

Study on Rural Landscape Design Method under the Background of the Population Diversification

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Abstract—Population diversification phenomena becomes quite common in villages located in China's developed coastal area. Based on the analysis of the traditional rural society and its landscape characteristics, and in consideration of diversified landscape requirements due to the population diversification, with dual ideas of heritage and innovation, methods for rural landscape design were explored by taking Duxuao Village in Zhejiang Province of China as an example.

Keywords—Rural landscape, Population diversification, Landscape design.

I. INTRODUCTION

IN the end of 2012, the urbanization level in China reached 52% and China will continue to accelerate the pace of its urbanization in the next 20 years. In the urbanization process, as the transfer of rural surplus labor, capital and information are accelerating and the interaction between urban and rural areas are speeding up at the same time, which will inevitably lead to dramatic changes in spatial pattern of urban and rural areas. Therefore, rural landscape being relatively stable in a long time tends to be dissimilated and faded away in this tide of spatial pattern changing.

Meanwhile, it has been laid more attention on the rural landscape research in recent years. For example, cultural value and ecology system of rural landscape were studied from the perspectives of adaptability, reconstruction, and vitality [1]; by field investigation, mapping and other technical methods, the status of rural landscape was analyzed, some advice was presented like the construction of harmonious and rural ecological environment as well as the stable and healthy living environment while economic grows[2]; Based on the Taoist philosophy of 'harmony with nature', the lifestyle of indigenous people should be maintained, original nature experience and life experience should be provided by the planner in order to keep rural landscape and rural image and prevent 'urban disease' spread to rural area[3].

From the aspects of ecological protection, industry Synergies and cultural heritage, relevant researches on rural landscape planning and design were conducted, however the concept of the vernacular landscape were widely used and the connection between the village construction, industry development and vernacular landscape preservation were

discussed in them. However, the previous relating studies ignored the population diversification phenomenon that is very common in developed areas in China. Literally, landscape is comprised with 'land' and 'scape', 'land' means the existence of objective things and 'scape' stands for the observation on them based on our own subjective intention. Though faced with the same objective things, psychological feeling of observers will vary due to the variation of their ages, education level or mental state. During the process of current great adjustment of urban spatial pattern in China, urban and rural residents' values are changed gradually, so does the effectiveness of landscapes due to the variation of observers' value judgment and psychological needs.

In the coastal developed area of China, population diversity is quite common even in a small village. On one hand, young villagers tend to gather and work in the cities however they still hold a strong sentiment to their hometown; on the other hand, village industries absorb considerable amount of migrant workers who rented and settled in the village. Thus, new demands on the village landscape were derived from villages' population diversity. Based on the analysis of the traditional rural society and its landscape characteristics, and in consideration with the trend of population diversification in China, methods for rural landscape design were proposed.

II. INTERPRETATION OF TRADITIONAL RURAL SOCIETY AND ITS NATIVE CHARACTERISTICS OF LANDSCAPE

A. The Stability of Traditional Rural Social Structure

It was described by Chinese sociologist Xiaotong Fei that the life of rural society is localized. It refers to the regional limitation of their activities which lacks of contact with peoples outside and leads to the isolated life style and social circle [4]. Since the traditional rural society was established based on the relationship of territory or consanguinity, and villagers' workplace was in cropland close to their settlement, they had limited scope of their activities and less connection with outside world. Therefore, traditional rural society was organically a combination of several introverted and closed groups with the settlement as their core, their population composition was quite stable and simple, the majority of population was indigenous people.

