A study on the spatial construction strategies of ethnic minority villages based on compound ecosystem theory

Dandan Shao¹*, Rong Han²

¹ College of Art, Jiangsu University, Zhenjiang City, Jiangsu Province, 212000, China
² College of Art, Jiangsu University, Zhenjiang City, Jiangsu Province, 212000, China
*Corresponding author’s e-mail: shaodandan@163.com

Abstract. This article selects minority villages as the research object. The socio-economic-natural complex ecosystem theory is applied to the spatial construction of ethnic minority villages, and the landscape ecology and ecological aesthetics are combined to study the landscape planning of ethnic villages. Based on the rural realities, the problems, structures, features, and functions in the landscape planning of ethnic villages are analyzed from three levels: the natural ecological subsystem, the economic ecological subsystem, and the social ecological subsystem. The guiding thoughts, principles, and methods of the landscape planning of ethnic villages are put forward, and the relationship between the spatial planning of ethnic villages and the shaping of ethnic characteristics is summarized through the interpretation of related concepts and the analysis of research status at home and abroad. Finally, a strategy for the spatial construction of ethnic villages was obtained with a view to providing theoretical basis and reference for future national village landscape planning.

1. Introduction
With the development of the tourism industry in ethnic villages, the economic development level of ethnic villages in various regions has been greatly improved. However, due to the wild exploitation of natural resources, the ecological environment has also suffered severe damage. In addition, due to the theoretical system for the construction of ethnic villages, the imperfections have led to the lack of national cultural characteristics in the construction of ethnic villages today. In September 2009, the General Office of the National Civil Affairs Commission and the General Office of the Ministry of Finance issued the "Guiding Opinions on the Pilot Work on the Protection and Development of Ethnic Minority Villages", which raised the issue of the protection and development of ethnic minority villages at the national policy level for the first time. In 2012, the National Civil Affairs Commission issued the "Outline of the Plan for the Protection and Development of Ethnic Minority Villages (20111215)", which further clarified the concept of ethnic minority villages. In September 2014, the National Civil Affairs Commission issued the "Notice on Naming the First Batch of Chinese Ethnic Minority Villages". A total of 340 villages across the country were listed as the first batch of "Chinese Ethnic Minority Villages."[1]

According to CNKI's incomplete statistics, most of the spatial research on ethnic minority villages focuses on the issue of "protection and development" at the practical level. It can be roughly classified into five aspects according to the research area and problem orientation[2]. First, analyze, discuss and summarize the pilot work on the protection and development of ethnic minority villages from a macro level, and put forward strategic suggestions to guide the protection and development of ethnic
minority villages. Second, an empirical summary of the protection and development of ethnic minority villages is targeted at administrative division units. Third, a case study of the protection and construction of ethnic minority villages. Fourth, special research is conducted around the specific issues of ethnic minority villages. Fifth, the relationship between ethnic minority villages and other national public management policies. In addition, the current research on ethnic minority villages mainly has the following three problems: one is to focus on the interpretation at the realistic level, and the historical perspective of ethnic villages is not obvious; the second is to discuss the issue of protection and development from an overview level, ignoring the social structure of the spatial construction of ethnic villages and the interaction between them and the surrounding villages, lacking the integration analysis of their spatial construction practice and evaluation of the space construction practice of a specific ethnic minority village, lacking in-depth thinking. Based on the above research, this article will combine the theory of complex ecosystems with ethnic minority villages research on spatial construction strategies.

2. Related concepts and basic theoretical research

2.1. Complex ecosystem theory
Composite ecosystem refers to the overlapping and mutual influence of multiple ecosystems. The composite system formed by human-centered socio-economic systems and natural ecosystems in a specific area through coordinated actions has complex internal and external relationships and has a non-linear structure. In 1984, Mr. Ma Shijun formally published an article entitled "Social-Economic-Nature Complex Ecosystem" in the Journal of Ecology. Situation and the natural environment on which human beings depend. Society, economy, and nature are three systems of different natures, each with its own structure, function, and development laws. However, in the existence and development of each system, each other is subject to other system structure functions. Restrictions on functions and functions must be considered as a composite system, and the characteristics and functions of the system must be analyzed. The problems of these three subsystems cannot be viewed individually, but should be viewed as complex problems that combine the three systems. We call it society. — Economic-nature complex ecosystem problem.[3] Based on a lot of reading and careful study of relevant literature and theories about ecosystems at home and abroad, I want to make the following definitions of a complex ecosystem: The complex ecosystem is a three major subsystems: the natural environment subsystem, the humanities and social subsystem, and the economic industry subsystem. The subsystem is a multi-disciplinary, multi-system complex giant system composed of human subjective participation. The natural environment subsystem mainly includes four categories: light element, water element, soil element and wind element; the humanistic social ecological subsystem mainly includes Political elements, cultural elements, and religious belief elements are three categories; the economic and industrial ecosystem mainly includes the primary industry (agriculture), the secondary industry (industry), and the tertiary industry (service industry).

