

# Spatial Reconstruction of Rural Settlements in Central China

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**Abstract** By analyzing the construction status of the rural settlement in Central China, it points out that spatial patterns of the rural residential areas always have some problems such as small scale, dispersive layout, hollowness of village, and shortage of infrastructure. Base on the idea of urban-rural interaction, industry complementarity and organic function, the rural settlement should be reconstructed in the patterns of harmony with city and town, merging center village, ecological migration, and interior reforms.

**Keywords** Central China, New countryside construction, Rural settlement, Space reconstruction

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Promoting the rise of Central China is key decision made by the Central Committee of the Communist of China (CPC) and the State Council from the overall situation of China's modernization construction, as well as key task of implementing overall strategy of regional coordinated development. In six provinces (Shanxi, Henan, Hubei, Hunan, Anhui and Jiangxi) of Central China, there are 244 million rural population, accounting for 1/3 of national rural population, and they are main agricultural provinces of China. But it has low rural productivity, insufficient infrastructure, low farmer income, and very weak operation mechanism, system and guarantee system of each rural construction in the region for a long time, and "three rural" problem is prominent, which becomes prominent contradiction and problem of restricting the development of Central China.

Therefore, it is the key of realizing the rise of Central China to impel new countryside construction, improve rural production and life conditions, promote the coordinated development of urban and rural areas. For the scattered and extensive status of countryside construction in Central China, new countryside construction should firstly do village layout planning and rural construction planning well according to local situation, save and intensively use land resources, improve production and life conditions of rural residents. In this paper, according to the requirements of constructing two-oriented society (resource-saving and environment-friendly), it grasps prominent contradictions in space development of rural settlement in Central China, and deeply explores suitable spatial organization model of

rural settlement, which could provide the basis for village distribution, rural construction and related plannings, and make new countryside construction more scientific and standardized.

## 1 Status quo problems of rural settlement

Central China lies inland and is the region with the concentrated poor rural population. In 592 key counties of national poverty alleviation and development, 151 counties are in Central China, accounting for 25.5%. In 2008, poor rural population of Central China was about 7.9 million, accounting for 1/3 of national poor rural population, while low-income population exceeded 13 million, also accounting for 1/3 of national low-income population. Moreover, since concentrated poverty area, old revolutionary area, mountain and lake depression are more, its industrialization degree and social-economic development level are lower, and rural living environment is poor. At present, with the acceleration of urbanization development, abrupt change of urban-rural structure and accumulation of historical problem, the contradiction of rural space development in Central China increasingly deepens, which restricts sustainable development of rural region<sup>[1-2]</sup>.

### 1.1 Scattered layout and small scale

Due to geographical environment, farming history and economic development, countryside scale of Central China is generally smaller, with scattered layout, and there is no village and town system of rational scale<sup>[3]</sup>. According to the survey, the area of single village in Central China is mostly 5-22 hm<sup>2</sup>, and population of natural village is about 400. Taking Zhanggou Town

of Xiantao City as an example, natural village with the household less than 100 exceeds 1/5 of total natural village number (21), while natural village with permanent population less than 100 exceeds 1/3 of total. Smaller village scale and irrational village-town hierarchy cause worse rural agglomeration ability, and it is difficult to form scale industry and comprehensive basic supporting facilities.

### 1.2 Extensive space expansion

For a long time, rural settlement of Central China still lasts the original spontaneous construction model and takes peripheral extension manner. Villagers generally build a house on the periphery of the village along road and river, which is free and undisciplined. Inside the village, a large number of residents move out for urbanization. Free houses in the village increase, and there are disorderly construction, private occupation of homestead and other phenomena, causing "empty inside and scattered outside" space pattern of rural settlement. For example in Caidian of Wuhan suburb, many middle-aged people go out early and come back at dusk, while there are still a number of people who are in the outside world and return home for the new year. Therefore, the house is idle usually. There are more than 480 households in Sanliliu Village of Yunmeng County, but only more than 100 people live here, and about 500 people go out to work or emigrate to the county, town, and central village, making it become a "hollow village".