B. The Indigenous Character of Landscape in Traditional Village

What is the indigenous character of landscape in traditional village indeed? As we believe that, as it reflects the social structure and the physical environment that the native of rural landscape should have the characteristics of landscape in the

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interaction of both factors. Ferdinand Toennies, the German sociologist Categorized society into *Gemeinschaft* and *Gesellschaft*, the first was a spontaneously arising organic social relationship characterized by the relationship of patriarchal clan and consanguinity within a common tradition, and the latter was supported by rationality of law and was propelled by rational will [5]. Obviously, China's traditional rural society belongs to *Gemeinschaft* as in this society individuals are linked together by local customs and reverence to ancestors. So with the background of *Gemeinschaft* rural society and the main industry of agriculture, the rural landscape has the characteristics as followed:

1.The Spatial Symbiosis between Traditional Village and Indigenous Landscape

Land use in traditional village is relatively extensive with lower building density, settlements made up of low storied buildings are always spreading in nature texture, and these building are mostly built with local materials and perfectly adapted to the terrain. Thus, in contrast to the background of physical environment, and with houses in the shade of green plants, the whole village is in great harmony with nature. At the same time, as agriculture, animal husbandry and aquaculture are main industries in traditional villages which have less impact on natural environment since they have fewer artifacts. Therefore, particular life style and production approaches make the traditional rural landscape in great harmony with nature, thus forming a unique scene of 'village in the scenery and the scenery is village (Fig. 1).



Fig. 1 Villages in harmony with nature

2.The Temporal Symbiosis between Traditional Village and Indigenous Landscape

Traditional rural landscape is not designed by professionals. As artificial settlement landscape is mostly built to meet daily demands of villagers and it renews only when it is damaged, it is featured as low intensity and speed of renewing. As for natural landscape, most traditional villages value the self-update process of 'growth-decay-regeneration', and let it evolve with its life cycle without artificial intervention. With the renewing of natural landscape, settlement landscape will update slowly according to the demands of villagers. For the wisely use of local materials, the settlement landscape maintains the consistency, thus keeps the whole village landscape from sudden mutation. In all, with great harmony, the temporal symbiosis between rural landscape and natural

environment could happen.

3.The Abundance of Life and Historical Humanistic Attribute

Since the traditional village is an acquaintance society, villagers interact more frequently in their daily work and life. A cane chair under the tree beside the fields, a blue flagstone aside stream or other landscape characteristics could all be unique landscape elements in traditional village life (Fig. 2). This kind of landscape is usually built by individuals or collectively for their own interests, which is ornamental, practical and exclusive (to a certain degree). Moreover, in ethical society, the worship to the ancestors and the gods leads to the core landscape in the village always arranged around the buildings like ancestral halls and temples, where Chinese people hold ceremonies during festivals (Fig. 3). This historical landscape is not only used for ornamentation and worshipping, but also helps to promote mutual assistance and form a unified value among villagers.



Fig. 2 Unique life scenery



Fig. 3 Temple built by villagers

III. POPULATION DIVERSITY IN NEW ERA AND NEW DEMANDS ON THE RURAL LANDSCAPE

Facing the impact of the value of the market economy in China, and with the acceleration of urbanization, traditional *Gemeinschaft* gradually turns into *Gesellschaft*. During the

transition, closed traditional villages are gradually open. On one side, population in the village migrates to the city and on the other hand it attracts migrants in order to develop villages' industries, thus population diversity comes into being, which causes the diversity of subjective needs of villagers and their diverse demand on landscape. The psychological demands of diverse population on village landscape was analyzed below.

A. Fragmentation of the Rural Landscape Pattern Accelerated the Transformation from Acquaintance Society to Semi-Acquaintance Society

Under a market economy, as the wealth gap between rural individual has been widening in China, villagers have formed different economic classes and begun to pursue their own interests. In this process, the friction between villagers increases and the pattern of acquaintance society is broken, thus gradually forming semi-acquaintance society in which people know each other. Communication between individuals and collectives is not enough to solve the conflict of objective and value concept, formal institutions for mediation has to be relied on. In this context, landscape texture tends to be fragmentary and intermittent. For instance, people in better economic condition could build multi-storied house and have their own green yard, while the relatively poor people are still living in low-rise residential, which forms the obvious contrast between the original houses scattered throughout the village with the new house in space texture (Fig. 4). With the mutation of spatial symbiotic, the fragmentary and intermittent landscape accelerates the transformation of acquaintance society into semi-acquaintance society, or even 'stranger' society.