2.2. Ethnic minority village
Ethnic minority villages refer to natural villages or administrative villages with a relatively high concentration of ethnic minority populations, complete production and living functions, and significant cultural and ethnic characteristics. [4]The characteristics of ethnic minority villages are mainly different from other villages in terms of the overall style of villages, characteristics of residential styles, folk customs and culture, and characteristic industrial structures. Ethnic minority villages are gradually formed in the process of historical development and evolution. Each village retains its own cultural traditions. At the same time, due to the different regional environments, it also integrates some local cultural and traditional characteristics. Therefore, ethnic minority villages play a key role in the diversity of Chinese civilization, the inheritance of national culture, and the development of ethnic minorities.
3. The Status Quo and Problems of the Space Construction of Ethnic Minority Villages: A Case Study of the Hui Nationality

At present, ethnic minority villages are divided into non-minority-gathered areas and minority-gathered areas. Since the formation of the Hui nationality, Chinese has been the mother tongue, and the phenomenon of intermingling with the Han people is the most widespread. It is called "the closest to the Han people Nationalities". Therefore, this article selects Hui villages as the research object, and separately from non-minorities Ethnic gathering areas Jiangsu Province selected Gaoyou Lingtang Huimin Village and ethnic minority gathering areas Ningxia Autonomous Region Ningxia Yongning County Najiahu Village as a specific case for analysis and research, so as to illustrate the status quo of the construction of minority villages typical of the Hui nationality, as follows It draws the existing problems and proposes solutions for ethnic minority villages to lay the research foundation.

3.1. An Analysis of the Status Quo of Ethnic Villages

3.1.1. Gaoyou Lingtang Muslim Village. Yangzhou Lingtang Hui Township, as the first batch of minority townships approved in Jiangsu, is very typical and representative. It is located on the shores of the beautiful Gaoyou Lake, facing Jinhua County in the north, and the beautiful Shenju Mountain in the south, forming a unique geographical location surrounding the lake on three sides and facing the mountain on one side. According to Ling Tang's "Yang Family Tree". As early as 700 years ago when the Arab Puhaddin came to preach in Yangzhou, more than 300 Muslims lived and worked here. At present, more than 7,800 Hui people live in Lingtang Township, accounting for about one-third of the
total population of the township. In Lingtang before the 1980s, public infrastructure was inadequate, domestic sewage was drained freely, and rural roads were muddy. At the time of the annual harvest, large-scale incineration of straw, clutter accumulation of agricultural product processing waste, and other phenomena have caused great pollution to the environment, and the neatness of the township has also been greatly reduced. The tourism development in Lingtang Hui Township is to protect the national traditional culture and natural ecological environment. The main purpose is to carry out moderate and comprehensive tourism development for Lingtang Hui Township. In the tourism planning of the Hui nationality township, various functional sub-zones have been set up according to different functions, such as: Lingtang Township Construction Area, Industrial Concentration Area, Ethnic Tourism Area, and High-efficiency Planting Area. Combined with the landscape axis to form a "one-axis, three-zone, seven-group" functional structure. According to the rich local tourism resources, the ecological, humanistic, ethnic, and water frontlines have been developed accordingly. Focus on creating ethnic and traditional areas with traditional features, develop and protect the rich local historical and cultural resources, and focus on developing a series of tourism products with ethnic characteristics. Combined with the Hui people's "situation of surrounding temples" concept, everything is centered around the mosque, and the mosque area is used as a key node in the overall tourism planning to develop the mosque and its surrounding areas.
3.1.2. Najiahu Village, Yongning County, Ningxia. Najiahu is located on the west side of Yongning Village, Ningxia Hui Autonomous Region, 20 kilometers away from Yinchuan, the capital of Ningxia Province. It has developed traffic, dense road network, and obvious geographical advantages. Najiahu Village is the first batch of ethnic minority villages in the country, and it is also a first-class tourist area of Hui style in Ningxia. In the spatial layout planning of the village, based on the characteristics of the road system and the distribution of residential houses in the old times, the villages set up a variety of functional zones, combined with the landscape axis to form a "two-axis, one-zone, two-park" functional structure. "Two-axis" refers to The main axis of Najiahu Ancient Street and Najiahu Landscape, "One District" refers to the newly-built Hui people's residential area, "Two Gardens" Chinese Huixiang Cultural Park and Najiahu Ecological Park. At the same time, the Chinese Huixiang Cultural Park is also a large-scale comprehensive venue for the display of Hui customs and Islamic culture in China. It is divided into three major areas: the landscape area dominated by the museum and the worship hall, the style exhibition area dominated by the performing arts hall, folk customs square and artificial folk square, and the living service area mainly by halal catering industry. The unique Hui ethnic style was shown to the tourists, and the tourists felt the exotic atmosphere.

