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POLITECNICO DI MILANO

EARLY STAGE

ADAPTIVE RENOVATION RESEARCH OF TRADITIONAL DONG DWELLING IN CHINA

EXTENDED ABSTRACT

DONG MINORITY, TIMBER DWELLING, RENOVATION

DDR STATEMENT

With the acceleration of the modernisation process, the contradiction between tradition and modernity becomes apparent. Villagers now abandon many traditional Dong timber dwellings because of the lack of living-comfort. Through the adaptive renewal renovation methods and a passive-house perspective, the researchers hope to balance the relationship between building, people and environment and continue the unique tangible and intangible structure tradition of Dong Minority.

The study will improve the current vernacular house by learning from the traditional Dong dwellings depending on the Design Driven Research (DDR). First, the article will conduct detailed investigations on analysing various forms of houses, observing the original village and studying local traditional customs of Dong settlement. And it will also concern about environmental issues, sociological-anthropological issues and low-tech technologies that may be applied. Then, the article systematically discussed and analysed these issues and proposed related strategies and transformation methods. The final paper will layout a village's sustainable system and attempt to design a renovation prototype of Dong dwelling. The Adaptive Renovation Re-search is complex to meet the ecological resilience, climate resilience and cultural heritage, from the user's modern sexual appeal to current modification or renewal of buildings in functions, construction techniques, materials.

ABSTRACT

China's countryside is disappearing at an alarming rate. Unprecedented urban growth has destroyed or is destroying the material and cultural identity of villages. Taking drastic measures to rebuild the traditional dwellings had damaged the village's classic scene and. It destroyed building techniques that existed in the timber dwellings, making it more challenging to preserve and inherit the traditional Dong architectures. This paper discusses the adaptation strategies for the villages of Dong people in Southern China. Based on analysing various forms of houses, observing the original town and studying local traditional customs, the renewal idea tries to learn from the vernacular attempts to change the imbalance between people, build-ing and villages' environment and reactivate villages through environmental renova-tion design. Building and developing do not mean the erosion of heritage.

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Fig.1

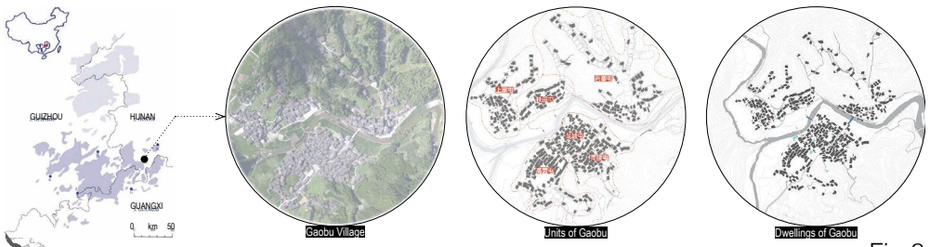

Fig.3

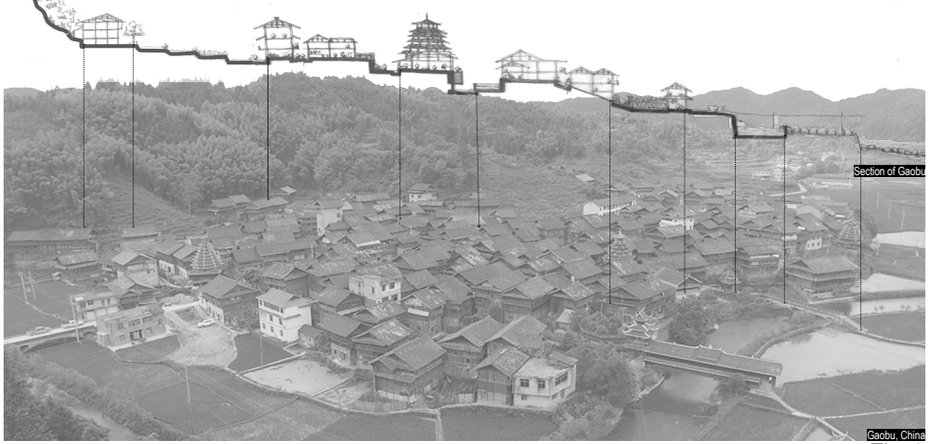

Fig.2

EXTENDED ABSTRACT

1.Introduction

Although the research on the traditional villages of the Dong people in China has been proposed for many years, the village environment's modernisation still deserves a more profound discussion more responsibly. Simultaneously, despite China's extensive discussion of rural development issues, the topic of ecological imbalances (such as the impact of modern development on the natural environment) has been ignored. This research project will enrich the discussion on the inequality between the ecological environment and modernisation in Dong's traditional villages' contemporary adaptive adaptation. The era of reform. The rapid border expansion of large cities, the rural land policy system and the unique economic and political situation have led to the automatic renewal of villages in the traditional Dong villages in China's interior. The Dong architecture itself has its unique architectural language. Still, in this situation, many of the Dong traditional residences have become neither conventional nor modern aesthetics under users' random transformation.

