements have moved to the core settlements where Group 1 and Group 2 are located, and finally formed a settlement form of "big mixed inhabitation, small settlement".

4.2 Evolution of Building Communities

The building community form is an important element of the traditional village spatial form, which can more intuitively show the overall change

trend of the village spatial form. The evolution of traditional rural building communities is mainly affected by changes in people's lifestyles. Because Zhaogaoyu Village relies on traditional agriculture as the mainstay of its economic development, and the flat areas along the river and valleys in the village are relatively fertile, they are developed as land to grow commercial crops, and residential buildings are mainly distributed in areas with relatively poor soil conditions. As shown in "Figure 3", Group 1 and Group 2 of Zhaogaoyu Village are adjacent to each other, with high population density and frequent flow of people, which together form the central building community of Zhaogaoyu Village; Group 3 is relatively close to Group 1 and Group 2, the number of villagers there is relatively large, and the building community volume is relatively large; the rest of the villagers' groups are relatively remote and are independent of each other, the population mobility is weak, the building community volume is small, and the community changes are not obvious. Therefore, the following mainly analyzes the evolution process of the village central building community and the building communities of Group 3.

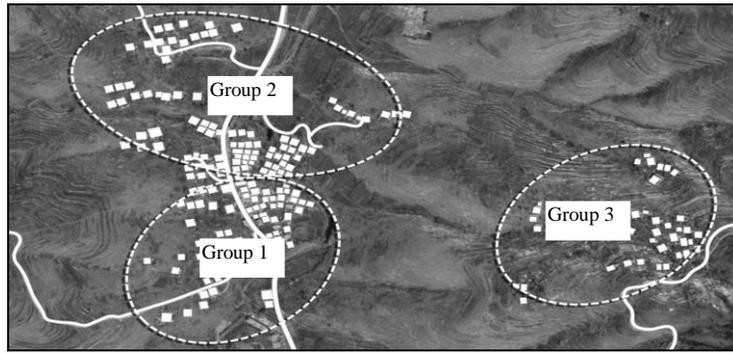


Figure 3 Distribution map of main building communities in Zhaogaoyu Village (source: self-drawn by the author).

4.2.1 Evolution of Building Communities in the Village Center

As shown in "Figure 4", the traditional buildings in the center of Zhaogaoyu Village are mainly distributed on the west side of the road and most of them are far away from the center of the village. New buildings are mostly concentrated along roads and in areas around rivers. Abandoned buildings are scattered in the village. By observing and analyzing the distribution of the building

community in the center of the village, it can be seen that the main building community in Zhaogaoyu Village is centered on the roads and rivers in the middle of the village, and the overall distribution is radial. The central building community has a high density, the building composition is mainly new buildings on the old sites of traditional buildings, and some traditional buildings that have been repaired or renovated are interspersed among them.

