

The Role of Environmental Design in Rural Revitalization

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Abstract: This paper provides an in-depth study on the overview of environmental design, the application of environmental design in rural revitalization, the challenges and countermeasures of environmental design in rural revitalization, and case studies. Firstly, this paper gives an overview of environmental design, clarifies the definition, classification and characteristics of environmental design, and introduces the development trend of environmental design. Secondly, this paper discusses the application of environmental design in rural revitalization, including the improvement of rural environment, the promotion of rural economic development, and the inheritance and innovation of rural society and culture. Then, this paper analyzes the challenges faced by environmental design in rural revitalization, such as the limited nature of rural resources, the low participation of rural residents as well as the lack of policy support and professional talents for rural environmental design, and puts forward corresponding countermeasures.

Keywords: Environmental Design; Rural Revitalization; Rural Environment Improvement; Rural Economic Development; Rural Social and Cultural Heritage.

1. Introduction

With the rapid social and economic development and urbanization process, rural areas are facing multiple challenges such as ecological environment deterioration, lagging economic development and social and cultural decline. Against this background, the strategy of rural revitalization came into being, aiming at the comprehensive revitalization and sustainable development of the countryside. As an interdisciplinary field involving architectural design, landscape planning, ecological environmental protection and other aspects, environmental design plays an important role in rural revitalization. This paper examines the application of environmental design in rural revitalization and explores its impact on rural environmental improvement, economic development and social and cultural inheritance, with a view to providing useful references and inspiration for rural construction.

2. Overview of Environmental Design

2.1. Definition and Content of Environmental Design

Environmental design is an interdisciplinary design activity aimed at creating and improving the interaction between people and the natural environment. It covers a wide range of fields, including architectural design, urban planning, landscape design, interior design, etc. It is human-centered, focusing on the physiological and psychological needs of human beings, and through spatial organization and environmental creation, it improves the quality of life and enhances the harmonious symbiosis between human beings and the environment.

Spatial planning and design: Through scientific spatial layout and design, create an environment that meets functional needs as well as has a sense of aesthetics and comfort. This includes the design of internal and external spaces of buildings, as well as urban and rural planning.

Environmental art design: through artistic methods, using

various environmental elements, such as color, shape, materials, etc., to create an environment with a sense of beauty and cultural connotation. This includes not only public art design, but also environmental signage design and so on.

Eco-design: Focusing on environmental protection and sustainable development, it reduces damage to the environment and improves the self-repairing ability of the environment through green architecture and ecological landscape.

Interior design: focusing on the physiological and psychological needs of people, creating an indoor environment that meets functional needs as well as aesthetics and comfort through rational design.

Social design: human-centered, focusing on social problems and human needs, solving social problems and improving social quality through design.

The goal of environmental design is to create an environment that meets human needs while protecting and developing the environment, and to realize a harmonious symbiosis between people and the environment. This not only helps to improve the quality of life, but also helps to realize sustainable development.

2.2. Classification and Characteristics of Environmental Design

Environmental design is a design activity based on the harmonious coexistence of human beings and nature, which covers a wide range of fields, including urban planning, architectural design, landscape design, interior design and so on. The core objective of environmental design is to create sustainable, healthy, comfortable and beautiful living and working environments.

Environmental design can be categorized from different perspectives. According to the object and scope of design, it can be divided into urban environmental design, rural environmental design, indoor environmental design, etc.; according to the content and purpose of design, it can be divided into landscape design, architectural design, public art design, environmental art design, etc. [1].

First of all, environmental design focuses on the harmonious coexistence of man and nature. In the design process, designers need to fully consider the characteristics of the natural environment, ecological environment and humanistic environment in order to achieve the harmonious coexistence of man and nature. For example, in building design, the damage to the natural environment can be reduced through the use of green building materials, energy-saving technologies and other means. Secondly, environmental design emphasizes sustainability. Designers need to give full consideration to the sustainable use of resources and the protection of the environment in the design process, in order to realize the long-term stable development of design works. For example, in landscape design, the ecological environment can be protected and improved by adopting ecological landscape design techniques. Again, environmental design focuses on the unity of functionality and aesthetics. Designers need to meet the use of functional basis, pay attention to the aesthetics of the design work, in order to improve people's quality of life and work efficiency. For example, in interior design, a comfortable and beautiful indoor environment can be created through reasonable space layout and color matching [2]. Finally, environmental design has strong comprehensiveness and intersectionality. It involves a number of subject areas, such as architecture, urban planning, landscape design, environmental science, etc., which requires designers to have interdisciplinary knowledge and skills.

