Study on the Path of Ecologically Livable Rural Construction in Wenzhou Area

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Abstract
The ecological livable countryside is the key content of the rural rejuvenation strategy. In the field investigation, it is found that the Wenzhou area of Zhejiang Province has actively carried out the work of improving the rural living environment, and has accumulated rich experience in the construction of ecological livable villages. This paper analyzes its construction situation in environmental improvement, ecological greening, public service facilities, and so on, and puts forward the optimization path of the current ecological livable and beautiful rural construction combined with the experience of traditional rural ecological construction in the Wenzhou area.

Keywords
Ecological Livability; Beautiful Countryside; Traditional Countryside.

1. Introduction
The report of the Nineteenth National Congress of the Communist Party of China pointed out that “according to the general requirements of industrial prosperity, ecological livability, rural civilization, effective governance and rich life”[1] The issue of agricultural rural peasants is a fundamental issue related to the national economy and the people's livelihood. We must always take the "three rural issues" as the top priority of the whole Party's work. It is necessary to give priority to the development of agricultural and rural areas, establish and improve the system, mechanism, and policy system for the integration of urban and rural areas, and speed up the modernization of agricultural and rural areas in accordance with the general requirements of industrial prosperity, ecological livability, rural civilization, effective governance, and rich life.

2. The Connotation of Ecological Livable Countryside
"Ecology" emphasizes the relationship of interdependence, mutual promotion, and harmonious coexistence between human and natural landscape environment, while "livability" refers to the environment suitable for human habitation, including natural ecological environment and certain humanistic social environment. Kong Xiangzhi and others believe that "ecology" is a necessary condition to achieve ecological livability, but it is not a sufficient condition[2]. Ecological villages are more placed in the natural environment, emphasizing the harmonious coexistence between man and nature. Liveable villages from the perspective of ensuring the daily life of villagers, including rural toilets, domestic waste treatment, domestic sewage treatment, village greening, public lighting, village cleaning, and other aspects of the construction and maintenance, but also to provide education, medical care, old-age care, leisure and entertainment functions of rural public service facilities construction.

The necessity of eco-livable rural construction key to the implementation of the strategy of rural revitalization."Rural revitalization, eco-livable is the key,” said the first document of the Central Committee in 2018. A good ecological environment is the greatest advantage and precious wealth in rural areas. We must respect nature, conform to nature, protect nature,
promote the increase of rural natural capital, and realize the unity of rich people and ecological beauty."[3]

The realistic demand for rural ecological protection. Although China is constantly promoting the construction of "beautiful villages" and the rural ecological environment has been greatly improved, there are still some problems in the process of rural development. For example, in terms of the production environment, some farmers blindly pursue short-term economic benefits, and there are problems such as excessive or improper use of chemical fertilizers and pesticides, which lead to soil pollution and damage to the ecological environment. In terms of the living environment, some farmers have problems such as improper disposal of domestic waste, improper discharge of domestic sewage, and pollution of soil and river water quality. In addition, in the areas of urban and rural areas, some construction waste is illegally dumped, or buried in nearby idle land, mountains, rivers, woodland, and other hidden places, affecting the beautiful environment and polluting rivers and soil.

The yearning of urban and rural residents for beautiful villages. Under the background of rapid urbanization, the problems of resource shortage, environmental pollution, and how to improve the quality of human settlements have been encountered. On the one hand, farmers are the main body of rural revitalization, but also the main body and direct beneficiaries of ecological livable rural construction. Farmers put forward higher requirements for the improvement of living and production space, showing a strong desire to build a better home. On the other hand, urban residents have more and more needs for the improvement of the living environment, leisure, recreation, sports and health, and so on, while rural areas themselves have a good ecological environment, unique local culture, the slow pace of life, and so on, which have gradually been favored by urban residents. The implementation of ecological livable rural construction is the inevitable requirement for urban and rural residents to yearn for beautiful villages.

3. Exploration on the Construction of Eco-Livable Countryside in Wenzhou Area

3.1. Basic Situation of Eco-Livable Rural Construction in Wenzhou Area

The Opinions on the Comprehensive Implementation of the Rural Revitalization Strategy and the High-level Promotion of Agricultural Rural Modernization (2018-2022) in Wenzhou No.1 Document, 2018, put forward that in accordance with the general requirements of "industrial prosperity, ecological livability, rural civilization, effective governance and rich life ", the construction of the western ecological leisure industrial belt should be focused on, the construction of the beautiful countryside in the new era should be taken as the carrier, and the "66 million" action of rural revitalization should be taken as the starting point to push forward the "three rural areas" development quality change, efficiency change, dynamic change, create a new agriculture with high efficiency and ecological opening, cultivate new farmers with high quality and organization, and build new countryside with high beauty[4]. Wenzhou has effectively improved the living environment in rural areas through the rural revitalization demonstration zone, the construction of the western ecological leisure industry zone and the creation of beautiful pastoral gardens.

