Reconstruction of Rural Design Space Under the Integration of Living, Production and Ecology—A Case Study of Shandong LuZhong Area

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Abstract. Rural area is the Chinese roots and the main dependence of next social economy sustained and healthy development of China. It is the main support of China's sustainable and healthy development of social economy. Through the urban design theory, it proposes the concept about rural design, and studies the elements, structural relationship and system boundaries. With the study of Shandong LuZhong area and the surrounding space, it collects a lot of first-hand information and quantitative indicators through field surveys and literature research, combs the main influence factor in rural development, builds rural design framework and indicators, makes relevant planning and design strategies based on indicator system, and it hopes make relevant planning and design strategies based on indicator system.

Keywords: Rural Design, the Integration of Living, Production and Ecology, Shandong LuZhong area

Background and Problems

With increasing levels of urbanization, urban settlements gradually become the main form of Chinese residents settlements. As the vast majority of Chinese people shelter inhabited space mode in the process of our society for thousands of years, the rural area gradually continues to decline. However, rural area is not only the Chinese roots, the heritage carrier of traditional cultural genetic and cultural heritage, the main areas to maintain social harmony and stability and ensure national food security, but also the main dependence of next social economy sustained and healthy development of China. Rural area has a different special evolutionary pattern development and law between urban, it has been the focus of national attention, as well as it is the emerging field of architecture, urban planning, landscape architecture, political science, economics, sociology and many other disciplines study today.

(1) In face of rapid urbanization backdrop, rural design has taken place profound changes, it has a few questions about the current rural design:
1) Village planning’s “no planning”: Rural design is still a mainstream top-down model, it is trying to use a “blueprint” to express the construction and development ideas. For rapid urban development under the industrialization division system, this may be an efficient way, but it often cannot be implemented and eventually lead to abortion to self-built rural society mainly relying on farmers.

2) Simply equated with urban planning process: Due to the lack of depth study of rural, designers simply use the urban design method to the rustic design, this urbanization approach causes uncontrolled and damaged of rural construction, rural areas may lose the recognition which has the original natural style structural characteristics, and it may lose cultural identity of the local native.

3) The bias of the way in thinking of rural issues: the current view of village planning in rural problem is still divided in two ways. Rural is a period of uncertainty opening, social, economic, spatial features high-mix system. Using the partition thought born out of modern functionalism city to control rural development, in fact, is to reinvent the rural. The value of social characteristics and spatial characteristics of the rural will be lost in this transformation, thus it will become miniature version of urban settlements.

(2) Therefore, the significance of rural design is mainly reflected in:

1) Urban design is widely used in all aspects and stages of urban construction, urban design practices in the country can play the role to upgrade and improve. This project learning from the way in design the city is not a simple equivalent and transplant, but it uses the city design theory as a reference object, through comparison and analysis between urban design and rural design, rebuilding effective ideas and methods with urban design, binding interpretation of the localization, extracting the core elements of rural design, clarifying the relationship between the various elements, exploring principles and methods of rural design.

2) New socialist countryside construction provides services to farmers. From the rural farmer's point of view, practically considering their feelings, integration of living, production and ecology, it wants to solve the relationship between the three, to improve farmers' living and production, ecological environment, farmers' quality and level, the level of agricultural modernization and productivity, the rural ecological environment, to balance healthy development of the three, to fully promote the development of rural areas, and it expects more on the basis of good solution to rural issues, forming integrated urban and rural development model in sustainable development.

3) Shandong LuZhong area as an object of study, has a typical and practical significance. Shandong is the hometown of Confucius and Mencius, it has a deep the Confucian culture, its rural settlement space has certain characteristics; Shandong is a major agricultural province, its agricultural output has been at the first in the country, the study on its rustic design has a forward-looking; LuZhong area is the political and cultural center of Shandong, it is an important regional connection runs through the north and south, and it is one of the most dynamic and attractive areas, but there are the problem of tensions between people and land, relatively poor economic conditions. The study of the project for LuZhong area rural construction have some practical significance.

**Development Status and Research of LuZhong area in Shandong**

1. Development Status of LuZhong area in Shandong: There are diversity geographic forms, including mountains, hills, plains, showing the different forms and
characteristics of different rural development due to the geographical pattern, their
diversity also provides various types of templates to rustic design.

(1) Industry economic leading type

Table 1. Shandong Province agriculture and industry leading regional division.