2.3. Development Trend of Environmental Design

As a comprehensive discipline, environmental design has gained wide attention and application in recent years. With the progress of society and the development of science and technology, environmental design is also constantly developing and changing. The following are the development trends of environmental design.

First of all, environmental design will pay more attention to the harmonious coexistence of human and nature. As people pay attention to the ecological environment, environmental design will pay more attention to the protection and repair of the natural environment, emphasize the harmonious symbiotic relationship between man and nature, and promote the concept of sustainable development [3]. Secondly, environmental design will pay more attention to social participation and public awareness. Environmental design is not only the work of professional designers, but also requires the participation and recognition of the general public. Future environmental design will pay more attention to public participation and feedback, through education and publicity to enhance the public's awareness of environmental protection, the formation of the whole society to participate in the environmental design atmosphere. Again, environmental design will pay more attention to the application of science and technology and innovation. The progress of science and technology provides more possibilities and tools for environmental design. Future environmental design will pay more attention to the application of science and technology, such as digital technology, big data analysis, etc., to solve environmental problems in a more scientific and efficient way. Finally, environmental design will pay more attention to synthesis and interdisciplinary integration. Environmental design is not only a single visual design, but also covers planning, architecture, landscape, art and other disciplines. The future

environmental design will pay more attention to the integration of interdisciplinary, to solve complex environmental problems with a comprehensive perspective and innovative approach.

3. Application of Environmental Design in Rural Revitalization

3.1. Improvement of Rural Environment by Environmental Design

3.1.1. Restoration and Protection of Ecological Environment

The restoration and protection of the ecological environment is an important aspect of rural revitalization, and environmental design plays a vital role in it. First of all, environmental design can put forward scientific and reasonable restoration programs through the assessment and planning of the rural ecological environment in order to realize the restoration and protection of damaged ecosystems. For example, through vegetation restoration, water management and other measures, it can effectively improve the ecological environment of rural areas, and improve the utilization efficiency of land and the stability of the ecosystem. Secondly, environmental design can also protect and promote the ecological culture of the countryside through the planning and design of ecological landscape. For example, focusing on the protection of the original natural landscape and idyllic scenery in the construction of the countryside can attract tourists and promote the development of rural tourism, and at the same time protect and inherit the ecological culture of the countryside. In addition, environmental design can also improve the quality of life of rural residents by promoting green architecture and sustainable lifestyles, while reducing damage to the environment. For example, by designing energy-saving and environmentally friendly houses and public facilities, it can reduce energy consumption and carbon emissions, improve resource utilization efficiency, and achieve sustainable development.

In general, environmental design plays an important role in ecological environment restoration and protection in rural revitalization, which can not only improve the ecological environment of the countryside, improve the land use efficiency and ecosystem stability, but also protect and inherit the ecological culture of the countryside, improve the quality of life of the rural residents, and achieve sustainable development [5].

3.1.2. Optimization and Beautification of Rural Landscape

Environmental design plays a crucial role in rural revitalization, especially in the optimization and beautification of rural landscape. First of all, environmental design makes the rural landscape more harmonious and beautiful by planning and designing the natural and built environment of the countryside. Designers can create characteristic rural landscapes through the rational use of natural elements such as terrain, vegetation, water bodies, etc., to enhance the overall image and attractiveness of the countryside. Secondly, the environmental design pays attention to the protection and utilization of the historical and cultural heritage of the countryside, so that the rural landscape has unique local characteristics and cultural connotations. Designers can create rural landscapes with historical flavor through the protection and development of traditional

architecture, historical sites, folk culture and other resources to attract tourists and investors. In addition, environmental design also focuses on improving the quality of life and happiness of rural residents. Designers can create a livable and workable rural environment by improving the public space, facilities and ecological environment in the countryside, provide more leisure and entertainment and spiritual and cultural needs, and meet the material and spiritual needs of rural residents.

In conclusion, environmental design plays an important role in the optimization and beautification of rural landscape in rural revitalization. Through the guidance and implementation of environmental design, it can make the rural landscape more beautiful and livable, protect and inherit the cultural heritage of the countryside, enhance the attractiveness and competitiveness of the countryside, and promote the economic development and social progress of the countryside.

3.2. Promotion of Environmental Design to Rural Economic Development

3.2.1. Development of Rural Tourism

The role of environmental design in rural revitalization is not only reflected in the restoration and protection of the ecological environment, the optimization and beautification of the rural landscape, but also in the development of rural tourism. Rural tourism, as an emerging form of tourism, has developed rapidly in China in recent years. Environmental design enhances the attractiveness and competitiveness of rural tourism through the excavation and integration of rural natural scenery, historical culture, folk characteristics and other resources [6].