3.2. Problems of eco-livable rural construction in Wenzhou

3.2.1. Construction of village public sites needs to be strengthened.

The public open space land used for villagers' activities, including small square, small green space, and so on, mainly has two problems: first, the community lacks the consciousness of public site construction and the facilities are not perfect; second, some communities lack the maintenance of the site.
3.2.2. There are many phenomena of homogeneity, and the perception of rural characteristics needs to be further improved.

The perception of rural characteristics affects how rural residents view themselves and how others view rural areas. This duality is one of the sources of tension and potential conflict between the new generation of rural residents in cities or villages and those living in them for generations. [5] This research found that some rural and rural aesthetic characteristics of conflict, highlighted in the following aspects: first, emphasis on external performance, less humanistic connotation, lack of aesthetic awareness and craftsmanship. For example, some villages paint the main street facades with simple color paint, blindly follow the trend, ignoring the uniqueness of the countryside itself; second, the emphasis on immediate transformation, light later development. It is mainly manifested in the transformation of rural material space first, the lack of synchronous planning for the industries supporting rural development, the lack of excavation of local folk culture, and the development of characteristic resources, which makes the rural construction appear the phenomenon of "thousand villages one side" and neglects the planning and design concept of "local conditions". The differences and regional characteristics of village development are not obvious, and the development of rural areas still has difficult difficulties.

3.2.3. The villagers' main body consciousness is weak, the village appearance needs to improve the management continuously.

Through field visits, the author found that some villages still have construction waste or domestic waste dumping at will, illegal construction, scaffolding, wire network crisscross, river water pollution, and other problems. Or some villages have carried out beautiful rural construction and evaluation, but the late lack of continuous supervision, management, and maintenance, young and middle-aged villagers go out to work, left-behind villages, young and old, or temporary residents lack the enthusiasm to participate in the construction of ecologically livable villages, the problem of rural hollowing is serious.

4. The Enlightenment of Traditional Villages to the Construction of Ecologically Livable Villages in Wenzhou

Although the construction of traditional villages in Wenzhou has not passed through the village planning and design in the sense of modern urban and rural planning, the villages in the Wenzhou area have formed a good fit with the natural landscape. The existing problems in the construction of livable villages can be "re-understanding and reviewing traditional things" [6]. To guide the construction of eco-livable villages, we can draw lessons from the traditional rural construction.

4.1. Characteristics of rural spatial distribution in the temperate zone

Wenzhou is located in the southeast of Zhejiang Province, located at the junction of Zhejiang and Fujian provinces, east of the East China Sea, south of Fujian, west, and north of Lishui, Taizhou adjacent. Under the influence of geological structure, the terrain of Wenzhou city is inclined from west to east in a ladder shape, with Donggong, including Cang, Yandang, and other mountains. The landform can be divided into the western Zhongshan mountain composed of Donggong mountain range and Cancang mountain range[7].There are many mountains, few plains, the river reaches the sea, the water network is dense, the mountain city embraces each other, the land and sea blend, constitute the main characteristics of Wenzhou's topography and geomorphology.

4.1.1. Adapting to terrain, regional differences are obvious.

The topography and geomorphology of Wenzhou are complex and diverse, and rural settlements show different distribution characteristics in each county and urban area.
Wenzhou urban area is mainly plain, surrounded by Daluo Mountain, Changan Ridge, and other mountains, rural settlements are mainly scattered in the edge of the central urban area, along the gentle foothills of the belt or sheet layout. In Ruian City, Yueqing County, Longgang City, and Cangnan County, the rural settlements show certain agglomeration characteristics, while the rural settlements in Wencheng County, Yongjia County, and Taishun County are mostly along the river or the flat area of the foothills, showing a point-shaped or zonal scattered layout.

4.1.2. Moderate concentration and overall dispersion.
The rural construction in the Wenzhou area presents the overall spatial distribution characteristics of overall dispersion and local concentration. In the light of topography, life, and production space, the arrangement of living space for the ancestors of Wenzhou is based on the protection of production space, the location of rural settlements within a reasonable range of cultivation, the full use of the original topographic features, the use of flat areas for agricultural production, the construction of living space back to the foothills of the mountain, sunny mountain water, ventilation, reflects the Wenzhou ancestors respect for nature, adapt to nature concept.

