



Research on the Conservation and Planning of Ancient Villages Based on the Cell Concept: A Case Study of Dongjing Village, Guanyang County

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Abstract. The formation of ancient villages results from the coupling of natural and human factors. Under China's rural revitalization strategy, protecting ancient villages is practically significant. Using Dongjing Village in Guanyang County as a case study, this research proposes a "cellular-type" village concept. Through field investigations on resources, architecture, culture, and settlement environment, the study analyzes preservation issues and offers recommendations for conservation and planning.

Keywords: Landscape Architecture; Ancient Village; "Cellular-Type" Village; Conservation and Planning

1 Introduction

Ancient villages are irreplaceable cultural heritages shaped by long-term coupling of natural and human factors^[1]. Under China's rural revitalization strategy, they face challenges from rapid urbanization and tourism development, including hollowing out, aging population, fragmented management, and superficial resource exploitation^[2]. To address these issues, this study introduces the biological "cell" concept to construct a "cellular-type" village model, with nucleus, vacuole, cytoplasm, and cell wall as hierarchical protection units^[7]. Taking Dongjing Village, a traditional Yao settlement with over 600 years of history in Guanyang County, Guangxi, as a case study, we conduct field investigations on architecture, culture, environment, and industry. We analyze existing conservation problems and propose targeted planning recommendations, aiming to provide a scientific reference for the sustainable protection of similar ancient villages in China.

2 Literature Review

2.1 Research Background

The “rural revitalization” strategy is crucial for China’s development. However, rapid industrialization has led to the degradation of arable land and ecological damage to rural environments. In ancient village protection, multi-department involvement often fails to form synergy, and tourism planning suffers from superficial understanding, fragmented resource development, and a lack of professionals. The key issue is how to preserve the original folk atmosphere and establish optimal protection methods and development models for traditional villages^[1].

2.2 Research Procedure and Methods

- (1) Literature review and comparative analysis of representative villages.
- (2) Field investigation of location, natural elements, street patterns, building conditions, cultural inheritance, and villagers’ perceptions.
- (3) Collation and analysis of planning documents, photos, and field data to identify problems and propose recommendations.

3 Study Area Overview

3.1 Location and Pattern

Dongjing Village (As shown in Figure 1) is located in Dongjing Yao Ethnic Township, Guanyang County, Guangxi (110.8557°E, 25.2421°N). It faces west, with mountains to the east and water in front, divided into an old village and a new village, 68 km from Guilin..



Fig. 1. Layout Plan of Dongjing Village

3.2 Climatic Conditions

The area has a subtropical monsoon climate, with hot summers and cold winters. The highest temperatures occur in July and August, and the lowest temperatures in January and December. Spring and autumn are mild, and the four seasons are distinct. Phenological phenomena influenced by environmental factors (climate and hydrology) are relatively pronounced. Precipitation is concentrated in June.

3.3 Historical Resources

With over 600 years of history, Dongjing Village was listed among the first batch of Chinese Traditional Villages in 2012. It preserves a Qing Dynasty anti-corruption stone stele (unique in Guilin), late Qing nameplates, stone training weights for military exam candidates, ancient trees, and wells.

3.4 Red Cultural Resources

Dongjing Village is rich in red culture. It was a place where the Red Army fought during the break through the Xiang River on the Long March, and it is where the first shot was fired in the three major defensive battles of the Xiang River Campaign. The village carries the historical mission of disseminating red education and anti-corruption culture. During the Long March, the Central Red Army entered Guanyang County, leaving traces in more than 400 villages and towns across five townships of Guanyang.

3.5 Ethnic Cultural Resources

(1) Paideng Dance

A distinctive Yao dance from the Song Dynasty, currently being prepared for Guangxi's intangible cultural heritage list..

(2) Pohwang Temple Fair

Held on the 1st and 15th of the ninth lunar month, featuring traditional Yao costumes, flag escort, lion and dragon dances, and a deity procession praying for well-being and good weather.

