



A Study on the Changes in Landscape Structures of Traditional Villages

A Case Study of Jinjiang Village, Fusong County, Baishan City

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Abstract. With the diversified development of national cultural construction protection and tourism market demand, traditional villages are increasingly valued by interested parties and favored by tourists due to their characteristic architectural styles, important historical values, and unique ancient atmosphere. Using Jinjiang Village in different periods as an example, this manuscript studied its surrounding environment, road greening, landscape greenery, public facilities, etc., and summarized and analyzed the changes in Jinjiang Village's plane landscape and elevation landscape structures under the influence of different national policies and in different years. The causes of these changes were analyzed to provide references for future protection, development, and reuse of traditional villages.

Keywords: traditional villages · landscape structure changes · village protection

1 Introduction

Traditional villages, with their relatively large number of material and intangible cultural heritages, have high historical, cultural, scientific, artistic, social, and economic values, and are the essence of farming civilization and the foundation of the Chinese nation [1]. In 2009, the unique Manchu wooden house construction techniques of Jinjiang Village were included in the list of the intangible cultural heritage of Jilin Province [2], and in 2013, the area was selected into the list of traditional Chinese villages. In order to strengthen the protection and restoration efforts of traditional dwellings and vigorously develop the eco-cultural tourism economy with Chinese characteristics [3], the government has embarked on restoration work on Jinjiang Village since 2015. Through research on the landscape structures of Jinjiang Village in different periods, this paper summarized the causes for the changes in landscape structures and analyzed their advantages and shortcomings, to provide directions for the protection and development of traditional villages, contributing to the knowledge of rejuvenating the landscape of traditional villages [3].



Fig. 1. Satellite view of Jinjiang Village in 2021



Fig. 2. Panorama of Jinjiang Village in 2021

2 Overview of Jinjiang Village

According to the historical records of Fusong, the village was first built in 1937 [4]. The village is located in northern Manjiang Town, Fusong County, Baishan City, Jilin Province [2]. The entire Jinjiang Village is backed by Gudingzi Mountain and looks at Qiandianzi Mountain in the south. The entire village is adjacent to the Tuweiba River in the east, Jinjiang River and Manjiang River in the south, and Toudao Songhua River in the west [5].

The architectural complex of Jinjiang Village has unique characteristics of the Changbai Mountain region, and is the crystallization of the wisdom of Changbai Mountain aboriginal residents in understanding and utilizing nature to improve their living conditions [6], reflecting the characteristics and styles of cultural heritage in the region [7]. The wooden houses exhibit strong ethnic styles and local characteristics [8], as shown in Figs. 1 and 2.

3 Analysis of Landscape Changes in Jinjiang Village

This research analyzed the landscape of Jinjiang Village mainly from the aspects of plane and elevation structures and summarized the changes in dwellings, public facilities, road systems, water bodies, landscape plants and farmland in Jinjiang Village (Fig. 3).

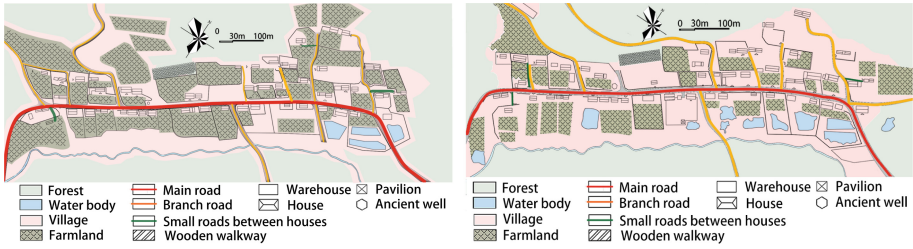


Fig. 3. The general layout for Jinjiang Village in 2011 (left) and 2018 (right)

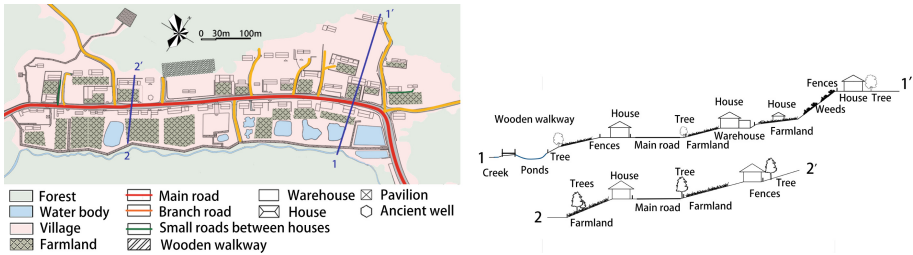


Fig. 4. The general layout for Jinjiang Village (left) and the conceptual map of Jinjiang Village elevation (right) in 2021