### 1.3 Disordered internal function

Most of rural settlements lack complete village planning, and some villages do not have basic plane layout to guide construction and even topographic map. Therefore, the village

lack of planning basically has no functional zoning, decontamination zoning, static and dynamic zoning. Production and living spaces for residents mix, and small industry, small-scale farm, toilet and garbage point are scattered in rural settlement, which interferes normal life of villagers and blocks space integration of rural settlement. Moreover, the planning lack causes land resource waste and environmental pollution to certain degree, is not favorable for production and life of villagers, and hinders sustainable development of village.

#### 1.4 Insufficient infrastructure

Due to the scattering of each rural settlement in Central China, it causes that infrastructure construction level is low, and infrastructure could not match with the construction. Moreover, the villagers value the residence and disregard the matching. Single area of residential building is larger and larger, while the construction of public facilities and infrastructure is seriously lagging behind. Rural education, medical, commercial and other public services have low level, which could not adapt to modern life ways of the villagers. Public activity place only provides simple leisure and communication public space, and could not meet a growing variety of needs for entertainment, learning, and exercise. There is no running water supply in some settlements, and living and producing water is directly taken from river and well. Most of villages lack drainage pipe network, and sewage is directly discharged into the river. Road hardening rate is not high, it lacks public health facilities, and living environment is poor.

## 2 Adjustment method of rural settlement

To meet the requirements of urbanization, building new countryside and developing modern agriculture, and adapt to the construction of the living environment in the rural society, rural settlement is urgent to need spatial adjustment according to the principle of resource optimal allocation.

The adjustment of rural settlement should be conducted under the idea of urban-rural interaction, industry complementarity and organic function. Taking total planning of village and town and total planning of land use as the basis, established town and market town as radiation point, according to population, geography, natural resources, leading industry and other development motivations, rational choice and scientific division should be conducted, to determine good village space structure system, making function clear and develop balanced, and

benign circular economic development and land use model could be formed<sup>[4-5]</sup>.

### 2.1 Contained in statutory planning system

According to the *Urban-Rural Planning Law* issued in 2008, rural settlement has been contained in national statutory planning system, and urban planning should do planning control on rural settlement in urban planning zone. Therefore, full coverage planning of rural region should be conducted in total urban planning. From whole urban-rural jurisdictional area, suitable construction area, restricted construction area and prohibited construction area of village development should be determined, and it should make control standard of village construction. In conditional areas, concentrated rural settlement should be scientifically planned and constructed according to actual situation, and it should strictly manage and control the use of homestead and gradually guide farmers to transfer to concentrated residential area or town.

According to the land law, village and town planning should connect with total planning of land use, and construction land scale in village and town planning should not exceed the determined construction land scale in total planning of land use. It should make planning and implementation system of village construction and consolidation, guarantee rational village development and vigorous protection of farmland, and improve land consolidation.

### 2.2 Rationally set village structure

Based on current rural development situation, there is the hierarchical relationship of established town-market town-center village-grassroots village, with sloppy spatial structure and low intensification degree. In spatial reorganization, center village should be established on the basis of administrative village or larger natural village, to highlight the construction of center village and guide farmers to gather to center village<sup>[6]</sup>. Center village should be set near main roads, industrial centers, market towns, industrial and mining areas, closely connect with production and become modern agricultural production center. Moreover, center village should set village department or some public facilities to promote social development, to form core area of society, economy and culture, and then effective “town-village” structure could be formed.

The standard and factor judging if natural village is maintained are as below: ① development potential; ② current agglomeration scale; ③ construction condition;

④ infrastructure and public facilities conditions; ⑤ historical and cultural conditions. Necessary renovation and facility construction of the reserved rural settlement should be conducted to improve village appearance and convenient for farmer's production and life.

### 2.3 Scientifically deploy internal space

It should form village space with perfect function and promote rural industry development via the construction and arrangement of the village space. Village construction and arrangement should use direct production of agriculture, forestry, animal husbandry, sideline, fishing and other industries to determine its functional structure, and village's function should be determined by production, processing, management and other projects, thereby forming comprehensive and characteristic economic structure.

Seen from foreign experience, 2,000-population settlement could completely deploy various living service facilities, with less investment. Considering from actual situation of Central China and tillage radius, suitable rural concentrated settlement scale is 2,000-4,000 people. It requires conducting diversified functional configuration under the premise of people oriented and meeting the actual needs of the farmers. Besides providing the settlement for farmers, it must have the functions of culture, education, sport and health, to convenient for people's production and life. Additionally, it should provide some spaces to convenient for farmers carrying out the sideline, such as small processing points for agricultural products.