3.2. Summary of Problems of Ethnic Villages
Based on the study of the above two typical cases of ethnic minority villages and comprehensive ecological system theory, it is found that there are three main problems in the current spatial construction of ethnic minority villages: (1) The destruction of natural ecological resources is serious. For example, with the development of history, Lingtang Hui Township and Najiahu Village suffered from human damage during the process of village renovation and reconstruction, which caused their rich historical heritage and natural resources to be depleted. (2) The decline of social and ethnic culture. For example, in the Lingtang Village of Gaoyou, the traditional streets and lanes have been broken, the historical texture no longer exists, the new buildings have not failed the Hui flavor of the past, and the original flavor has been largely destroyed. (3) There is a single economic and industrial development model. At present, the various functional areas of Najiahu Village are scattered, the
interaction between scenic spots is weak, and the development of tourism products is relatively thin. The Hui Nationality Cultural Park is still in the primary stage of museums, and the income of residents is mainly in the primary and secondary industries. The tertiary industry is less developed.

4. Space Construction Strategies of Ethnic Minority Villages
According to the three issues summarized in the article above, the author proposes the following three principles for the spatial construction of ethnic minority villages: (1) respect the original natural ecological pattern, preserve the authenticity of traditional ethnic villages as much as possible, and (2) inherit and carry forward excellent national culture, retain the soul and roots of national culture, and show national feelings. (3) Strengthen the leading economic industries, scientifically develop the tourism industry, pay attention to the economic needs of people's lives, and guarantee the basic quality of life of ethnic minorities. The following will synthesize the theory of complex ecosystems, from the natural subsystem, social subsystem, economic subsystem, and put forward specific methods for the spatial construction of ethnic minority villages. Style and spacing

4.1. Village land planning based on natural environment subsystem

4.1.1. Protecting fragile landscapes in minority villages. Based on the unique natural climatic conditions and the fragile natural ecological environment of ethnic minority villages, it is necessary to strictly control the development and planning of the village's land in constructive planning.[6]
First of all, control the expansion direction and scale of village construction land; control the sight corridor between the surrounding mountains, water systems, and the ancient village of Huzhou. When conducting tourism development and construction around the old village, the building height and style are strictly controlled, which is consistent with the traditional rural style of the old village. Secondly, determine the key areas in village protection, as the focus of protection, and clarify the protection work steps, that is, focus on protecting the village core landscape area. Finally, the natural environment should be respected in the site selection of the construction of the new village, and the overall spatial layout of the village should be scientifically planned to create a good living environment for the villagers.

