



Analysis on the Reconstruction of Villages in Min County from the Perspective of Ecological Environment

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Abstract. Since the reform and opening up, China's rapid urbanization has given rise to many ecological environmental protection problems. The concept of "development before governance" has posed severe challenges to subsequent urbanization development. Coupled with the constraints of the urban-rural dual system, the special phenomenon of villages in cities has emerged, bringing negative impacts to the overall urban development. Therefore, the transformation of urban villages has become the top priority of the national new-type urbanization strategy. Taking urban villages in Minxian county as an example, based on the types of urban villages in Minxian County, this paper analyzed the problems existing in urban villages in Minxian County from the aspects of building density, garbage disposal, road and vehicle parking, and sewage treatment, and designed certain environmental indicators to help promote the transformation of urban villages, providing certain theoretical basis and reference guidance for the transformation of urban villages in other areas.

Keywords: Ecological environment, Urban village reconstruction, Urban health

1 Introduction

With the rapid development of the city, At the 20th National Congress, the General Secretary also stressed the need to improve the level of urban planning, construction and governance, strengthen the construction of urban infrastructure, and build a livable, resilient and smart city^[1]. In the process of urbanization in the county, the transformation of villages in cities is an important influencing factor. Minxian belongs to northwest Gansu Province. In recent years, the problems of villages in cities are prominent in the process of urban construction, and the transformation of villages in cities is the primary problem to be solved in the process of urbanization in Minxian County. In the process of transformation, ecological environmental protection should be put in the first place, and the principle of building a healthy city and a green environment should be upheld. Economic development cannot be put first, and ecological restoration can be followed.

2 Types of village in city in min county

In the process of spatial expansion, most cities bypass the rural settlements in the suburbs and choose the agricultural land with low development cost for the construction of urban new areas, resulting in the formation of a dual urban spatial structure in which the city surrounds the countryside, that is, the phenomenon of village in the city. According to different scholars' research angles, the villages in the city are divided into six types: 1. Fully enclosed type: rural areas are basically surrounded by cities and some become metropolitan areas; 2. Semi-enclosed type: part of the village is integrated with the urban appearance; 3. Circumscribed type: the village is tangent to the urban fringe line, and the two sides have different styles; 4. Enclave adjacent type; 5. phase separation type; 6. Endogenous type^[2]. Li Lixun divided the villages in the city into 1. Mature type: refers to the villages located in the urban built-up area, close to the city center and surrounded by urban land; 2. Growth: villages located on the edge of urban built-up areas and interlaced with urban land; 3. Primary type: Located in the periphery of the urban built-up area and within the urban planning and development area, urban land began to invade the village^[3]. Minxian county expanded westward in the initial stage of urbanization, and used agricultural land in the western direction for urban construction, so that Housuo Street, Beimen Area, West Bank Area of Diezang River, Xiaonanmen to Yizhong Area, Minfeng market shanty-town and Western suburbs shopping mall shanty-town were surrounded by cities, forming a fully enclosed urban village, while Chenjiaya, Ma Lukou to No.2 Middle School and Zhangjiaping Village became a semi-enclosed urban village, Tangjiaqiao Village, Nanxiaolu Village, Beixiaolu Village, No.4 Middle School to Railway Station Area and Xicheng district to shili town Qijia Village area became circumscribed urban villages(see Table 1). Later, with the continuous expansion of the county in other directions, many urban villages were formed in different directions.

Table 1. Types of Villages in Min County

Types of villages in Min County	Mature type	Growth type	Primary type
Fully enclosed type	Housuo Street, Beimen Area, West Bank Area of Diezang River, Xiaonanmen to Yizhong Area, Minfeng market shanty-town, Western suburbs shopping mall shanty-town, etc.	—	—
Semi-enclosed type	—	Chenjiaya, Ma Lukou to No.2 Middle School, Zhangjiaping Village, etc.	—

<p>External cutting type</p>	<p>—</p>	<p>—</p>	<p>Tangjiaqiao Village, Nanxiaolu Village, Beixiaolu Village, No.4 Middle School to Railway Station Area, Xicheng district to shili town Qijia Village area,etc.</p>
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3 Eco-environmental problems existing in villages in Min County and the design of reconstruction index.

3.1 Problems

With the expansion of Minxian county, many different types of urban villages have been formed, and there are a lot of ecological and environmental problems in these urban villages that need to be paid attention to in the process of transformation.

First, the building density is high and the infrastructure is backward. As the village in the city is left as an "island" in the process of urbanization, the entire infrastructure is not connected with the surrounding area, although the location conditions are superior, but the land use efficiency is low. Although the village in the city is located in the central area, its housing types are mainly houses with two floors or less and old farm houses, and the floor area ratio is generally low^[4]. Due to the need of a large number of accompanying students for renting self-built houses, many villagers build high-density houses for renting, but there is a lack of unified planning, chaotic buildings, large building area and low floor area ratio, and unreasonable layout of cables, wires and pipelines, which increases the difficulty of urban construction, development and transformation, and is extremely harmonious with the surrounding environment, affecting the appearance of the city.