## 3 Adjustment model of rural settlement

Arrangement manner of rural settlement contains four kinds based on actual situation of rural development.

### 3.1 The model of integrated into the town

With the acceleration of urbanization process, more and more villages enter into or are close to urban district. Such kind of village is greatly affected by urban economy, society and culture, and has superior traffic, facilities and location conditions. Under the driving of urban development, village collective economy is strong, with strong cohesive force. Most of villagers have more information accesses and stronger modern concept, and there are more farmers abandoning farming and engaged in work and business. For such kind of village, it could sufficiently use urban fund, market, public service and other resources, give priority to be contained the planning of urban and rural

construction, carry out community-based and apartment consolidation, and eliminate urban-rural dualistic structure.

For the village in urban planning district, the farmers in village inside a city or suburban village could be changed into citizens and contained in urban management system. According to economy strength and the expected value of house building by villagers, one-time relocation and resettlement mode or stepwise relocation mode is conducted. The land in the village inside a city or the suburban village could be state-owned, and scientific and rational land expropriation compensation for farmers could be conducted. Combining total planning of land use and town planning, residential community could be built in urban built-up area or planning area. Comprehensively considering farmer work's property, income level, habitation habit and acceptance degree, the community and residence corresponding with farmer's characteristics could be built.

For the village outside urban planning zone, it should vigorously develop characteristic agriculture, tourism and service industry to drive village development according to the principle of complementation between urban and rural areas. According to the principle of rational function, favorable for production and life, sustainable development, unified planning of villages could be conducted, and it should restrict private building behavior by farmers. For example, there are dozens of Ming and Qing ancient dwellings in Dayuwan Village of Huangpi, where is in Wuhan suburban, and Dayuwan Village is planned as a tourist resort in the suburb by district government. Specific measures are as below: the old houses that villagers live in are rented to tourism development companies, and government gives subsidy and carries out unified planning and repair, thereby creating characteristic atmosphere of local dwellings in Dayuwan Village. Villagers set up food and beverage service in their own houses, which not only increases income but also improves living environment.

### 3.2 The model of merging central village

Relative dense mini village with scattered construction and small scale could take the model of merging central village. According to the principle of proximity, the village with larger scale or close to town is selected as center village. Via one-off overall relocation or stepwise relocation, the scattered village is built into center village with agglomeration scale, which not only increases farmland area but also is convenient for management, and is favorable for public

infrastructure configuration.

The model needs guiding farmers and eliminating farmer's traditional local concept. The form of first pilot and then generalization could be selected, and it should make farmers see that land arrangement could generate economic benefit, thereby consciously supporting land arrangement. For example, to enhance the integration of rural construction land in Wuhan City in 2007, "dismantling the village and merging the point" was highlighted in planning and revision of village and town system. The work of 110 pilot villages was successively implemented, and a batch of modern villages with distinctive features and strong vitality were gradually built, which decreased land waste and improved agricultural productivity.

### 3.3 Ecological migration model

Although ecological condition in Central China is better than that in the west, there is the area with vile ecology which is not favorable for production and living. For the village not suitable for construction, such as remote rural areas with vile natural environment, inconvenient traffic and inflexible information, and the village in flood disaster area or the belt with serious desertification erosion, starting from long-term perspective of rural development, the government should gradually conduct translocation, migrate whole village to rural settlement with good economic condition and large development space, or construct independent new village, and reclamation and ploughing of old homestead could be conducted.

Ecological migration model should be operated by taking the government as the main body, led by county government, and implemented by the village. According to local natural economic conditions, town-level arrangement planning is made, and should connect with total planning of land use, town planning and basic farmland protection planning. Meanwhile, it should make corresponding homestead resettlement, ownership adjustment, and agricultural land distribution and other policies, to solve specific problems in the arrangement. For example, Wuhan City allocated 2.18 million yuan in 2016 to subsidize immigrant relocation in Caidian flood road.