3.1 Analysis of Jinjiang Village Plane

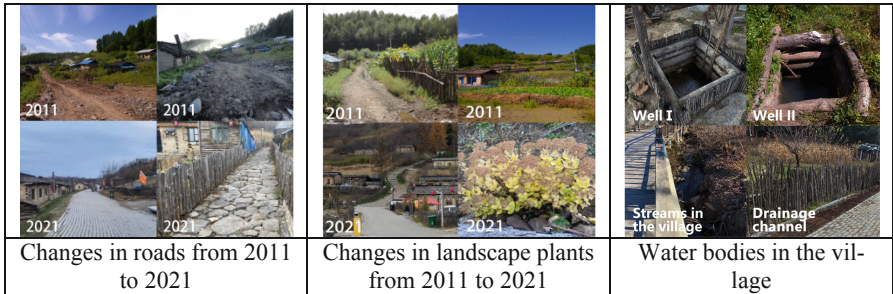
Road System

The roads of Jinjiang Village are composed of the main road running through the village from east to west, branch roads running north to south, wooden walkway for sightseeing and tourism, and small roads between houses, forming a fishbone-like road network. The main road is about 7-meter wide, and the branch roads are about 4-meter wide (Fig. 4). The government began repairing the roads and dwellings in Jinjiang Village in 2015, and the work was completed by 2018. In 2021, the main road was changed from dirt surface to characteristic stone brick pavement, and some branch roads were also changed from dirt surface to stone slab or stone brick pavement (Table 1). Some branch roads in the village have been neglected, grassy and impassable, mainly due to the loss of rural population and lack of inhabitation.

Landscape Plants and Farmlands

Jinjiang Village is backed by mountains and waters. The village is located on a hillside, surrounded by mountains and forests, which is not conducive to farming. As a result, villagers reclaimed farmland in the south based on natural terrain and local climate. With the vigorous implementation of the “Returning Farmland to Forest” plan and rural tourism, between 2011 and 2018, tourism is developing rapidly as well as has gradually become a major source of income for villagers. Some dwellings have become characteristic homestays for tourists. With the loss of rural population, some dwellings have been abandoned due to no one to live in them, and the farmland of these dwellings is also deserted. Therefore the area of farmland decreased and the area of forest increased.

Table 1. Changes in roads and landscape plants from 2011 to 2021 and the water bodies in village



Green belts and drainage channels were set on the north side of the road, but the number and types of green plants in the green belt were small. There were few arbors in the village in 2011, among which there were mainly Pine around the village, and there were shrubs such as Nepeta and Sunflower by the roadside. In 2021, most of arbors around the village were Pine and Birch. Elms were planted on both sides of roads, flowering shrubs such as Stonecrop were embellished on the roadside (Table 1). Villagers grew corns and cabbages in their yards for their own consumption. Selling medicinal herbs such as ginseng dug up from the mountains was one of the sources of income for the villagers.

Water Bodies

After an onsite investigation and interviews, we found that there was a small stream and two wells in Jinjiang Village in addition to ponds (Table 1). Before 2012, the main source of water for the villagers was well water. In 2012, the government paid for the laying of water pipes. A drainage channel was set on the north side of the road to collect rainwater and divert it to central drainage to prevent waterlogging. In 2011, there were only four ponds in the village for villagers to use. Between 2015 and 2016, the country vigorously promoted rural tourism. In the winter, the ponds were sealed and converted into ice skating rinks to attract tourists to visit in winter. The number of ponds in the village increased to 9. In 2018, the number of ponds increased to 11 after renovation. In 2021, the number of ponds decreased to 9 due to practical and objective factors, such as the amount of rainwater, the area of arable land, and a large number of ponds in the village causing the saturation of resources.

3.2 Elevation Changes and Analysis of Jinjiang Village

Housing Structure

The Log Cabin House in the Changbai Mountain region still used in Manchu culture to this day are called “Mukeden” by the locals, and they are solid and durable. The walls are made of wood layered up with a corner tenon-and-mortise structure [8]. Jinjiang Village was built on the mountain with residential houses facing south. There are main



Fig. 5. Storage house



Fig. 6. Wood Chimney

rooms and wing rooms. The main rooms are for living and most of the wing rooms are used as storage rooms or barns (Fig. 5). In order not to affect lighting, the main room and the wing room are staggered by about 1 m in distance. This space is generally used for storage, where firewood, farm tools, and sundries are placed. The storage room is made of logs with a slightly smaller diameter and lower quality than the wooden house and is constructed using the Mukeden technique. The wooden chimney is made by burning out the rotten core of the flammable root of the fallen wood in the mountain using smoldering fire [8] (Fig. 6).