Second, the problem of garbage cleaning is outstanding. Most of the villages in the city are mainly laneways, narrow and difficult to clean, insufficient investment in sanitation facilities, most of the sanitation workers are temporary workers and "4050" personnel, there is less manpower, cleaning is not timely phenomenon, and there are different degrees of health dead corners in each village^[5]. The problem of garbage cleaning in Housuo Street, Xiaonanmen to No.1 Middle School is the most prominent. There are few garbage bins beside the road, few centralized garbage disposal points, incomplete road garbage cleaning and substandard garbage disposal.

Third, the narrow roads and the serious problem of parking and misplacing vehicles have affected the traffic in the city. Because urban villages are not within the scope of unified urban planning and construction management, some villagers have formed a large number of illegal and illegal buildings, which has disrupted the overall planning and layout of the city and seriously affected the overall function of the city^[6]. The most prominent urban village areas with this problem are Xiaonanmen to No.1 Middle

School, Ma Lukou to No.2 Middle School and Housuo Street. Housuo Street and Xiaonanmen to No.1 Middle School are all enclosed urban villages, which have an important impact on urban traffic. However, the roads are very narrow, and the problem of parking and misplacing vehicles is extremely prominent, which causes great inconvenience to people's travel.

Fourth, the green area is small and the green rate is low. Urbanization must be accompanied by urban ecologicalization at the same time, or urbanization and urban ecologicalization are two aspects of one process rather than two processes, so it is necessary to pay attention to urban greening construction in the transformation process^[7]. In the main urban area of Minxian County, except the road green belt of Minzhou West Road is relatively perfect, the green area around other roads is narrow and the green rate is low. There is no uniformly planned green area in the surrounding villages in the city, and there are scattered dotted green areas, which have affected the air quality and the appearance of the city.

Fifth, the problem of sewage treatment is outstanding. Especially in Zhangjiaping Village, Nanxiaolu Village and Tangjiaqiao Village, the sewage treatment problems are obvious. A large number of farmers' sewage is discharged directly along the road, and the turbid smell of sewage is emitted in summer. Rainwater and sewage mix along the road in rainy days, which brings adverse effects to people's lives.

Based on this, Minxian County should pay attention to the solution of these problems in the subsequent reconstruction of urban villages, design the reconstruction indicators reasonably, and carry out the reconstruction work in strict accordance with the requirements of the indicators, so as to realize the ecological environment optimization in the reconstruction of urban villages.

3.2 Design of environmental indicators for reconstruction of villages in Min county from the ecological perspective.

In order to take into account the ecological environment construction while the urban village reconstruction, it is necessary to establish certain indicators to standardize the qualified degree of the project in the reconstruction work. The construction of an ecocity requires that energy conservation, the use of renewable energy, the improvement of resource utilization efficiency, and the recycling of materials should be vigorously advocated in urban design^[8]. The design of environmental indicators for the reconstruction of villages in cities in Min County based on the construction of ecological cities should start from the following aspects(see Table 2).

Table 2. Design Table of Environmental Indicators for Urban Village Reconstruction

Name of environmental index	Indicator meaning	Secondary index	Evaluation standard or reference value
volume fraction	Ratio of planned construction area to floor area of renovation project	—	1.2-3.0%

Building density	The ratio of building area of renovation project to total area.	—	≤20%
Greening rate	The ratio of green area to total area in transformation	Greening rate	≥30%
		Greening rate of green space itself	≥70%
Central heating rate	Central heating ratio of residential buildings after transformation	—	100%
Standard rate of sewage treatment	Sewage treatment capacity in the reformed community	—	100%
Air environment	Air quality in residential areas and houses after renovation.	Environmental quality of the reformed community	secondary standard
		The proportion of ventilated rooms in the house to the total number of rooms	≥80%
Domestic waste treatment rate	The ratio of domestic waste treatment in residential areas after transformation	—	100%
Energy conservation	The design of energy saving and emission reduction in the transformation	The proportion of the use of new energy in the total energy consumption of the transformed residential area	≥10%

Based on this environmental index design, Minxian county should put ecological protection in the first place in the reconstruction of urban villages in the future, advocate the people-oriented ecological culture, coordinate the harmonious coexistence between man and nature, inspire the ecological realm of the idea of harmony between nature and man, induce healthy and civilized production, life and consumption mode, and guide the construction and development of urban villages with the concept of ecological civilization^[9].

4 Conclusion

According to the traditional urban construction ideas, the implementation of the urban village transformation project is to "fill the village" to build the city and transform the village into an urban form, which is a passive and passive approach to the overall interests of the city^[10]. Therefore, when carrying out urban expansion, the carrying capacity of the city should be comprehensively considered. Taking the construction of ecological city as the direction of urban development, we should adhere to the concept of people-oriented urban construction and build a healthy city.

Acknowledgements

1. Key topics of Heilongjiang Province Education Science Planning (GJB 1422390); 2. School-level teaching reform and teaching research project of Harbin University of Commerce in 2021: "Creating the ideological and political brand of the core course of administrative management under the dual-line mixed mode" —— Taking Public Policy as an example.

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