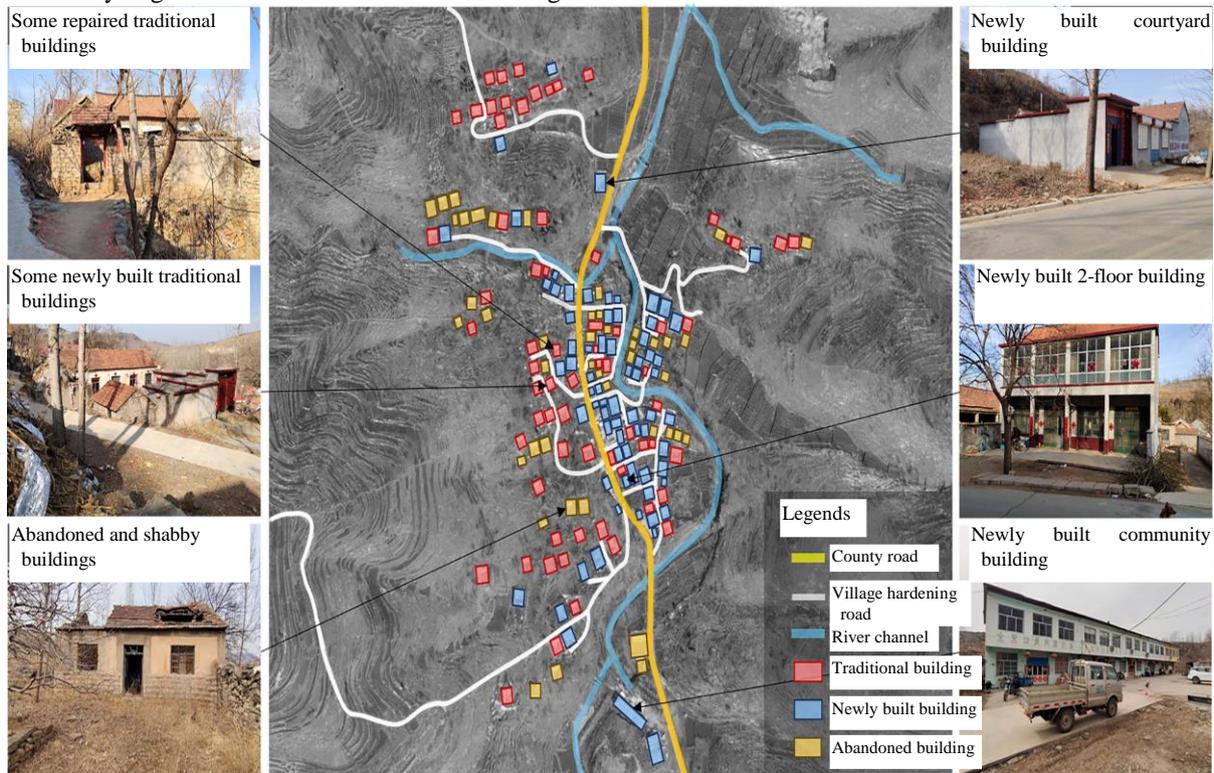


Figure 4 Distribution map of the central building community in Zhaogaoyu Village (source: self-photographed and self-drawn by the author).

The evolution way of the central building community in Zhaogaoyu Village is mainly affected by local population activities. As shown in "Figure 5", because the village center is close to the county road, it has convenient transportation; and because it is closer to the river channel, it is convenient for water collection, and the surrounding villagers have relocated to this building one after another. At the same time, as the importance of roads to rural development continues

to increase, residents in the central area of the village are gradually migrating from the edge zone to both sides of the road. By observing the changes in the layout and composition of the building community, it can be found that the building community mainly experienced two stages: from the periphery to the river and from the river to the road, and finally formed a community pattern attached to the river and road.