First of all, environmental design focuses on the protection and optimization of rural natural landscape. In the development of rural tourism, the beautiful natural environment is an important factor in attracting tourists. Environmental design has created rural tourism landscapes with their own characteristics through the reasonable use and transformation of natural elements such as terrain, landforms, water bodies and vegetation. For example, some villages have attracted a large number of tourists to come to enjoy and experience through ecological agriculture, flower sea landscape, wetland parks and other ways. Secondly, environmental design pays attention to the inheritance and innovation of rural history and culture. Rural tourism is not only the display of natural landscape, but also the dissemination of rural history and culture. Environmental design in the development of rural tourism, focusing on ancient buildings, ancient villages, historical sites and other protection and restoration, while using modern design techniques to innovate rural cultural display forms, so that rural tourism has more cultural connotations. For example, some places through the organization of traditional festivals, intangible cultural heritage demonstrations and other activities, so that tourists have an in-depth understanding of rural history and culture. In addition, environmental design also promotes the transformation and upgrading of rural industry. The development of rural tourism has led to the prosperity of rural catering, lodging, shopping and other industries, and promoted the farmers to increase their income. Environmental design enhances the overall competitiveness of industries through the planning and design of rural industries. For example, some villages have optimized and upgraded their industrial structure through the development

of characteristic lodgings, rural tourism commodities, and agro-homes. However, there are some problems in the process of rural tourism development, such as the limited nature of rural resources, low participation of rural residents, and insufficient awareness of environmental protection. These problems need us to pay attention to and take corresponding measures to solve them in environmental design. In short, environmental design plays an important role in rural revitalization and injects new vitality into rural revitalization through the planning and development of rural tourism [7].

3.2.2. Transformation and Upgrading of Rural Industries

The role of environmental design in rural revitalization is not only reflected in the restoration and protection of the ecological environment and the optimization and beautification of the rural landscape, but also plays an important role in promoting the transformation and upgrading of the rural economy. Specifically, environmental design has injected new vitality into the rural economy through the transformation and upgrading of rural industries.

First of all, environmental design promotes the development of rural tourism. With the improvement of people's living standards, the demand for leisure tourism is also growing. Environmental design through the integration and optimization of natural landscape, traditional culture and other resources in the countryside, to create attractive rural tourism products, attracting a large number of tourists, driving the development of rural tourism. The development of rural tourism not only brings economic benefits to the countryside, but also promotes the spread of local culture and rural revitalization. Secondly, environmental design promotes the transformation and upgrading of rural industry. Through the analysis and planning of rural industry, environmental design promotes the development of rural industry from traditional agriculture to modern agriculture, rural tourism, cultural creativity and other diversified directions. For example, agricultural parks and agricultural product e-commerce platforms created through environmental design have enhanced the value and added value of agriculture and injected new impetus into the rural economy. In addition, environmental design has also promoted the development of the rural tertiary industry. Environmental design has attracted a large number of investments and talents, bringing new development opportunities to the countryside. For example, investors attracted by environmental design have established eco-agricultural bases and cultural and creative parks in the countryside, which has driven the development of the third industry in the countryside, provided more employment opportunities, and improved the living standards of local residents [8].

In summary, the role of environmental design in rural revitalization should not be ignored. By promoting the transformation and upgrading of rural industries, environmental design has injected new vitality into the rural economy and promoted the comprehensive revitalization of the countryside. In the future development, we should further pay attention to the role of environmental design, strengthen the policy support and professional personnel training for environmental design, and give full play to the role of environmental design in rural revitalization.

3.3. Inheritance and Innovation of Environmental Design to Rural Society and Culture

3.3.1. Excavation and Inheritance of Traditional Culture

The role of environmental design in rural revitalization is not only reflected in the improvement of ecological environment and economy, but also in the excavation and inheritance of traditional rural culture. Rural traditional culture is the spiritual pillar of a region and the witness of historical development, but in modern society, subject to the impact of urbanization and industrialization, rural traditional culture is facing the danger of extinction. As a comprehensive design activity, environmental design can excavate and inherit the traditional culture of the countryside through the following aspects.