4.1.2. Respecting the natural ecological security pattern. The first article of the Venice Charter emphasizes the importance of the overall character of the historical environment. Therefore, it is necessary not only to protect the parts identified as cultural relics in accordance with the law, but also to include the parts that are not identified as cultural relics but are closely related to them. For the villages with minority characteristics, its protection is to protect its overall community, so that the overall intention of the village can be expressed. In the planning process, we must respect the natural environment process, comply with the laws of the natural environment, protect the natural environment, fully protect the integrity of its overall landscape, and resolutely not cause damage to the natural landscape pattern. Scientifically and rationally plan each area and each land. It is necessary to respect nature, history, and the environment without making major adjustments and demolition, and respecting the village layout of the existing rural texture. Only organize and complete the form on the basis of the original village to create its ancient village settlement style. Improve functions as part of tourist facilities. For the construction of the new village area, the main style and style of the old village should be controlled, and innovative new village landscapes should be created. It adopts a mixed rather than separated pattern of living, living, and tourism. The building layout is coordinated with the surrounding environment. It is adapted to local conditions, and the roads are beautiful and smooth. Full consideration is given to the practicality of development and construction, and the combination of near and long-term construction. Coincidentally borrowing, flexible layout, and harmonious integration with the natural environment. Reflect the natural features and historical culture of blue sky, white clouds, green mountains and clear water[7].
4.2. Cultural Inheritance Based on Human Social Subsystem

4.2.1. Reappearance of ethnic characteristics and folk houses. The residential buildings are constantly developing in the past, present or future. However, with the development of the economy and the improvement of the living standards of ordinary people, the living environment of traditional residential houses has increasingly become unable to meet the needs of people's lives. On the basis of features, meeting the needs of modern life has become a difficult problem in the construction of ethnic minority villages. The author believes that it is appropriate to integrate the semiotic design method to simplify and transform the architectural symbols of traditional houses; imitate the architectural texture of traditional wooden houses; imitate the architectural structure of the subculture layer; Better solve this problem. The so-called simplified and deformed architectural symbols refer to: by transplanting and appropriately changing the shape, color, material, structure, decorative pattern, spatial combination mode or construction technology of the residential building space, the semiotic characteristics of traditional residential houses can be better restored. The "form" and "god" that have gradually disappeared, and then refined on the basis of "transplantation" and "imitation of deformation". Through abstraction, deformation, exaggeration, inversion, etc., the architectural vocabulary can be derived from traditional houses. It can also meet the needs of modern building materials and building technology; the so-called imitating traditional architectural texture refers to the concept of a degree of reproduction and imitation of architectural texture during the exploration and practice of new residential buildings. This texture expression method, under the premise of not affecting the overall village architectural style, ensure the use of new materials and restore the old texture balance principle. The new and old texture should maintain a certain proportion. This makes the new residence not only maintain the original cultural atmosphere, but also has an active modern atmosphere.[8]In addition, the reproduction of folk houses with national characteristics should follow the following principles:

(1) Nationality: It must conform to the living habits of ethnic minority residents, reflect the unique cultural characteristics of the locality, and inherit the tradition of residential architecture.
(2) Developmentality: It must meet the functional requirements of modern life and meet the development needs of modern building materials.
(3) Characteristic one is neither the reconstruction of traditional dwellings, nor the "modern" dwellings that are similar to other places, but the creation of modern native architecture, and the construction of modern dwellings with local colors.

4.2.2. Carry out folklore festivals. In the protection of villages, the protection of folk cultural activities should be placed in an important position. Provide them with as much support as possible, promote folk culture, and deepen the in-depth understanding of local characteristics and ethnic cultures among local residents and tourists. For example, you can develop a number of performance institutions, such as various art performance groups; enlarge and strengthen a group of artistic creation institutions, such as art centers, audiovisual film and television centers, etc.; inherit and protect a number of cultural relic institutions and book and literature institutions, Such as museums, memorials, youth palaces and palaces of culture, etc.; provide cultural products that are popular among villagers in ethnic minority villages. The protection of folk culture is the protection of local residents' unique production and lifestyle. Such as song and dance, various sacrifice activities, various festival activities, etc. All these folk custom activities attract tourists from all directions with their unique charm. During the development of the village, these folk custom activities have been preserved because of tourism and also thrive because of tourism. stand up. With the development of tourism, more and more villagers who go out to work will return to their homes, and they will firmly develop their confidence in their national culture, so that these folklore activities can be proudly developed and continued.
4.3. Industrial development innovation based on economic industry subsystem

4.3.1. Combining the village's characteristic resources, rationally planning the spatial structure. On the basis of determining the tourism image of ethnic minorities, it is necessary to start shaping ethnic characteristics from the spatial structure level of the entire ethnic characteristic village. Due to the differences between ethnic characteristics, the spatial structure of each minority village will have its own unique aspects. The shape of the spatial structure cannot be limited to a single building or a street, nor can it be limited to the interior of the village. The characteristics of the overall space structure depend on a reasonable space structure and a unified overall appearance. A scientific and reasonable space structure must be unified, open, and communicative. The shaping of spatial structure can be reflected in many aspects such as tourist routes, functional divisions, and road systems. The setting of tourist routes needs to extract the characteristic elements of ethnic villages, and through the design of the road system, the nature or form is connected in series. Functional zoning is basic and the most important of shaping the spatial structure, which must conform to the themes, functionality, and integrity principles.