Fig. 4 Mutation caused by townhouse in space texture

B. Belongingness: First Wave of Migrant Workers Returning Home, Landscape Adds to Belongingness

According to research reports, till the end of 2012, there were about 260 million migrant workers in China [6] who perennially worked in the cities and could only go home for 1 to 2 times a year or even several years due to unequal employment opportunities caused by dualistic urban-rural social and economic structure. As with their tradition of 'Born and died in home town', for migrant workers, especially for those who were among the first migration wave and now gradually returning to their hometown, they learned more

about urban-rural difference than others, and considered hometown as their ascription. Therefore, compared with the residents in the villages, they were more eager to be evoked belongingness when they were returning to hometown. And this belongingness is mostly linked with their memories, in addition to the familiar people, and the familiar landscape can also play a role to increase belongingness. However, in the process of new rural construction, there exists the problem of design and construction in the absence of comprehensive consideration, which leads landscape updating too fast, and memorial sites were replaced from time to time by new landscape. Belongingness brought by the landscape is gradually reduced.

C. Integration: Foreign Residents' Psychological Demand to the Village Landscape

With the acceleration of urbanization, villagers gather in the cities more quickly, the pace of city industry updating is accelerated. At present, the trend becomes more evident that the secondary industry is now shifting to periphery district of the city and some industries are diffused to the suburbs or some village with convenient transportation (e.g. villages in surrounding area of Xiaoshan District of Hangzhou City, Zhejiang province). Although small-sized processing factories providing product necessary service for city industries are less invested, occupying less area and lacking technical content as well, they still widely distributed in rural areas (e.g. there are still a considerable number of motorcycle factories and auto parts factories in mountainous areas in southern Yuyao City, Zhejiang Province). In villages with developed tourism industry as those in Lin'an City and Putuo district of Zhoushan city in Zhejiang Province, there live migrant workers in rural areas near the scenic spot, serving for the tourism industry or other relevant industries. These migrant workers want to integrate into the local society. However, due to the traditional pattern of rural acquaintances society, the landscape is mostly built by local individuals or collective, and it is somehow exclusive for other people. This kind of landscape is against the integration of foreign residents, and also increased the possibility of social contradictions to a certain extent.

D. Diversity Experience: Rural Tourists' Demand to the Village Landscape

In recent years, rural tourism industry has become one of main solutions to improve village industry, and many villages coincidentally take rural tourism as a major strategical industry for rural development. Rural tourism mainly attracts nearby urban residents, most of who travel to the countryside on weekends or holidays, and even some choose to live a couple of days in the village. The reason for them to choose rural areas as their travel destination is they need to escape from the efficiency and rationality of the indifferent city and they want to get close to the nature with traditional rural landscape and live a slow life. In the process of new rural construction, the appearance of townhouses and public squares results in the intensification of rural landscape. Meanwhile, as

the convergence of space texture between village and city, indigenous features of rural landscape are getting lost, so does its attraction to tourists.

IV. METHODS FOR LANDSCAPE PLANNING AND DESIGN OF VILLAGE UNDER THE POPULATION DIVERSIFICATION BACKGROUNDS

Population diversification leads to the changes of humanistic attribute of traditional rural local landscape, its spatial and temporal symbiosis feature will gradually be alienated with the pace of urbanization, the aim of new landscape design is to introduce the landscape with the spirit of the age, and inherit traditional spatial and temporal symbiosis feature. By taking Duxuao Village of Yuyao City in Zhejiang Province as a typical case, methods for village landscape planning and design under the population diverse backgrounds were proposed.