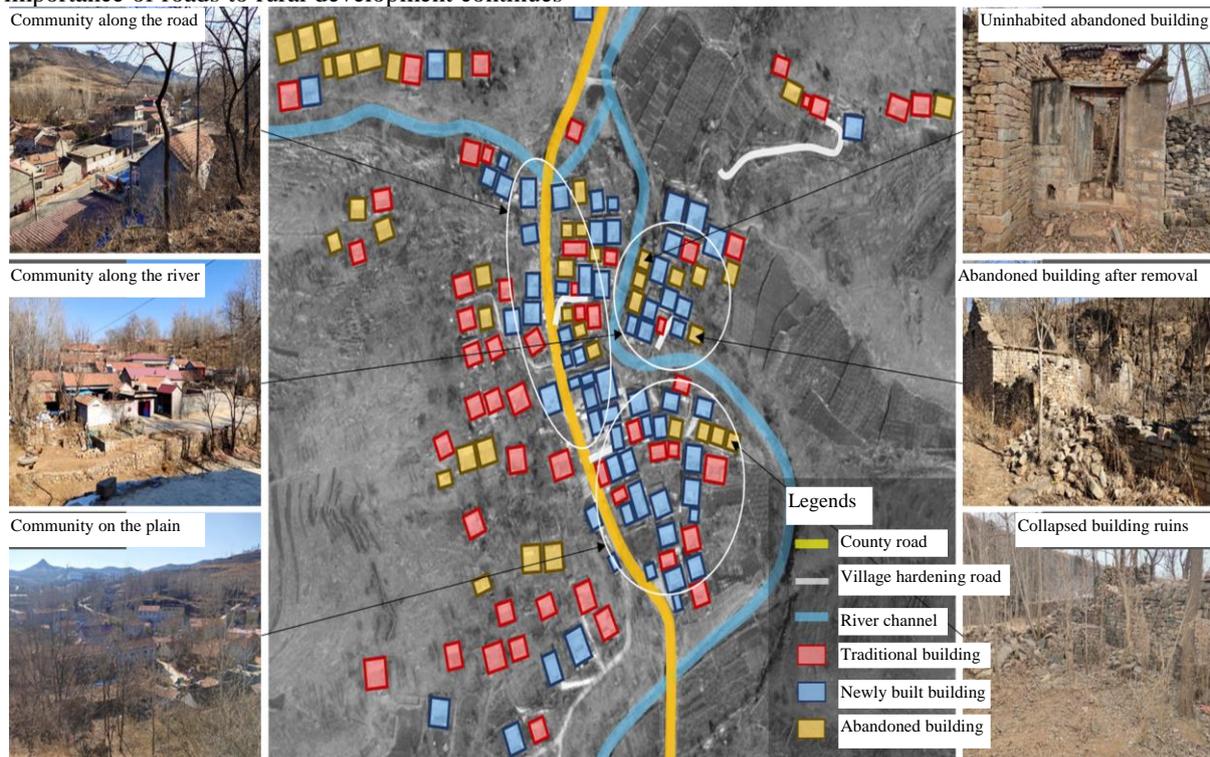


Figure 5 Schematic diagram of the evolution of the central building community in Zhaogaoyu Village (source: self-photographed and self-drawn by the author).

The update speed of the central building community in Zhaogaoyu Village is relatively fast, while that of the surrounding building community is relatively slow. The community update frequency is mainly affected by factors such as building location, population flow and economic vitality. After the country implemented the homestead policy in the 1980s and 1990s, the building community pattern of Zhaogaoyu Village became stable and finally formed a village center pattern near the river and by the road. Later, with the development of the times, the exodus of villagers, the death of the elderly and other reasons led to the continuous emergence of uninhabited buildings in the village, and the density of the building community in the center of the village ("Figure 6") gradually decreased. The evolution process of the central building community in Zhaogaoyu Village

is a microcosm of the continuous development and evolution of traditional villages in Yimeng Mountain area with the changes of the times. In the process of production and life, people are constantly migrating to areas with more abundant resources and more convenient life. The population and building density of the village center have also experienced an evolution process of increasing first and then slowly decreasing.



Figure 6 Change map of the density of building communities in the center of Zhaogaoyu Village (source: self-drawn by the author).

4.2.2 Evolution of Group 3 Building Communities

As shown in "Figure 7", the building communities of Group 3 in Zhaogaoyu Village are small in volume, and the layout presents a relatively irregular aggregation state. Almost all the buildings in the community are traditional buildings with stone structures, some of which have been repaired or rebuilt. Since Group 3 is located in the mountainside area and there is a shortage of water resources, a large number of water cellars are built

around residential buildings of Group 3 to meet the domestic water needs of the villagers. Meanwhile, because Group 3 is far from the village center, the road conditions are poor, the traffic is inconvenient, and the economic development is relatively slow, some villagers have moved to live in the center of the village one after another, resulting in the continuous reduction of the scale of the buildings of Group 3 over time, and the phenomenon of buildings being abandoned and collapsed one appears after another.