First of all, environmental design can protect and repair the traditional buildings in the countryside. The traditional architecture of the countryside is an important carrier of traditional culture. Protecting and restoring the traditional architecture through environmental design can preserve the historical lineage of the countryside and let the descendants understand the history and culture of the countryside. Secondly, environmental design can plan and design the public space in the countryside. Public space in the countryside, such as squares, parks, streets, etc., is an important place for the daily life of countryside residents, and also an important birthplace of countryside culture. Planning and designing the public space in the countryside through environmental design can improve the environmental quality of the countryside and enhance the cultural identity of the countryside residents [9]. Again, environmental design can integrate the traditional cultural elements of the countryside into the rural environment through art creation and installation art. The traditional cultural elements of the countryside, such as folk art, folk activities, traditional handicrafts and so on, are an important part of rural culture. Integrating these traditional cultural elements into the rural environment through environmental design can enhance the cultural atmosphere of the countryside and improve the attractiveness of the countryside. Finally, environmental design can promote the protection and inheritance of intangible cultural heritage in the countryside. The intangible cultural heritage of the countryside, such as folk music, folk dance, traditional festivals and so on, is an important resource of rural culture. The protection and inheritance of these intangible cultural heritages through environmental design can protect and inherit the cultural diversity of the countryside.

In general, the role of environmental design in rural revitalization is to protect and pass on the traditional culture of the countryside and enhance the cultural charm and attractiveness of the countryside through the protection and restoration of traditional buildings, planning and designing of public space, integration of traditional cultural elements, and promotion of the protection and inheritance of intangible cultural heritage.

3.3.2. Cultivation and Development of Rural Community Culture

Environmental design plays an important role in rural revitalization, one of which is the cultivation and development of rural community culture. Rural community culture is the spiritual pillar of rural revitalization, which is of great significance in enhancing the sense of belonging and identity of rural residents and strengthening rural cohesion

[10].

First of all, environmental design can create an environment conducive to communication and interaction through the planning and design of rural public space to promote communication and contact between rural residents. For example, by designing public spaces such as village squares and cultural centers, it can provide a place for village residents to gather and communicate, thus enhancing the cohesion of the village community. Secondly, environmental design can excavate and inherit the traditional culture of the countryside and enhance the cultural connotation of the countryside. Through the protection and inheritance of traditional architecture, folk activities, handicrafts, etc., environmental design can help rural residents understand and love their own cultural traditions, and enhance the uniqueness and charm of rural culture. In addition, environmental design can also introduce new cultural elements and cultural activities to enrich the cultural life of rural residents and promote the development of rural community culture. For example, by organizing cultural and art festivals, exhibitions, lectures and other activities, it can enhance the cultural literacy and aesthetic level of rural residents and stimulate the cultural creativity of rural communities.

In summary, environmental design plays an important role in rural revitalization for the cultivation and development of rural community culture. Through environmental design, it can create a rural public space conducive to communication and interaction, excavate and inherit the traditional culture of the countryside, introduce new cultural elements and cultural activities, promote the development of rural community culture, and enhance the cohesion and uniqueness of the countryside [11].

4. Challenges and Countermeasures of Environmental Design in Rural Revitalization

4.1. The Limited Nature of Rural Resources and the Sustainable Development of Environmental Design

The limited nature of rural resources and the sustainable development of environmental design is a major challenge in rural revitalization. Rural areas are often rich in natural resources, but at the same time there are problems of over-exploitation of resources and environmental damage. Therefore, how to realize the sustainable development of the environment while utilizing rural resources is an important issue to be solved by environmental design.

First of all, the limited nature of rural resources is reflected in land, water and vegetation. With the accelerated development of the countryside, the demand for these limited resources is increasing. Over-exploitation and disorderly utilization will lead to the deterioration of the ecological environment, thus affecting the sustainable development of the countryside. Environmental design can optimize the allocation of resources through scientific planning and rational layout, improve the efficiency of resource utilization and reduce the waste of limited resources. Secondly, the sustainable development of environmental design needs to focus on ecological protection and restoration. In the process of rural revitalization, environmental design should emphasize ecological balance and protect and restore the ecological environment. For example, through measures such

as vegetation restoration, water management and soil improvement, the damaged ecological environment should be repaired and the ecological function of rural areas should be improved. At the same time, the environmental design should also emphasize the protection of biodiversity and maintain the stability and resistance of the rural ecosystem. In addition, the sustainable development of environmental design also needs to promote the application of green building and clean energy. In the construction of the countryside, the use of environmentally friendly materials and energy-saving technologies should be promoted to reduce the burden of construction on the environment. At the same time, the countryside's abundant solar energy, wind energy and other renewable energy sources should be utilized to reduce dependence on fossil energy and reduce the impact of energy consumption on the environment.