4 “Cellular-Type” Village Construction Model

In view of the existing problems in the current planning and protection of Dongjing Village, and drawing on excellent rural construction methods from Europe, a “cellular-type” village model is proposed (As shown in Figure 2)^[7]. In this model, the entire Dongjing Village takes the traditional ancient architectural complex as the “nucleus.” The ponds and wells surrounding the ancient buildings serve as the “vacuoles,” while the streams, fields, and woodlands enveloping the ancient buildings function as the “cytoplasm.” Forests, roads, and water bodies act as boundaries between villages, i.e., the “cell wall^[7].”

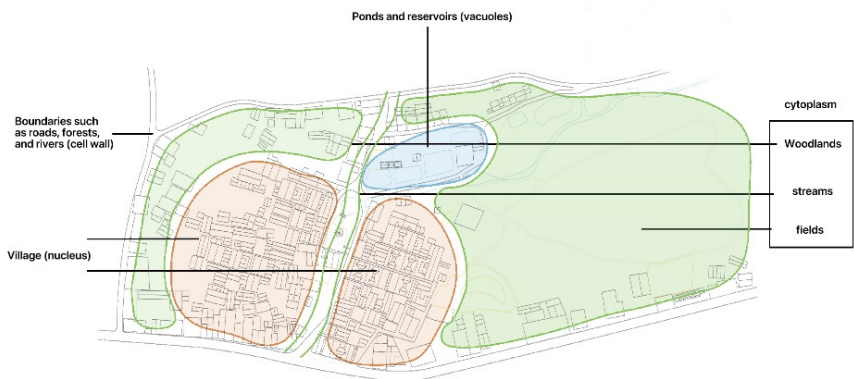


Fig. 2. Schematic diagram of the cellular-type village (Image source: Drawn by the author)

5 Current Conservation Status and Problem Analysis of Dongjing Village

5.1 Industrial Status

Primary industry: Agriculture (rice, sweet potatoes, corn, fruits) with scattered cultivation, low output value, and single sales channels. The workforce is aging^[3].

Secondary industry: Timber processing, small iron tool manufacturing, grain processing, and small hydropower, which have declined due to urbanization and labor out-flow (As shown in **Table 1**).

Tertiary industry: Tourism is underdeveloped, especially affected by the COVID-19 pandemic^[4].

Table 1. Industrial structure of Dongjing Village

	Primary industry	Secondary industry	Tertiary industry
Industry type	Forestry, animal husbandry, fishery	Wood processing, small-scale iron agricultural tool manufacturing, grain processing, and hydropower	Tourism industry

5.2 Current Status of Traditional Architecture

Sixty-eight ancient residential buildings from the Ming and Qing dynasties remain. They feature symmetrical layouts, a central hall with side rooms, a “courtyard” (Tianjing) for lighting and ventilation, high enclosing walls with horse-head gables, and green brick/black tile materials. Decorative techniques include brick, wood, and stone carving^[6]. The village is surrounded by a 2-meter-high wall with gates in four directions. Most buildings are well preserved, but some have fallen into disrepair, have high vacancy rates, or are used for raising livestock.

5.3 Current Status of the Village Human Settlement Environment

- Roads: Fragmented, no closed traffic loop, limited parking, debris obstruction.
- Greening: Rich plant diversity but chaotic growth, poor landscape visual effects, lack of seasonal plants.
- Water system: Known as “the village soaked in water.” Some sections suffer from declining water quality, drying up, and garbage.
- Fabric and landscape: The core ancient building complex is central, but new houses have made morphology scattered. Natural patches are damaged by excavation and abandoned land. The “cellular-type” model could help reaggregate scattered components (As shown in Figure 3)^[8].



Fig. 3. Distribution map of buildings in Dongjing Village

5.4 Current Status of Public Facilities

Infrastructure is inadequate. Drainage systems, waste collection facilities, and sewage treatment facilities are outdated and backward. Tourism service facilities and supporting amenities are lacking, which affects the tourism experience and undermines the authentic atmosphere of Dongjing Village^[4].

5.5 Current Status of Tourism Products

The government is the sole manager. Due to the pandemic, operations are poor, and visitor numbers are near zero. There are no experiential activities; the previous Galsang flower sea project has been abandoned. Activities remain limited to sightseeing and photography^[10].