To solve the disrepair, decay of the housing structure, and the inconvenience to the lives of villagers, all the houses in the village were restored between 2015 and 2018, after the road restoration. The foundation of the original houses was only made of stones and wood, while the foundation of the reconstructed houses was built through the procedures of steel bar tying, cementing, and finally wood layering. Houses constructed in this way have stable overall mechanical properties and good seismic performance [9]. Due to the decreased use of wooden chimneys and the shortage of natural materials, villagers mostly turned to the use of iron chimneys or attaching a piece of iron to the wooden chimneys (Fig. 7).

The main causes for the changes in housing structure are that some functions of traditional dwellings can be replaced by better technologies and materials now with the development of the times and the economy, that the supply of some materials cannot meet the demand, the high cost of human and material resources, and that the traditional technology, methods, and materials are not cost-effective any more for the villagers.

Public Facilities

Between 2011 and 2016, there were few public spaces in the village. After a major



Fig. 7. Iron-Wood Mixed Chimney



Fig. 8. Public Square



Fig. 9. A kiosk

restoration in 2018, a new public square was built in the central area of the village (Fig. 8). In 2021, there were kiosks selling mountain goods on the sides of village roads (Fig. 9), and wooden walkway, a shooting range, and viewing platform was built for the entertainment of villagers and tourists.

Since ancient times, every house in Jinjiang Village has been separated by a fence (Fig. 10). The fence separates the homestead from public areas. Now, there are trash cans on both sides of the roads, and there are direction signages and parking lots for short-term parking of cars at the entrance of the village.

The fence is about 1 m high. After the major restoration of the village, a small number of households use plastic nets or steel wires as fences. There are few trash cans on the sides of the roads, and there are no signs. There are no street lamps or other lighting facilities in the village, and there are certain safety hazards in the traffic going back to the village at night.



Fig. 10. Fences

Table 2. Analysis of landscape change of Jinjiang Village

Year	Before 2018	After 2018
House	Wooden houses	Wooden houses
Road	Mainroads, branch roads, Small roads between houses	Main roads, branch roads, wooden walkway, Small roads between houses
Water	Creek, ponds, well	Creek, ponds
Landscape plants	Mountain forest, courtyard plant	Mountain forest, courtyard plant, road greening
Farmland	Cabbage, corn	Cabbage, corn
Fences	Wooden fences	Wooden fences, plastic Nets, steel wires
Public facilities	None	Public, Square, museum, parking area, direction signage, trash can etc.

3.3 Analysis of Changes in Landscape Structures of Jinjiang Village

Between 2011 and 2021, houses, roads, water bodies, landscape plants, farmland, and public facilities in Jinjiang Village all underwent changes to varying degrees. Living standards of the villagers have improved, and houses now have better utility and stability suited for daily life. Dirt roads in the village were turned into stone brick roads, making it more convenient for villagers to travel. In terms of greening, the government purchased saplings and planted them in the green belts along the roads of Jinjiang Village. In regards to public facilities, trash cans and direction signages were added, making sightseeing more comfortable and convenient. The changes in the landscape structures of Jinjiang Village were all carried out under the influence of national policies and in line with the principle of putting people first. The landscape and the lives of villagers interact with each other, making the village more modern and touristy, providing convenient conditions for tourists and villagers, and enriching people's lives (Table 2).

4 Conclusion

Residents take natural landforms as the traditional landscape of the village. Between 2011 and 2021, the area of farmland decreased, the area of greenery increased, and the

road system expanded with more detailed levels. Public facilities in the village were also gradually increasing. With the vigorous promotion and development of rural tourism, the living standards of villagers were also improving. Although the landscape space is changing, the village still retains its traditional house structures and farming culture, which is the result of the integration of Jinjiang Village and its natural environment.

The landscape structures of Jinjiang Village have undergone tremendous changes under the influence of the national policies and strategies. As the last wooden house village in the Changbai Mountain region and one of the traditional Chinese villages, tourism has become one of the main sources of living income for the villagers. Their lives have become richer and more convenient. Nowadays, Jinjiang Village has different tourism events in different seasons. Free tours in the village attract tourists and promote local economic development. Through research on the landscape structures of Jinjiang Village in different periods, this paper summarized the changes of landscape structures, providing references for the protection and development of traditional villages to endue them with new values.

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