Many research projects on traditional Dong architecture have attempted to explore the concept of adaptive renewal of conventional architecture by studying the traditional Dong construction techniques and exploring ways to combine traditional Dong construction methods with modern materials and means. The project aims to study the evolution of the Dong architecture's adaptive renewal and its development direction conducive to its health and the entire village. Behind the Chinese reform period, after 40 years of "Great Leap Forward" urbanisation, the Beijing Central Government decided to adjust the economic structure; many Chinese villages are undergoing a reconstruction or restructuring process, which means that many traditional villages have lost their architectural language. For example, the traditional villages of the Dong people are facing the pressure of renovation. On the one hand, the government wants to release (or privatise) as much as urban space so that it can introduce higher value-added, flexible industries; on the other hand, some particular architectural forms have a unique value for the village, removing them will It has caused many problems that hinder the long-term and short-term development of the town. Anyone in the government or decision-making process should consider the role and impact of traditional architectural forms in rural development. The study of adaptive updates to traditional villages is an opportunity to reconcile conflicts between elimination and preservation. By exploring the role and side effects of modern adaptive transformation and renewal from a small and specific dwelling, this research will provide new insights into the modernisation direction of Chinese villages represented by the Dong villages and determine that they can be integrated and coordinated. Appropriate measures to accommodate the overall official rural development plan.

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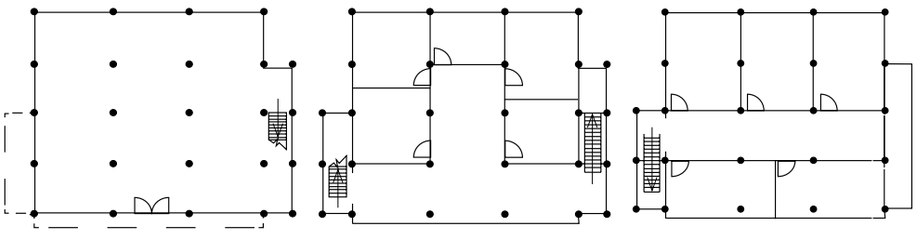

The Ground Floor

The ground floor houses animals (chicken, pigs and buffaloes).

The First Floor

On the first-floor living area, the kitchen, a veranda and often a small altar located adjacent to the fireplace.

The Second Floor

The upper stories are used for bedrooms and storage.

Fig.4

2. Dong Minority Village

The Dong ethnic minority people are one of China's 56 ethnic groups, who live in the region delimited by southwest Hunan, southeast Guizhou and north Guangxi. With a population of almost three million and a long history of more than 1,000 years dating back to the Tang Dynasty, the Dong communities are today, similarly to many other Chinese rural settlements, deeply affected by the phenomenon of 'Village Hollowing'. This unprecedented migration of rural populations to expanding urban areas has resulted in almost vacant villages inhabited by struggling communities of mostly elderly and young people.

This paper centres on Gaobu, a village of approximately 2500 inhabitants, studying it as a pilot village to test a possible regeneration strategy. The Dong minority village of Gaobu, one of the UNESCO World Heritage Tentative List candidates, is a typical southern Dong settlement. Due to its remote location, most of the features and techniques of Dong wooden architecture are fully preserved. However, with the modernisation, the wooden dwellings gradually fail to meet the villagers' daily needs. On the other hand, with the development of towns and transportation, villagers are voluntarily using modern techniques to construct functional houses which meets the necessary daily usage within the traditional dwellings. Some of them even reconstructed their wooden homes, ultimately into concrete buildings. Such compelling renovations are among the problems faced by traditional Dong villages in the southwest, awaiting to be solved.