Duxuao village is a part Lubu town of Yuyao city, located in the southwest and the upstream of the reservoir of Lubu. Its southwest bounded by the Luting country. It has six Settlements -- Duxu, Luozhang, Shatian, Shangchen, Meilingdong, and Wushii. The total area of the village is about 11.55 square kilometers, and has 14,600 acres of forest and 308 acres of farmland being the largest village among seventy two villages in Lubu town. Up to the end of 2012, the household population of Duxuao village is about 3881 people and the temporary population is about 587. Among the household population, there are 436 people working outside all the year round. Surrounded by bamboo hills, accompanying with the gurgling of the perennial stream--Duxu Creek, the natural scenery of this village is fabulous. In consideration of population diversity, landscape design of Duxuao village took the following methods:

A. Repair the Fragmentation and Intermittent of the Rural Landscape, and Restore Village Landscape Character

Urban landscape space texture is an artificial environment, which is interspersed with point and line mostly in a large area of green space, while the traditional rural landscape texture is dotted with artificial structures and buildings on large areas of natural green base. Overlooking the countryside from a distance, it could be found with a different visual experience with the city completely. Duxuao village is located in a narrow mountain valley in Siming Mountain of Zhejiang Province, with unique natural conditions. Before the design of the village of Duxuao specific landscape, it is brought up with the village domain space control measures in the first place to protect the original natural pattern. Through the effective protection of forests, streams, and other basic farmland within the village, the natural surroundings of the village has been protected. And the overall design principles of symbiotic pattern for artificial landscape and original village should be made: New construction should not built as townhouses, but should adapt to terrains of Duxuao by adopting settlement form of building by the creek to ensure the heritage of village space texture; materials of architecture and landscape should be selected with local characteristics (such as local specialties

bamboo), so as to coordinate the whole village space environment with the surrounding natural environment (Fig. 5); for heterogeneity within the village landscape and architecture (as some color uncoordinated construction, structures) should be researched and transformed step by step in order to restore the character of village landscape.



Fig. 5 Overall layout goes with the terrain

B. Conduct Village Automatic Update as the Main Mode of Landscape Update, and Promote Interaction among Villagers

Historical heritage characteristics of rural landscape make the forming process different from the city which is designed first and then constructed, for rural landscape is usually the interaction between human-beings and the nature. Villagers' self-built house, with its vegetable households located next to it, has a 'growth-decay-regeneration' life cycle just like its natural background. Most of them complete their periodical cycle by slowing down autonomous works of villagers. But now in the process of rural landscape design, mostly they design in macroscopic view as comprehensive planning of the all parts of rural areas, with high update speed and strong strength, resulting in the life cycle alienation of the rural landscape. For example, acts that whitewashing the old building can be found across the country. What is worse, some buildings are whitewashed only on facade facing the street, while the gable is left without any treatment. The disregard of the original village landscape style not only cause disharmony, but also do harm to the life cycle of settlement construction landscape. Update speed is slow in nature and the village settlement is in harmony with nature. It is not necessary to take the city landscape construction mode. Therefore, the landscape design of the village of Duxuao takes progressive update mode slowly, which means within a certain period of time, in order to maintaining the overall style of the village only necessary design of the landscape will be taken. The necessary design is landscape that cannot complete its life cycle independently. Most of them are the public artificial landscapes, such as add more neighborhood squares at the entrance of the village, the west side of Minsheng stone bridge, around the grave of Luzhang martyr, combine corn ground, in front and at the back of opening spaces of the house (Figs. 7, 8). For other types of landscapes, it has been placed with the goal of a coordinated style, taking the form of design guidelines prescribed. In subsequent construction process, it mainly depends on the villagers' motivation to update so as to

restore the villagers slowly autonomous update process, such as use of guidelines to select an appropriate building materials which are harmony with the natural environment, main buildings' chromatography in the village and residential remodeling, giving the villagers flexibility in remodeling their own houses and change the landscape unitary transformation model - common whitewashed facade currently. In this process, guidelines provided to the villagers' spontaneous transformation of the landscape to set up a basis of the design for the next phase of design professionals, ensuring the unity of the different stages in village style. This landscape update model - 'design plus guidelines control' (Fig. 6), not only restore the native landscapes updating process from the time dimension, but also can promote mutual relationships between the villagers, so as to improve rural neighborhood indifference currently.