5.6 Types of Public Spaces in Dongjing Village

The public spaces in Dongjing Village can be roughly classified into three types according to their spatial morphological characteristics (As shown in **Table 2**):

(1) Point-shaped spaces – small, common areas at bridge heads, ancient wells, old trees, stone mills, and street intersections, used for daily leisure and social interaction^[9].

(2) Linear spaces – riverbanks, alleys, and village streets; the winding, deep alleys offer varied walking experiences and are popular among tourists.

(3) Areal (planar) spaces – mainly the square in front of Shuizhuju and the Guiyue Stage, serving as main activity centers for daily communication, drying, and crop processing.

Table 2. Types of public spaces in Dongjing Village

Space	Point-shaped space	Linear space	Areal (planar) space
Form	Bridge heads, ancient well entrances, ancient trees, stone mills, road intersections	Riverbanks, alleys, streets	Squares, stages (theater platforms)

5.7 Current Status of Population Structure

Contemporary society is characterized by an aging population, and this issue also exists in ethnic minority areas^[2]. In Dongjing Village of the Yao ethnic group, a large number of young laborers have migrated out, leading to phenomena such as “village hollowing,” “labor shortage,” “population aging,” and “rural decline^[5].” In the ancient village of Dongjing, the number of elderly people far exceeds that of young people. Many elderly people can be seen doing handicrafts or farming at their doorsteps, while very few young people remain to work and live in the village. In addition to aging, traditional ethnic minority villages also face the problem of hollowing out. Most young people go out to work, leaving behind only the elderly and children, resulting in an imbalanced population structure, which is detrimental to the construction and development of ancient villages^[5].

6 Conservation, Development and Recommendations for the Ancient Village of Dongjing

6.1 Recommendations for the Holistic Conservation of the Ancient Village

6.1.1 Protection of Village Structure. Systematically protect the layout, road system, and ethnic culture^[5]. Based on the feng shui pattern, take Dongjing Village as the center and integrate surrounding mountains and rivers for conservation. Delineate a core protection area along the water street axis, strictly protecting ancient buildings. Use the

“nucleus” and “cell wall” concept to form a complete protection system^[7]. Convert vacant land into residential or green areas. Emphasize landscape character, folk customs, and ecological protection, creating a harmonious leisure environment so tourists can experience the slow pace of life.

6.1.2 Maintenance of the Constituent Elements of the Ancient Village. Prioritize protection of streets, architectural style, and water system. Strengthen drainage and waste facilities to prevent water pollution. Control road pavement, boundaries, and facades^[6]. Restore ancient buildings following the principle of “restoring the old as it was.” For well-preserved buildings (e.g., Tang Clan Ancestral Hall), use original craftsmanship. For average buildings with good locations (e.g., Fenglou Gate Tower), focus on façade planning. Demolish dangerous buildings or those harming the landscape. Prohibit unauthorized construction^[9].

6.2 Reasonable Control of the Scale of Tourism Planning and Development

Tourism development is necessary for economic benefits but must not damage the landscape^[4]. Use streams, fields, and woodlands (cytoplasm) to build a leisure-oriented ecological agricultural village. Do not alter original architectural colors or lose heritage significance. Set appropriate visitor carrying capacities^[10]. Adopt a joint tourism route with surrounding townships to achieve moderate development^[8].

6.3 Integration of Culture and Tourism

Cultural tourism takes culture as the core^[5]. The distinctive ethnic connotations of ancient villages are key to genuine development. Convert local historical and cultural resources into tourism products. Further explore unique cultural resources, starting from traditional folk activities, festivals, and handicrafts^[9]. Organize and refine folk festivals to identify Dongjing’s unique cultural characteristics. Diversify cultural tourism products according to modern aesthetic standards while integrating local features^[3].

7 Conclusion

This study applies the “cellular-type” model to Dongjing Village, with the ancient architectural complex as nucleus, ponds and wells as vacuoles, surrounding streams and fields as cytoplasm, and natural boundaries as cell wall, forming a hierarchical protection system preserving the village’s landscape pattern. Field investigation reveals industrial decline, aging and hollowing population, poor infrastructure and environment, underused cultural resources, and monotonous tourism. Proposed measures: systematic structural protection, tourism scale control, and culture-tourism integration through festivals and experiential activities. Future research should adopt GIS and spatial syntax to refine the model for sustainable village conservation.

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