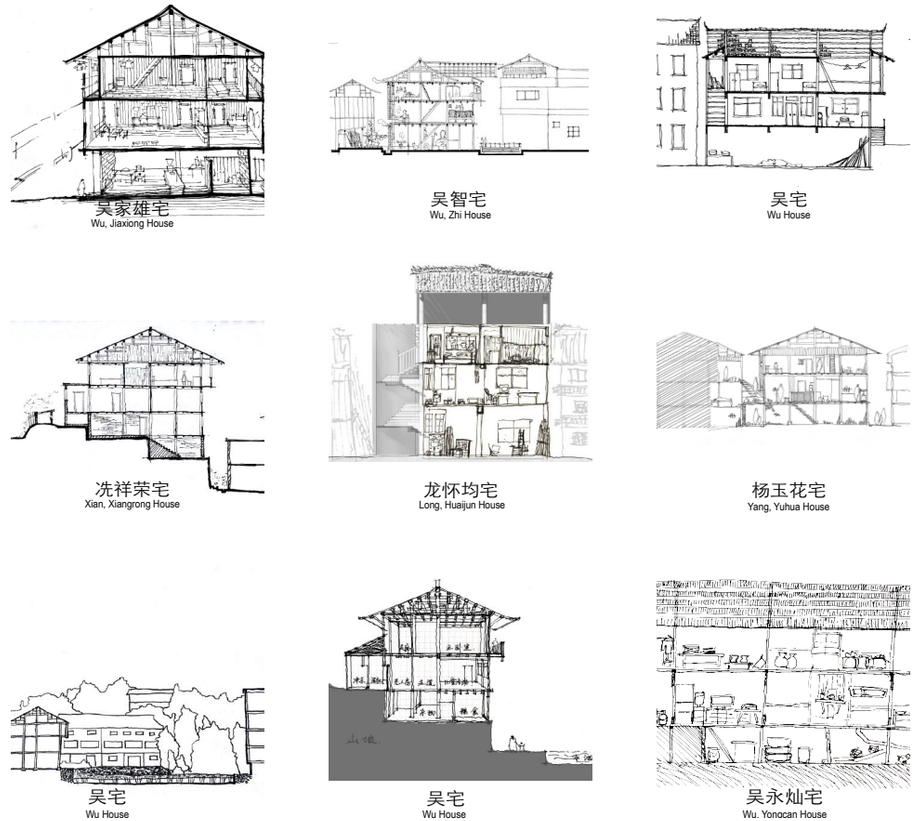

Fig.5

3.Dong Minority Dwelling

The Dong culture is essential to connect with their dwelling and the surrounding environment. Dong lives in a mountainous area in south China renowned for its rice terraces, bamboo forests, and tea plantations that remain predominantly intact. Their residence is intrinsically connected with the land and topography, generating a harmonious relationship between nature and human-made structures. Their architectural timber heritage is one of the last remnants of an ancient culture in China that is still alive.

The Dong residential building "GanLan" usually have three bays and are mostly three storeys high. The standard house dimensions vary between 2-5 bays, each bay approximately 3.5m wide, resulting in houses with floor plates between 50-120m^2. Furthermore, all houses are built entirely with one material, China fir. The bottom section is defined by the pillars on which the house is built. The floor above is the living space. And the third storey is the attic and the children's bedroom. The elevated timber frame structure offers flexibility to react to steep topographical conditions and, at the same time, protects against insects and animals, flooding and dampness.

4. Research in Scheduled

a) Step 1:
1. Academic work / formal background/case study of Low-tech renewable techniques. The study will first review literary works, essays and related public policy and political contexts. Then establish a preliminary case study of the catalogue. The study case catalogue will be organised according to the complexity and extent of the system.
2. Use a questionnaire to answer essential questions about the views concerning sanitation provision of those living in the village's traditional houses. The study will carefully examine the experimental catalogue case, considering the spatial characteristics and the political and economic context and social structure. It will collect first hand/raw materials and reinterpret these situations employing construction (visual/space) and statistical methods (quantity/chart/model).
3. External collaborative research. The collection work (especially the political and economic background and social structure) will be completed through interviews with local government departments and village heads. Therefore, we may have an opportunity to understand how these decisions were made or what led to today's situation. The tentative government departments and social groups are as follows: local urban planning departments and their design institutes, construction bureaus, environmental protection bureaus, village committees and resident villagers.
4. Analysis and processing of data. A reservation plan for quantitative analysis methods. By graphing the data, we can have a more intuitive and holistic understanding of the research case changes.

b) Step 2
1. Form a research framework for the system.
2. Analyse the processed qualitative data and combine it with spatial mapping methods and sociological analysis methods.

c) Step 3
1. Establish a prototype of a traditional dwelling. It includes the upgraded home's circulatory system, the various components, and the relationship with the village.
2. Form a new understanding of the traditional village ecosystem. Including applicable methods and feasibility practices, incorporating the sustainable recycling system into the conventional village development/redevelopment plan, combined with the background of China's rural transformation and the policy reform period, will be resolved according to existing conditions.

LIST OF ILLUSTRATIONS

Fig.1 Typical facades of Dong dwellings in Gaobu
(Source: draw by author)

Fig.2 Gaobu Village perspective photo
(Source: photo by Binxin Chen)

Fig.3 Gaobu Village location and section
(Source: draw by author)

Fig.4 Dong dwelling's plan
(Source: draw by author)

Fig.5 Dwellings' section
(Source: draw by author)