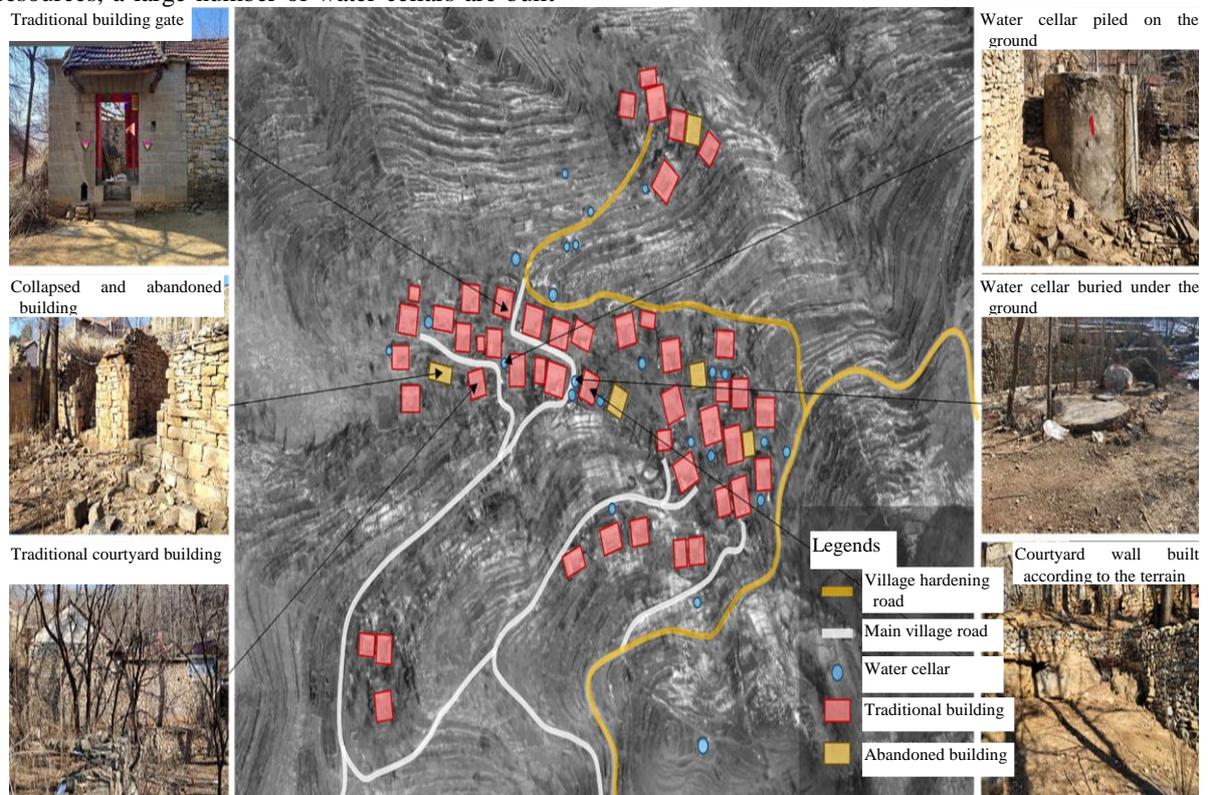


Figure 7 Distribution map of building communities of Group 3 in Zhaogaoyu Village (source: self-photographed and self-drawn by the author).

The evolution process of building communities of Group 3 in Zhaogaoyu Village fully reflects the common dilemma faced by many traditional villages located in remote mountainous areas: Traffic conditions and water resource restrictions have seriously affected the living standards of local villagers; coupled with the siphonic effect of

surrounding urban and rural areas on young and middle-aged groups, many traditional villages are gradually becoming empty nests and aging, and as a result, the development of villages has lost its vitality, the overall residential population has been continuously reduced, and the building density ("Figure 8") has also shown a trend of slow decline.