### 3.4 Internal transformation model

With urbanization and industrialization process of China, a lot of rural young people are pouring into cities to work, and rural hollowing phenomenon is serious increasingly. In construction process of farmer residence, due to seriously lagged village planning, rural

settlement land often could not be rationally and effectively used. Most of newly built residences concentrate on the periphery of the village, while there exists a lot of free homestead and idle land inside the village, forming the land use condition of empty inside and extension outside. For the hollow village with larger scale and could not be dismantled and merged, internal transformation and adjustment of the village should be dominant. It should strictly control construction land inside the village, recover old homestead in the village, restrict the construction of new house in the periphery of the village, encourage to use old homestead and the abandoned pond to build the house, and construct basic facilities, forming concentrated and efficient land use model.

In Guanqiaobazu Village of Jiayu County, Hubei Province where obtains exemplary performance in new countryside construction, forest coverage rate reaches 80%, the road is flat and broad, and the building, office building and small farm building with white and glazed tiles are between the mountains. It is benefited from that ecological and environmental planning has been conducted by the agricultural department in the 1980s, which avoids the disorder and chaos of village construction.

## 4 Conclusion

By actively and stably implementing spatial reconstruction of rural settlement, space environment and public service level of Central China will be obviously improved. New center village will develop toward small town, push forward in turn, and accelerate rural urbanization process, thereby intensively using land resource, improving living conditions of residents, promoting rural urbanization and urban-rural coordinated development, and realizing the target of building harmonious socialist society.

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system, and mountains.

### 3 Conclusions

Since the period of Three Kingdoms, Fukou Xing ancient road has been playing an important military role. Later, due to political changes, the ancient road is no longer an official road, but is used by the common people till the present. Taking advantage of gentle terrain in the valleys, Fukou Xing ancient road passes through main range of the Taihang Mountains, and the spatial distribution of its surrounding settlements is influenced by this ancient road, the Taihang Mountains, and river system, showing certain characteristics. Mountains mainly influence the distribution density of settlements: areas with steep mountains and high elevation have few settlements, while plain areas and those areas with low elevation have many settlements. River mainly influences the distribution pattern of settlements: the settlements are closely distributed on the platform along the river. The influence of the ancient road on the settlement is reflected in the traffic function. Traffic provides the exchange of culture and customs of the settlements, which is mainly reflected in the cultural connection between Shanxi and Hebei provinces. In addition, due to the construction of road networks such as highways and national expressways, these associations are still continuing, and with the increase in traffic speed, the diversification of cultural exchanges, and the decline of villages and farming cultures, these associations have shown new forms and new problems have appeared.

Through analyzing the space of traditional settlements in Fukou Xing Region, we summarized the following spatial characteristics:

(1) The distribution of settlements on Fukou Xing Region in time and space has

continuity. As a military passage, a regional official road, and a civil traffic road, Fukou Xing ancient road has existed for a long time since the period of Three Kingdoms, while settlements in Fukou Xing Region are widely distributed and mature at least in Ming and Qing dynasties.

(2) The spatial distribution characteristics of the settlements in Fukou Xing Region shows a certain regional difference: She County is the whole mountainous area, Qingzhang River passes through the county, and the settlements are distributed along the river; the Wu'an City and Fengfeng mining areas belong to the shallow mountain area. It is the area where the Taihang Mountains transition to the plains, and Fukou Xing ancient road passes through Cishan Town of Wu'an City to reach the Fengfeng mining area. Within the County, there are Nanming River and the Fuyang River. Therefore, the settlements are distributed along the ancient roads and rivers. They also have the characteristics that most of them are accumulating and small parts of them are scattering; there are Fuyang River, Helan River and Zhangshui River in Ci County, and the settlements are distributed along the river.

(3) Settlements in Fukou Xing Region have closest relationship with the river system, especially Fuyang River and Ming River, settlements are obviously situated in less than 200 m from the river; settlements and mountains have positive correlation in small-scale area; however they have indefinite relationship in large-scale areas; however, the gathering effect of ancient road to settlements is significantly manifested in the distribution of traditional settlements in Fengfeng mining area, and this connection is not obvious in other three areas.

(4) Through analysis on spatial characteristics of elevation and aspect of 28 traditional settlements in Fukou Xing Region, we found

that settlements are mainly distributed in areas with low elevation, gentle terrain, and small slope on the principle of operability of construction.

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