4.1.3. Adapt to nature and benefit production, life, and ecology.
Generally speaking, the location of villages in the Wenzhou area mainly considers the influence of geographical factors and the natural environment, because the natural materials are easy to grow, which is beneficial to production, life, and ecology. This concept of residential planning and design, as early as the Spring and Autumn and warring States period in the book "Guanzi", "Guanzi" is considered to be the residential location theory of the representative. "Guanzi": “Where the establishment of the capital, not in the mountains, must be above the Guangchuan, high near Fu, and water, not near the water, and ditch defense province.” [8] It shows that the location of residential areas should rely on natural resources and favorable terrain, based on the developed land of agriculture, so that natural resources can be used to facilitate production and life.

Besides, the location layout mode of "back mountain water" in the Wenzhou area also shows the consistency with "negative yin and embrace yang, back mountain water" in geomantic theory, and expresses its pursuit of an ideal living environment.

4.2. Characteristics of typical rural spatial design in Wenzhou
Using Kevin Lynch’s urban design method, this paper analyzes the relationship between traditional rural construction and natural landscape and humanistic elements in the Wenzhou area from the aspects of rural settlement boundary, region, road, node, and so on.

4.2.1. Boundary design for integrating elements of landscape fields.
According to Kevin Lynch, the boundary is a linear element, a boundary between two parts, a linear interruption in a continuous process, such as the coast, the division of railway lines, the boundary of development land, the wall, and so on.[9] For rural settlements, the boundary mainly refers to the more continuous boundary between the residential area and the surrounding mountains, water bodies, and pastoral fields, marking the maximum range of rural living space. The traditional rural construction in Wenzhou takes natural features as the boundary conditions of rural living space, and the topographic and geomorphological landscapes with a linear, surface, and vertical functions such as rivers, pastoral fields, and mountains are all used as the basis for rural boundary design. With the help of mountain potential as a natural barrier, the visibility characteristics of the boundary are prominent, which can change the local microclimate. At the same time, the natural undulating and vivid form of the mountain body, the landscape of the four seasons change, also meets the aesthetic requirements of people on a certain level. Using the river as the residential boundary, the river has the characteristics of "fluidity" and "continuity ", which enriches the dynamic landscape of
the boundary. The rural pastoral scenery is one of the most typical images of the rural landscape. The landscape field and the residential area are set off against each other, the living, production, and ecological space are intermingled with each other, and the lips and teeth are dependent on each other, and the boundary formed is also interlaced and fused.

4.2.2. Regional landscapes with strong identifiability.

Kevin Lynch believes that a region is a two-dimensional plane, and the observer has a psychological sense of "entering" it because of certain common features that can be identified. [9] According to the function and landscape characteristics of each rural area, living space, production space, and ecological space can all become "regions". The regional landscape-level formed by landscape fields and other elements is rich, from the color, texture, shape and other aspects, organically combined with the unique Ouyue residential architectural form, bridge corridor, temple, and other human landscape, but also formed a sharp contrast, so that Wenzhou traditional rural settlements formed a significant difference from the urban-rural style and environment, the entire regional landscape has strong identifiable and natural ecological characteristics.

4.2.3. Street and lane spaces with both traffic and location functions.

Streets and alleys, as a linear landscape element of "movement", are also the path for people to recognize rural space. Under the influence of topography, the streets and alleys of Wenzhou traditional countryside are based on mountains and rivers, and the form of water body becomes the design basis of the street layout. At the same time, the water body also becomes a part of the street landscape and increases the vitality of street space. When the street is parallel to the contoured layout, the street space is winding and winding, and the high and low architectural landscape forms on both sides of the street. When the streets and alleys are oblique or perpendicular to the contour line layout, the architectural form on both sides falls vertically, and the distant mountains are used to form the opposite view, which makes the two ends of the streets and alleys easy to distinguish and has some directional characteristics.

The streets and alleys are not only the passageways, the function of transportation, but also the place space," is the place where residents meet or the place where children play ".[10] It is an important space for villagers to carry out outdoor public activities, bearing the memory of rural residents.