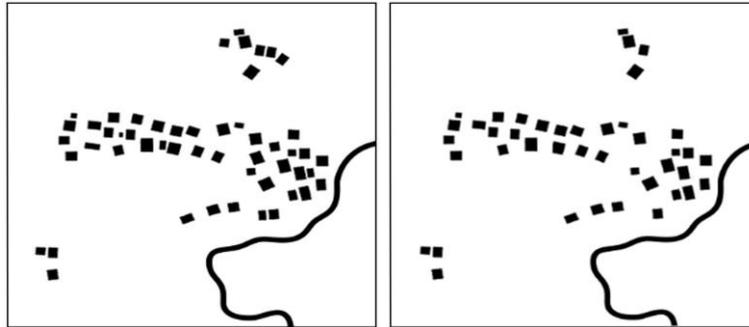


Figure 8 The density change map of building communities of Group 3 in Zhaogaoyu Village (source: self-drawn by the author).

4.3 Evolution of Building Forms

As the most important activity place in people's daily life, the evolution of building forms is an intuitive reflection of people's production capacity, economic conditions and living standards. The building forms of traditional residential buildings in Yimeng Mountain area are not very fixed. The residential buildings in different regions have their own characteristics and there are more or less differences in spatial layout, construction materials, and decorative elements. The traditional residential buildings in Zhaogaoyu Village ("Figure 9") are mainly courtyard buildings. In the early days, due to the poor economic conditions in the village, the building form and courtyard pattern were not very exquisite and the building materials were mainly local abundant stone. With the continuous development of the village's economy, the building form has gradually become stable, and the courtyard building has developed into the most important residential building form. Later, with the passage of time, the demand for renovation of traditional dwellings has continued to increase. Since modern times, a large number of traditional residential buildings in the village have been demolished and rebuilt, and the newly built residential buildings ("Figure 10") have been influenced by the building forms of the surrounding areas to varying degrees, showing different building types such as Sanheyuan buildings and detached buildings.



Figure 9 Early traditional residential buildings in Zhaogaoyu Village (Source: self-photographed by the author).



Figure 10 Modern residential buildings in Zhaogaoyu Village (source: self-photographed by the author).

Through the comparative analysis of residential buildings in different periods of Zhaogaoyu Village, it can be found that due to the underdeveloped local economy and culture, the local residential buildings lack stability and are easily affected by the building forms of other regions, thus showing different building features in different periods. At the same time, there is also a lack of overall design of the building in the planning stage before construction. The specific building details are mainly determined by the construction team according to the actual situation of the site, economic budget, construction period, building materials, etc. Therefore, the final style of the building often has certain randomness.

5. CONCLUSION

To sum up, because Zhaogaoyu Village is located in a remote mountainous area, with a small population and a backward economy, the succession of the village's spatial form is slow and the overall population tends to gather from the periphery of the village to the center. Later, with the development of the times, the total rural population begins to decrease slowly and the local building community also changes with the flow of the population. The overall density first increases and then decreases, and finally shows a trend of slow decrease. The building form is constantly enriched and changed by the influence of the local culture, economy and technical level, the traditional building form has gradually become blurred, and the traditional building features are slowly disappearing.

As an important scene for people to reside and live for a long time, traditional villages are an important carrier of local history, culture and regional characteristics. As a gathering place of traditional villages with unique regional and cultural characteristics in China, the changes in the spatial form of the Yimeng Mountain area are an intuitive reflection of the changing living conditions and living standards of the original inhabitants of an agricultural civilization located in poor mountainous areas and backward in development under the influence of modern social development. At the same time, its unique traditional stone structure residential buildings are also a very important part of Chinese architectural history. The research on the spatial form evolution of Zhaogaoyu Village can not only help better understand the development history and evolution process of traditional villages in Yimeng Mountain area, but also provide samples and literature

materials for subsequent related academic research, which is conducive to the development and implementation of related publicity and protection work.

AUTHORS' CONTRIBUTIONS

Shichao Li was responsible for the writing of the paper, and Hao Ying guided and revised the paper.

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