<table>
<thead>
<tr>
<th>Regional division</th>
<th>Topographical features</th>
<th>Agriculture and industry leading types</th>
<th>Representative area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major grain producing areas in Southwest Region</td>
<td>Inland, plain</td>
<td>Wheat, corn</td>
<td>Jining Wenshang County</td>
</tr>
<tr>
<td>Cotton and fruit producing areas in northwest region Yellow River Delta</td>
<td>Estuary, plain</td>
<td>Cotton, dates, Fisheries</td>
<td>Binzhou Zhanhua County</td>
</tr>
<tr>
<td>Mountain and Hill Area in Luzhongnan region</td>
<td>Inland, Mountain and Hill</td>
<td>Fruit, livestock</td>
<td>Linyi Mengyin County</td>
</tr>
<tr>
<td>Vegetable cultivation area Near downtown</td>
<td>Downtown, plain</td>
<td>Vegetable</td>
<td>Weifang Fangzi District</td>
</tr>
</tbody>
</table>

(2) Settlement Development Status:

1) New Rural Construction

Village was as the basic unit in Shandong Province Village construction from the ancient, self-sufficiency, men farming and women weaving, full of vitality. But in the background of industrialization and urbanization, the main labor force in rural selected to go to the city to work, rural areas began to decline with farmland abandoned, village houses lacking of maintenance, hollowing serious, difficult supporting facilities. From 2005 Shandong LuZhong area started a new rural construction, during the new community building, rural is tend to apply municipal infrastructure mode, which improves the living environment in rural areas, but also breaks the link of traditional life and agricultural production, breaks the original closed-loop and causes a lot of ecological problems. This raises the inevitable requirement for the new rural development cycle to return to traditional values.

2) Rural settlement environment development and construction’s state

New Rural Communities (Shandong endemic) is built in rural in accordance with the standard of urban community, it is not only convenient for rural infrastructure, improving rural living environment, improve the quality of rural life material, but is to help to save intensive rural land with the deeper reason, to play economic and social benefits of land, to make space for industrialization and urbanization, which does not lead to rural industries and supporting facilities fundamentally. Shandong Province Village construction has a feature coexistence between a large amount of new communities and a large amount of the traditional form.

(3) Ecological characteristics: There are diversity geographic forms, including mountains, hills, plains, showing the different forms and characteristics of different rural development due to the geographical pattern.

① The plain rural area: The plain area having flat terrain, broad vision, ease zoning, rural building and farmland divided clearly, village building under a overall pattern of rule in a “well” shaped frame; the rural roads are wide and smooth, farming transports are more convenient to live and substance delivery, agriculture is easy to

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form industrial belt and scale, but the human disturbances is great strength, landscape visual form is monotonous.

② The mountainous rural area: The mountainous rural area plan is mainly arranged in the mountainside or in the foothills, with undulating terrain along the foot upward or gradually starting to open zone, this method are determined in order to obtain the location of water, transportation, planting conditions, and it forms a distribution of farmland, plateaus, mountains, natural wilderness with the terrain from low to high. House distribution is also showing a downward trend from high to low rung, the materials are mostly local materials, which is forming the structure shown houses.

③ The hilly rural area: Shandong Jiaodong area has a skeleton of low hills. In this hilly landscape, the rural area chooses construction site in recess, there is no large areas of cultivated land with pieces of arable land mutual scattered, this situation is not conducive to the output of food crops, but in favor of the orchard development. Hills farmland scene changes with the terrain which is showing a regular changes, farmland is starting from the lower recesses and gradually showing staple food zone, zone changes grains, artificial green area, shrub area, grassland area. Road traffic conditions are gradually worsening with the increasing terrain.

2. Site investigation: According to the basic situation in Shandong rural settlements, many survey forms are designed; In accordance with the relevant documents, information, etc., with looking for clues to the case and the research forms coverage, research objectives of the case features can be ensured full coverage and representativeness.

Rural planning technology policy guidance

1. The theoretical basis of holistic principles to rural design: Based on the urban design theory, rural design theory, using of architecture, urban planning, landscape architecture, political science, economics, sociology, interdisciplinary research methods, carding status of rural development area of Shandong Luzhong area, from study regional conditions, history, natural conditions, socio-economic, demographic composition, features and characteristics, etc., it wants to establish suitable for China's national conditions and geographical features rustic design theoretical framework.

2. It studies similarities and differences between urban design and rural design, and extracts rustic design elements.

(1) Referring to the theoretical system of urban design, urban design and rural design similarities and differences are compared and analyzed to extract feature of “rural design space under the integration of living, production and ecology”, with the relationship between social structure, migration and employment, human quality and technology, rural management social security system, the body of the other factors as evaluation of the humane social dimension indicators, with industrial development guidance, industrial development planning, tourism and leisure, and other factors as evaluation of industry-level indicators; with a rustic landscape protection and design, architectural style protection and design, ecology space control for factors such as the evaluation of ecological environment level indicators.

(2) In cooperation with relevant departments, through a large field and literature research, with combination of these design elements, it wants to collect statistical rural location and various social, economic and natural conditions, the behavior of first-hand data. Around the village and the surrounding space habitat activities and other aspects of rural morphology at different scales.
3. Rural design type pattern: (1) Through the transverse compare the selected object of study, it wants to explore the rural design at different scales regularity, through the mechanism of space logical analysis study, it wants to summarize rustic design type pattern and its corresponding impact mechanism. (2) Under people-oriented planning principles and rational classification of village land, planning and design flexibility, “rural design space under the integration of living, production and ecology” Trinity, it wants to find rural planning system.

Summary
Based on the above research, through comprehensive analysis and evaluation, it wants to establish a village-type models at different scales; Under quantitative objective summary analysis of different types of models on the rustic design, from architecture, it wants to build a rural perspective design work system, and to provide a sample and the development of guidelines for the design and technical management of rural Shandong Province.

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