4.3.2. Dig into the essence of national culture and build a fine national brand. The development of characteristic industries depends on brand building. The development of ethnic minority village areas must improve the brand building mechanism. Relying on advantageous resources and adding cultural elements to it, branded, serialized and large-scale results are formed. For example, Pengjiazhai, Xuan'en County, uses the Tujia hanging foot group with a history of more than 200 years as the brand to realize the development of the tourism industry; Shemihu Village, Laifeng County, uses the "Hometown of Chinese Folk Culture and Art" as the brand and establishes The development of the tertiary industry relying on special cultures such as "Tujia waving hand dance", "singing and crying", "playing tima".

In addition, the ethnic handicrafts peculiar to ethnic villages should be excavated, and traditional crafts culture should be vigorously developed, especially for the protection of intangible cultural heritage and the production and sales of related products. For example, the production and sale of the traditional brocade product "Xilangkapu" of Tujia nationality not only protects the intangible cultural heritage but also increases the personal income of the practitioners. The inheritance and protection base of Xilankapu intangible cultural heritage in Laifeng County In China, the use of the "business + base + farmers" business model is a useful exploration of the development of traditional craft culture.

Thirdly, in the protection and inheritance of national culture, it is necessary to grasp the resource attributes of culture. It is necessary to make national culture a brand of regional economic development and a living element of economic activities. National culture is the creation of a particular ethnic group in a particular region. It has particularity and diversity, has rich spiritual attributes and humanistic content, and has added value. In the process of building ethnic minority villages, it is necessary to make full use of the cultural resource attributes to accelerate the local economic development.

Today, tourism planning for ethnic villages is underway in many regions of the country. However, unfortunately, some areas have begun to develop in a hurry at the beginning of development. They did not grasp the dogmatic doctrine of other successful experiences. They did not grasp the positioning of their tourism image from a macro perspective, resulting in more or less development in the later stage of development. problem. Therefore, the author believes that in the tourism planning of ethnic villages, we must first proceed from the overall situation, determine the positioning of the tourism image at a macro level, and point out the direction for shaping national characteristics. Dig deeper and analyze the characteristics of ethnic minorities, discover the uniqueness of ethnic characteristics, find the "flash point" of ethnic villages, capture the personality, soul and philosophy of ethnic villages, and create exclusive ethnic brands.
4.3.3. The coordinated development of the industry and the importance of the national tourism economy. The development of specialty industries should be driven by projects. During the construction of ethnic minority villages and the implementation of the “precision poverty alleviation” strategy, it is necessary to strengthen project construction and focus on creating a number of key minority village development projects, thereby forming a complete industrial chain. The development of characteristic industries is not only the independent development of a certain industry, but also the coordinated and coordinated development of the tertiary industry. The development of the tertiary industry is the core, the development of the primary industry is the key, and the development of the secondary industry is a development mode. For example, Shemihu Village, Laifeng County takes the highway as the center, and strengthens the cultivation of peach, plum, and white grapefruit to form an economic park. At the same time, the economic forest belt is formed by the plantation of economic forest trees such as masson pine and fir trees, thereby integrating ecology and folklore As a whole, the development of the primary industry is formed, and the development of eco-tourism and cultural tourism is promoted. In the development of the tertiary industry, income is generated in the form of "agriculture" and leisure farms. The characteristic Tujia folk culture was used as an opportunity to produce tapestry products such as "Southwestern Karp", which realized the development of the secondary industry.

5. Conclusion
The spatial construction of ethnic minority villages is a process of continuous revision and promotion, involving many aspects. It is necessary to ensure the balanced and coordinated development of the three major socio-economic systems. Therefore, it is necessary to continuously summarize and discover the existing problems. Studying the space construction strategies of ethnic minority villages can better inherit minority culture. However, there are still problems such as the overall image has not yet been formed, the tourism products are not rich enough, and the distinctive characteristics of local styles are not obvious. These problems need to be continuously explored in future practice.

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