Fig. 6 Revolution memorial square in Luozhang



Fig. 7 Small square for fitness

C. The Introduction of Non-Exclusive, Non-Intensive Neighborhood Space Landscape, and Promote the Integration of Diverse Population

As previously mentioned, traditional rural areas belong to Chinese traditional decorum and customs society whilst the acquaintance social structure makes the traditional rural landscape exclusive that it is only for individuals or small groups within the circle. Under the trend of population diversity, foreign residents' demand of blend in will not be met by relying on traditional landscape. This requires the

introduction of non-exclusive public landscape, which must also be non-intensive. And therefore in landscape planning and design Duxiao Village, the main action to be taken is to add additional facilities-based landscape to promote the integration of diverse population, such as outdoor stone furniture, pergola outside the garden. These landscapes provide support for villagers' communication apart from conventional ornamental features. They are arranged near the riverbank (Fig. 8) or in the neighborhood space (Fig. 9) to improve the quality of space and provide a platform for communication; also this is conducive to the integration of foreign population and can promote neighborhood relationships among permanent residents.



Fig. 8 Riverbank landscape remediation and facilities enhancement



Fig. 9 Neighborhood space landscape remediation and facilities enhancement

D. Focus on the Protection Design of Life Landscape; Meet Returning Villagers and Residents' Demands of Belongingness

Landscape planning and design nowadays, mainly focus on the protection planning of historic buildings towards cultural landscape design, yet this is usually difficult to meet returning villagers and residents' needs of belongingness. Seats under the trees in the village, pagoda trees next to the riverbank etc., everything on this land is likely to become the memory spots

in villagers' heart that arouse the villagers own sense of belongingness. In the process of new rural construction, value the protection of historic buildings only while ignoring these memories spots have resulted in the fracture of the cultural landscape of life. Such landscapes mostly were gradually formed into artificial landscape or natural landscape during the village's historical development. Therefore, you can go through a full investigation to find out the artificial landscape in the design process and thus precede a non-interfering protection design against the landscape. At the same time, avoiding the destruction of the natural landscape in the village to keep the renewal of natural landscape in consistent with its own independent life cycle can protect the life landscape to the utmost. Also cultural heritage can be preserved completely whilst meet returning villagers and residents' needs of belongingness. In Duxuao village landscape design process, while emphasizes on protecting historic buildings there turns up the village's important life imagery through research - bridge (Fig. 10). By the reason that the streams are throughout Duxuao village, the bridge is built across the river and has become a unique living image for the village. Based on the analysis of the bridge recency, safety and aesthetics degree, reconstruction, remediation, retention and other various measures are put to use to protect the design of the bridge (Fig. 11), besides some details in life are fixed up on the bridge to enhance its living cultural attributes.



Fig. 10 Bridge-life scenery in Duxuao



Fig. 11 Suggestion on walking bridge reconstruction

V.CONCLUSION

The most 'striking' characteristic and unique advantage of traditional rural landscape lies in its spatial and temporal symbiosis with the village and rich humanistic attribute, which makes it differ from urban landscape. In the new era, purely adopting protective, radical or comprehensive method for develop rural landscape design is always unfavorable. In terms of urbanization process, village's conditions, demographic trends, etc. have different degrees of difference across the country, it is recommended to grasp the characteristics of rural

society's historical features, recognize the corresponding space attribute and dig regional cultural characteristics before design the specific landscape. Only in this way will it be possible to formulate a rural landscape design which delivers rural culture and the spirit of times.

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