4.2.4. Node space for carrying nostalgic memories.

Village nodes are densely populated and mobile activity spaces.[11] The representative spaces in the countryside, i.e. nodes and markers, are special places for use, such as squares and road intersections. It is precisely because of the appearance of nodes that break the original closed street space and enrich the residential settlement landscape with residential as the main element, which is an important space carrier of nostalgia memory. The node space of villages in the Wenzhou area mainly has the following forms: first, it appears in the form of a bridge corridor, flowing water, and wharf combination. Using the location of the river mouth, the bridge corridor is arranged to form the entrance space of the village, which can be used as a place for villagers to drink tea, chat, and play chess, such as the Magnolia Corridor Bridge in Wushe Village, Liao Street. Second, the square space formed by temple altar, stage, ancestral hall, and surrounding open space, the architectural form is highly identifiable, it is the place where villagers hold important folk customs activities and exchanges, and has important regional cultural characteristics. Third, the node space composed of street intersection or street and front courtyard is an important place to shape street vitality and villagers' daily communication. "In short, it is the place that all public bodies and eyes can touch"[12].
4.3. **Revelation of Traditional Villages to the Construction of Eco-Livable Villages in Wenzhou**

4.3.1. "Sansheng Space "permeates each other.

The construction of Wenzhou's traditional countryside reflects respect for the natural ecological environment, whether from the location of the site or the microscopic space layout. The rural construction emphasizes the integration of mountains and rivers.

4.3.2. **Impressive rural areas.**

The landscape of the settlement area takes the diversity of natural landscape and other elements as the basis of forming characteristic landscape and uses the multi-level and three-dimensional nature of natural landscape space as the expression means of constructing impressionable regional landscape.

4.3.3. **No differentiation.**

The village construction emphasizes the embedded landscape, the architectural monomer, the public building and so on design does not seek differentiation, thus forms have the regional characteristic folk residence landscape.

5. **Measures and Proposals for Strengthening the Construction of Eco-livable Villages in Wenzhou**

The construction of ecological livable villages must take the protection of the rural ecological environment as the premise and draw lessons from the experience of local traditional village construction to guide the construction of Wenzhou ecological livable villages at present.

5.1. **Co-construction and co-governance and sharing, and innovation of ecological environment supervision mechanism**

The construction of eco-livable villages should not only improve the appearance of villages but also pay attention to the construction of facilities such as rural garbage treatment, river treatment, and operation and maintenance management. The protection of the ecological environment, on the one hand, should actively integrate into the governance pattern of co-construction and co-management and sharing in the new era, change the passive management mode, which is mainly guided by inspection and rectification, and change to the territorial management mode of active sinking and active discovery.[13]On the other hand, rural areas have the characteristics of a wide range of people, the development of the work needs the participation of villagers. We should change our thinking, actively cultivate the villagers' civilization consciousness, and think and innovate the working methods from the angle of "want him to do" to "he wants to do ", and Jiangxi and other places have set up "garbage exchange banks ", formulated detailed points and exchange rules, encouraged the masses to classify daily garbage, waste articles and so on, to exchange daily necessities, gradually formed a good situation for everyone to participate in environmental hygiene in the village, and promoted the villagers' awareness of environmental protection and the sense of ownership of rural construction.

5.2. **Strengthening top-level design to promote rural park construction**

The systematic construction of rural parks is an innovative measure to promote the integration of urban and rural development and is an effective grasp of ecological environment restoration, rural life, and ecological quality improvement in rural areas.[15] Wenzhou should speed up the introduction of rural park construction standards, take the local villagers' demands as the starting point, combine the needs of foreign temporary residents and urban residents' rural tourism, pay attention to the location, function allocation, and design guidance of rural parks.
from the top-level design level, and construct a rural park construction model suitable for Wenzhou rural areas, meet the needs and show the characteristics of rural natural ecology and human ecology. In the process of implementation, each village and town street should combine its characteristics, pay attention to project linkage and regional cultural characteristics excavation, speed up the construction of rural parks, sum up experience, and better provide support for the construction and development of ecological livable villages in Wenzhou.

5.3. Adhere to local conditions and choose a construction model suitable for regional development

The construction of eco-livable villages must adhere to the basic principles of field investigation, local conditions, and people-oriented, and avoid applying the experience of urban construction directly to rural construction, resulting in a waste of manpower, material, and financial resources. First, the construction of eco-livable villages should follow the texture of the village, and retain the "soil aesthetic"[16] so that the development of rural landscape returns to a benign and healthy track. Second, the integration of multi-disciplinary and professional, multi-professional background talents to discuss rural development, choose the construction model suitable for rural development, should become an important method of ecological livable rural construction. Third, the construction of ecological livable villages has a long way to go. We should formulate long-term development goals and implement them step by step according to the stage goals. When completing the construction tasks of various facilities, we should also pay attention to raising the awareness of environmental protection of village collectives and villagers.

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References