In summary, the limited nature of rural resources and the sustainable development of environmental design is a complex challenge. It is necessary to realize the sustainable development of the countryside environment from many aspects, such as scientific planning, ecological protection and restoration, as well as green building and clean energy. Through the rational use of rural resources, the protection of the ecological environment, and the promotion of the application of green building and clean energy, it can provide a lasting development power for rural revitalization [12].

4.2. Low Participation of Rural Residents and the Cultivation of Environmental Protection Awareness

In rural revitalization, the low participation of rural residents and the cultivation of environmental protection awareness is an important issue. First, low participation of rural residents is a challenge. Due to the lack of knowledge and understanding of environmental design among rural residents, they are often reluctant to participate in environmental design work. In addition, rural residents are often busy with their livelihoods and do not have enough time and energy to participate in environmental design. Therefore, improving the participation of rural residents requires us to strengthen the publicity and education on environmental design and improve their knowledge and understanding of environmental design. At the same time, we also need to provide convenient channels of participation, such as through community organizations, villagers' meetings and other forms, so that rural residents can easily participate in environmental design. Secondly, the cultivation of environmental protection awareness is also important. Rural residents often do not have a strong sense of environmental protection, and they may have behaviors of over-exploitation and pollution of the environment. In this case, we need to raise the awareness of environmental protection among rural residents through education and training. We can let rural residents understand the importance of environmental protection and learn the knowledge and skills of environmental protection by organizing lectures on environmental protection and conducting practical activities on environmental protection. At the same time, we can also incentivize rural residents to actively participate in environmental protection by formulating village rules and regulations on environmental protection and establishing a reward mechanism for environmental protection.

In general, the low participation of rural residents and the cultivation of environmental protection awareness is an

important issue in rural revitalization. We need to improve rural residents' participation and awareness of environmental protection through publicity and education, providing channels for participation, training knowledge and skills, and establishing rules and incentive mechanisms to promote the sustainable development of rural revitalization.

4.3. Lack of Policy Support and Professional Talents for Rural Environmental Design

The lack of policy support and professional talents for rural environmental design is a major challenge in the current rural revitalization. First of all, the lack of policy support is reflected in the lack of policies, regulations and funding specifically for rural environmental design. The current rural planning policies tend to pay more attention to economic development and infrastructure construction, and do not pay enough attention to environmental design, which makes it difficult to effectively promote rural environmental design. Secondly, the lack of professional talents is another important problem of rural environmental design. Rural environmental design needs designers and planners with specialized knowledge and skills, but there is often a lack of such professionals in rural areas. On the one hand, due to the relatively low attractiveness of rural areas, it is difficult to attract excellent talents to come to work; on the other hand, the educational resources and career development opportunities in rural areas are relatively limited, and it is difficult to cultivate environmental designers with professional quality [13].

This double lack of policy and talent has produced serious constraints on the development of rural environmental design. Without policy guidance and support, rural environmental design lacks development direction and motivation; without the participation and guidance of professionals, rural environmental design is difficult to achieve scientific and reasonable results. Therefore, in order to promote the development of rural environmental design, it is necessary to solve the problem of policy and talent. On the one hand, the government needs to introduce more policies to support the rural environmental design, provide sufficient funds and resources to protect; on the other hand, it needs to strengthen the training and introduction of rural environmental design talents to improve the professional level of rural environmental design. Only in this way can we truly achieve the goal of rural revitalization and make the countryside more beautiful and livable.

5. Conclusion

In the process of rural revitalization, environmental design plays a vital role. Through environmental design, it can not only improve the ecological environment of the countryside and enhance the beauty of the rural landscape, but also promote the economic development of the countryside and inherit and innovate the social culture of the countryside. However, environmental design also faces a series of challenges in rural revitalization, such as limited resources, low participation of rural residents, lack of policy support and professional talents. China's countryside has rich natural resources and deep cultural heritage, in order to realize rural revitalization, the role of environmental design must be given full play. First, the government should increase policy support for rural environmental design, encourage and guide rural residents to participate in environmental protection and

construction. Secondly, it should strengthen the training of environmental design professionals and improve the overall level of rural environmental design. In addition, rural residents should improve environmental awareness, actively participate in environmental design, and jointly build a beautiful home.

In short, environmental design plays a pivotal role in rural revitalization. By strengthening environmental design, it can effectively improve the rural environment, promote rural economic development, inheritance and innovation of rural society and culture. Let us work together to give full play to the role of environmental design in rural revitalization and contribute to the construction of a beautiful countryside.

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